

Volume I
Final

**ENVIRONMENTAL IMPACT STATEMENT
FORT ORD DISPOSAL AND REUSE**

June 1993

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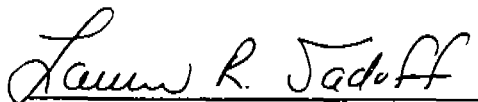


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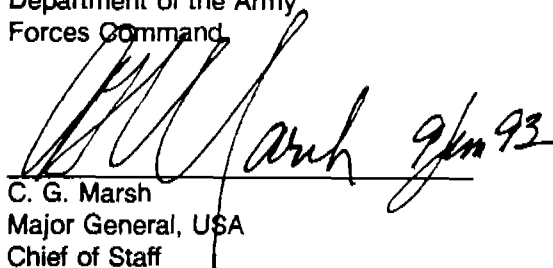
FINAL
ENVIRONMENTAL IMPACT STATEMENT
FORT ORD DISPOSAL AND REUSE

Prepared by:
U.S. Army Corps of Engineers
Sacramento District



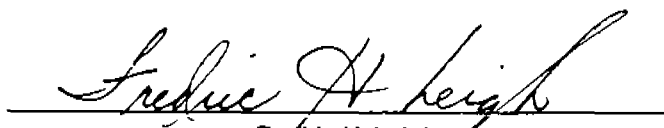
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FINAL ENVIRONMENTAL IMPACT STATEMENT

LEAD AGENCY: Department of the Army, Forces Command (FORSCOM)

TITLE OF PROPOSED ACTION: Disposal and Reuse of Fort Ord, CA

AFFECTED JURISDICTION: State of California; Monterey County; Cities of Marina and Seaside

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APPROVED BY: Mr. Lewis D. Walker, Deputy Assistant Secretary of the Army (Environment, Safety and Occupational Health)

ABSTRACT: Fort Ord is an approximately 28,000-acre installation. The proposed Army actions supported by this document include establishing an approximately 1,500-acre Presidio of Monterey (POM) annex on Fort Ord to provide operations support to the military services remaining in the Monterey area; retaining a 12-acre reserve center complex on Fort Ord to support local reserve units; and disposing of excess property at Fort Ord. Other Army actions associated with closure of Fort Ord are discussed in this document but are not analyzed in detail. These actions are closing Fort Ord and placing the installation in a caretaker status before disposal decisions are made. Actions of other federal, state, and local entities following disposal are analyzed in reuse discussions, although this document does not fully support these subsequent actions.

Alternative actions are analyzed in the document, including a modified POM annex proposal developed by the City of Seaside and a proposal to have no annex or reserve center on Fort Ord. The Army, in cooperation with local planning entities, developed land reuse alternatives. A wide range of reuse alternatives including high-, medium- and low-density mixed-use alternatives; an alternative composed primarily of institutional uses (educational, governmental, and public/quasi-public); an open space alternative; and an anticipated reuse alternative (the Army's preferred Alternative) are compared to 1991 baseline conditions. In the preferred alternative, the disposal process would result in the transfer of approximately 23,500 acres to federal, state, and local agencies, who have applied for lands through the real estate screening process, and in the sale of approximately 3,000 acres.

The disposal and reuse actions described in this document would result in impacts on federally protected plant and wildlife species and sensitive plant communities and wildlife habitat, loss of soil resources and accelerated erosion, loss of federal protection for, and impacts on, historic structures, deterioration of infrastructure from reduced maintenance, risks to public health from reduced security, social and economic disruptions to Monterey Bay area communities, development in floodplains and increased urban runoff to surface waters, need for expansion of infrastructure, exposure of additional people and property in a seismically active area, elimination of a large track of open space, visual impacts; increased violations of state and federal air quality standards; creation of substantial congestion on Fort Ord area roadways; and effects on the coastal zone and Monterey Bay National Marine Sanctuary.

REVIEW DEADLINE: End of the public review period will be 30 days from the publishing date for this document.

FINAL ENVIRONMENTAL IMPACT STATEMENT ORGANIZATION

This environmental impact statement (EIS) addresses the disposal and reuse of Fort Ord. It provides the analysis of specific base realignment and closure actions and their environmental effects as required by the President's Council on Environmental Quality regulations, National Environmental Policy Act, and Army Regulation 200-2.

The final EIS consists of Volumes I and IV. Volumes II and III have not been revised or reprinted. Page revisions to Volumes II and III are included in Volume IV, Section 6.0. A new unpublished volume, Volume V, has been added, as described below.

VOLUME I

Volume I of the draft EIS has been revised and reprinted as part of the final EIS. The location of revisions, additions, and deletions to the text have been indicated by a line in the right margin.

EXECUTIVE SUMMARY summarizes the EIS but is not meant to replace the detailed evaluations contained in the EIS.

- Section 1.0 **PURPOSE, NEED, and SCOPE** describes the relevant background information on the proposed action and summarizes its objectives and scope of the analyses required in the EIS.
- Section 2.0 **PROPOSED ACTION** includes a thorough description of the Army's proposed action analyzed in this EIS.
- Section 3.0 **ALTERNATIVES** examines the reuse alternatives analyzed in this EIS.
- Section 4.0 **AFFECTED ENVIRONMENT** describes existing biophysical and socioeconomic conditions.
- Section 5.0 **ENVIRONMENTAL AND SOCIOECONOMIC CONSEQUENCES** contains the environmental and socioeconomic effects of the proposed action and alternatives, including a summary comparison of reuse alternatives.
- Section 6.0 **DETAILED ANALYSIS OF ALTERNATIVE 6R** contains the scientific and analytic basis for the summary of environmental effects of the revised Alternative 6.
- Section 7.0 **REFERENCES** contains information to assist the reader in easily locating any reference cited in the report.
- Section 8.0 **LIST OF PREPARERS** identifies all persons involved in preparing this document and describes their qualifications.
- Section 9.0 **PERSONS CONSULTED** lists persons and agencies who provided information to the preparers of this report.
- Section 10.0 **DISTRIBUTION LIST** includes public agencies, public interest groups, organizations, and individuals from whom review and comment of the draft EIS was requested.

An **INDEX** is provided at the end of Volume I that alphabetically lists the types of environmental effects induced by the different alternatives.

An **ACRONYM LIST** (fold-out) is provided immediately following the list of referenced material.

A **LIST OF REFERENCED MATERIAL** not included in the EIS or technical appendices is available for review at the information repository established at Seaside Branch Library, 550 Harcourt Avenue, Seaside, CA 93955, 408/899-2055.

VOLUME II

DETAILED ANALYSIS OF DISPOSAL AND REUSE contains the scientific and analytic basis for the summary of comparisons of environmental effects of the proposed action and alternatives contained in Volume I, Section 5.0. This section consists of information that substantiates the analyses fundamental to the EIS and relevant to the decision makers.

This volume has not been reprinted as part of the final EIS. Revisions to Volume II are contained in Volume IV, Section 6.0. The location of revisions, additions, and deletions to the text has been indicated by a line in the right margin.

VOLUME III

TECHNICAL APPENDICES consist of material that substantiates the analyses fundamental to the EIS and relevant to the decision makers.

This volume has not been reprinted as part of the final EIS. Revisions to Volume III are contained in Volume IV, Section 6.0. The location of revisions, additions, and deletions to the text has been indicated by a line in the right margin.

VOLUME IV

Section 1.0 **INTRODUCTION** describes the contents of the final EIS.

Section 2.0 **LIST OF COMMENTERS** lists the name and address of each agency, organization, or individual who commented on the draft EIS.

Section 3.0 **COMMON COMMENTS AND RESPONSES** includes common comments that consist of similar individual comments and responses.

Section 4.0 **ALL COMMENTS RECEIVED** contains all written comment letters and verbal testimony received at the public hearing.

Section 5.0 **RESPONSES TO SPECIFIC COMMENTS** contains responses to specific comments not included in the common comments in Section 3.0.

Section 6.0 **INFORMATION RESPONDING TO COMMENTS** contains page revisions to Volumes II and III of the draft EIS.

Revisions have been made to the following sections in Volume II: Land Use; Socioeconomics; Soils, Geology, Topography and Seismicity; Public Services and Utilities; Water Resources; Traffic and Circulation; Air Quality; Hazardous and Toxic Waste Site Remediation; Vegetation, Wildlife, and Wetland Resources; and Visual Resources.

Revisions have been made to the following appendices in Volume III:

- D - Presidio of Monterey Annex,
- H - Land Use Definitions,
- I - Methodology Used to Evaluate Regional Socioeconomic Effects of Reuse Alternatives,
- J - Public Services and Utilities,
- K - Water Resources,
- M - Traffic and Circulation, and
- N - Air Quality.

The following new appendices have been added:

- Q - Assumptions Used in the EIS,
- R - Draft Conceptual Installationwide Multispecies Habitat Management Plan for Fort Ord, and
- S - Draft Consistency Determination for Federal Activity in the Coastal Zone.

VOLUME V

REAL ESTATE SCREENING REQUESTS contains copies of the letters of intent received through the federal, state, and local real estate screening process. Volume V is an unpublished document available upon request or for review at the information repository established at the Seaside Branch Library and at other libraries in the Monterey Region.

Copies of Volumes I, II, III, IV and V are available for review at the information repository or upon request.

Executive Summary

INTRODUCTION

The Department of the Army is reducing its force structure in response to changing global security requirements, resulting in fewer Army installations needed to station the smaller force. The process to determine the installations that would be closed and/or realigned was established in the Defense Base Closure and Realignment Act of 1990 (1990 Base Closure Act), Public Law 101-510. The Defense Base Realignment and Closure Commission's 1991 recommendations for base realignments and closure, commonly referred to as BRAC 91, require Fort Ord, California, to be closed and the 7th Infantry Division (Light) (IDL) to be relocated to Fort Lewis, Washington. The 1990 Base Closure Act specifies that the National Environmental Policy Act (NEPA) is applicable to base closures during the process of property disposal. The act does not require nor specify a time limit for disposing of the excess Fort Ord land. The Conference Report for House Resolution 2100 (HR 2100) the National Defense Authorization Act for fiscal years 1992 and 1993, directed the Army to proceed immediately with an environmental impact statement (EIS) for the disposal and reuse of Fort Ord specifically addressing socioeconomic effects of the Army relocating from the Monterey Bay area. These two legislative actions (1990 Base Closure Act and HR 2100) have helped define the proposed action for this EIS and the level of impact analysis required to support the action.

PROPOSED ACTION

The proposed action analyzed in this EIS is the disposal of excess property made available by the closure of Fort Ord, with the retention of the U.S. Army Reserve Center and establishment of a Presidio of Monterey (POM) annex. The socioeconomic impacts of relocating the active Army from the Fort Ord community are analyzed in this EIS, following the language of the conference report for HR 2100. Reasonable alternative uses of the property after disposal are identified and evaluated.

Fort Ord is operated as a permanent installation of Headquarters, Department of the Army, Forces Command. The primary mission of Fort Ord is to train troops, but it also provides command, administration, and logistical support and other functions necessary to operate and maintain facilities at Fort Ord and its subinstallations, the Presidio of Monterey, and Fort Hunter Liggett. It also supports active Army tenant units and other activities as assigned, attached, or stationed, including satellite activities off the installation.

Fort Ord is an Army installation located along the Pacific Ocean in northern Monterey County, California, approximately 100 miles south of San Francisco. Fort Ord occupies approximately 28,000 acres adjacent to Monterey Bay (a national marine sanctuary) and the Cities of Marina, Seaside, Sand City, Del Rey Oaks, and Monterey. The Southern Pacific Railroad and State Highway 1 (also known as State Route 1) cross the western section of Fort Ord, separating the beachfront from the majority of the installation. Fort Ord is bordered on the east by undeveloped land. Of the total Fort Ord acreage, 73% (approximately 20,000 acres) is in unincorporated Monterey County, 15% (approximately 4,100 acres) is within the Seaside city limits, and 12% (approximately 3,400 acres) is within the Marina city limits.

As the 7th IDL realigns from Fort Ord, the Army will place structures, utilities, and operation and maintenance systems into a caretaker status until property disposal decisions are implemented. If environmental restoration is not accelerated, the Army may retain segments of the lands remaining outside the POM annex and reserve center in a caretaker status until restoration is complete.

Remediation and cleanup of contaminated sites are ongoing activities. All sites known to be contaminated shall be remediated by the Army to levels that meet federal, state, and local regulations and protect human health and the environment; shall be remediated to appropriate levels, considering available technology, cost, environmental factors, and interim and future uses; and shall be certified clean by proper authorities before they are reused, transferred, or sold. Unexploded ordnance also will be cleared to appropriate levels, considering available technology, cost, environmental factors, and interim and future land uses.

A real estate screening process is being used to determine other governmental agencies' interest and requirements for lands excess to Army needs, as well as Stuart B. McKinney Homeless Assistance Act (McKinney Act) requirements. After interest in lands has been identified, applicable real estate procedures will be used at the Army's discretion to determine the appropriate disposition of available lands. Approximately seven federal agencies, five California state agencies, and 14 local agencies and organizations have expressed interest in Fort Ord lands.

The processes associated with disposal and reuse are shown in Figure ES-1.

Approximately 26,500 acres, or 95% of the installation, will be available for disposal. The remainder of the installation will be retained as a POM annex and reserve center. The Army will dispose of the property as governed by the 1990 Base Closure Act; the Federal Property and Administrative Services Act of 1949, as amended; and federal property management regulations.

The Army plans to establish a POM annex of approximately 1,500 acres to provide support to the Presidio of Monterey. The Army also plans to retain, under military control, a 12-acre parcel of land with a 21,000-square-foot reserve center, located at Imjin Gate near Reservation Road.

The primary focus of this EIS is to evaluate the environmental impacts of disposing of excess Fort Ord property after closure. The Army intends to initiate the disposal process consistent with the results of real estate screening and ongoing negotiations with federal, state, and local entities. The process includes some interim actions to maintain the property and provide cleanup needed to support future uses. Disposal will ultimately result in the transfer of title to property from the Army to other federal, state, and local agencies or to private parties. Reuse of the property, which is an action to be taken by others, is analyzed in this document as an indirect or secondary effect of executing the proposed action.

The reuse development process is evolving, plans are continuously being revised, and new plans may be forthcoming. The Army has identified five levels of development intensity to categorize foreseeable reuse alternatives. These categories are sufficiently defined to identify planning-level effects for consideration by the public and Army decision makers.

This EIS presents a range of reuse alternatives, which represent the range of options presented to the Army through scoping and public involvement. The environmental effects of those alternatives are qualitatively and, in some cases, quantitatively described. The Army plans no further analysis of future uses of the excess property.

The future use of the Fort Ord property, as ownership changes from the Army to a yet unknown owner, is an issue of significant interest to the affected communities. The Army acknowledges its responsibility to ensure, within the limits of its authority, that succeeding uses do not lessen the quality of the community life or degrade the environment. The Army will take steps to ensure that succeeding owners protect historic or cultural resources, endangered species, wetlands, and other valuable resources to the extent possible.

The Army has been working cooperatively with federal, state, and local agencies and the Fort Ord Task Force to determine a broad range of reasonably foreseeable reuse alternatives for inclusion in the draft EIS.

This EIS analyzes the proposed action of disposing of excess Fort Ord property in the following reuse alternatives:

- Alternative 1: High-Intensity Mixed Use,
- Alternative 2: Medium-Intensity Mixed Use,
- Alternative 3: Low-Intensity Mixed Use,
- Alternative 4: Institutional Use,
- Alternative 5: Open Space, and
- Alternative 6R: Anticipated Reuse (Revised).

Each reuse alternative inherently includes the Army's proposed action, which includes retaining Fort Ord lands to establish a POM annex, retaining a reserve center, and disposing of excess Fort Ord property not retained by the Army. For some of the reuse alternatives, subalternatives that do not include the Army's proposed POM annex also are considered and include:

- Subalternative A: No Presidio of Monterey Annex/No Reserve Center,
- Subalternative B: Seaside's Recommended Presidio of Monterey Annex/No Reserve Center, and
- Subalternative C: Partial Variation of High-Intensity Mixed Use.

The no-action alternative, or not disposing of excess Fort Ord property and retaining it in caretaker status, is also analyzed.

ENVIRONMENTAL AND SOCIOECONOMIC CONSEQUENCES

Proposed Action

Pre-Disposal and Disposal

Caretaker actions will include modifying buildings, changing infrastructure, and altering land management and installation operations. Some areas of Fort Ord may be in caretaker status long-term or until contaminated sites can be cleaned. Analysis of the closure actions leading to downsizing the installation and placing it in caretaker status is not within the scope of this EIS.

Disposal of Fort Ord property may entail transferring land and changing the property from exclusively federal legislative jurisdiction to state and local jurisdiction. A positive effect of disposal on the local communities would be the addition of real estate to private interests into the state and local tax base. Economic activity would increase from the hazardous and toxic waste remediation actions, unexploded ordnance disposal, and infrastructure modifications.

A potential negative effect of disposal of large areas of land include temporarily saturating some segments of the local real estate market and reducing sales prices, losing land currently leased from the Army, and altering existing traffic and circulation patterns. Additionally, the transition from federal ownership or management may increase the demand for some municipal services and could result in the loss of federal protection for biological and cultural resources.

Consultation with the U.S. Fish and Wildlife Service Endangered Species Office has been initiated for the proposed action, a biological assessment was prepared and is being used to obtain the U.S. Fish and Wildlife Service biological opinion pursuant to Section 7 of the Endangered Species Act. Additionally, during the caretaker period and before property disposal, the Army will conduct cultural resource investigations and coordination as required by the BRAC cultural resource Programmatic Agreement to meet its Section 106 responsibilities under the National Historic Preservation Act.

Establishment of Presidio of Monterey Annex and Retention of Reserve Center

The POM annex would employ approximately 1,000 civilian employees. This would include a caretaker force; administrative support staff; and employees of the commissary, post exchange, child care center, and other facilities at the annex. The existing 340-person Army reserve center would remain as it presently exists. Establishing the Army's POM annex and retaining the reserve center would not require new construction or development in currently undeveloped areas.

Establishing the Army's POM annex could result in impacts from building modifications, public service systems, infrastructure modifications, traffic accessibility, security conflicts, and loss of emergency services. Building modifications and renovations of 14 buildings would include demolition and repairs that could result in noise, air emissions, and hazardous materials impacts.

Establishing the POM annex would create the need for providing access to the annex. Approximately 5,000 daily trips would be generated, by the Army's POM annex. The main gate on Light Fighter Drive would provide the principal access to the POM annex, but a secondary access route (such as the Broadway Gate or the 12th Street Gate) would also be established. No capacity problems are anticipated. Access would also need to be retained to and from the reserve center.

Establishing Seaside's recommended POM annex would require the City of Seaside to replace all developed facilities that would be lost from the Army's proposed POM annex in the Main Garrison area, except for the two Army golf courses, which would become part of the City of Seaside. This would result in various impacts on watershed hydrology and water quality within the installation; loss of vegetative cover, including rare plant habitat; and changes in basin hydrology. Water demand would decrease to approximately 2,900 acre-feet per year because of the elimination of 400 acre-feet per year of nonpotable water requirements for the golf courses.

The construction of new buildings and roads east of North-South Road would require archeological surveys, new infrastructure, generate traffic, and create air emissions from several sources. Construction and traffic noise impacts would also result. Buildout of Seaside's recommended POM annex would result in the loss of coastal live oak woodland and coastal scrub habitats. Species of special concern and special-interest wildlife species would be adversely affected by habitat losses and potential direct mortality during construction. Highly sensitive views along the coast would be adversely affected by construction of new buildings, renovation of existing buildings, and infrastructure modifications. This could result in a substantial reduction in visual quality for views from State Route 1 and other important visitor use areas in and around Monterey Bay.

Reuse

Alternative 1: High-Intensity Mixed Use. Alternative 1 generally represents the Fort Ord Economic Development Authority (FOEDA) vision for the Cities of Marina and Seaside, the City of Sand City vision, information provided by the Cities of Del Rey Oaks and Monterey, and Monterey County's vision for remaining unincorporated areas. Under this alternative, approximately 65% of the undeveloped land would be developed, with dense urban uses over all of the installation except the far eastern portion. The buildout population would be approximately 250,000.

Alternative 1 would have severe impacts on most environmental resources. The large populations, great expanse of dense urban development, large water and wastewater requirements, endangered species impacts, and conflicts in land use and transportation plans for the region would make this alternative unlikely to be implementable as it is now formulated. Changes would need to be made to be more compatible with physical and environmental constraints and be economically feasible for development and operation within Fort Ord and in the region. It would need to comply with federal laws and policies concerning air quality, endangered species, floodplains, the California coastal zone, the Monterey Bay National Marine Sanctuary, historic preservation, and noise.

Alternative 1, Subalternative C represents the FOEDA vision for the Cities of Marina and Seaside and Monterey County's vision for remaining unincorporated areas. Under this subalternative, approximately 70% of the undeveloped land would be developed, with dense urban uses over all of the installation except the far eastern portion. The buildout population would be approximately 282,600. The primary difference between Alternative 1 and Subalternative C is that Subalternative C includes substantial new development in the coastal zone and, therefore, would result in additional impacts on the coastal zone.

After review of the EIS and as a result of comments received on the draft EIS, this reuse alternative and its subalternatives have been eliminated from further consideration. This alternative does not adequately reflect the results of the real estate screening process and would result in significant environmental impacts if implemented as formulated. No new analyses have been conducted for the final EIS.

Alternative 2: Medium-Intensity Mixed Use. Alternative 2 generally represents the county vision in all of the unincorporated areas and the FOEDA vision in the incorporated areas of the Cities of Marina and Seaside. Under this alternative, approximately 40% of the undeveloped land would be developed, with dense urban uses over the western and northern portions of the installation and much less density in the central and eastern portions. The buildout population would be approximately 112,800.

Alternative 2 would have severe impacts on many environmental resources. The population increases, great expanse of new development, large water and wastewater requirements, endangered species impacts, and conflicts in land use and transportation plans for the region would require substantial revisions and mitigation to be implementable. Changes would need to be made to make this alternative more compatible with physical and environmental constraints and be economically feasible for development and operation within Fort Ord and in the region. It would need to comply with federal laws and policies concerning air quality, endangered species, floodplains, the California coastal zone, the Monterey Bay National Marine Sanctuary, historic preservation, and noise.

After review of the EIS and as a result of comments received on the draft EIS, this reuse alternative and its subalternatives have been eliminated from further consideration. This alternative does not adequately reflect the results of the real estate screening process and would result in significant environmental impacts if implemented as formulated. No new analyses have been conducted for the final EIS.

Alternative 3: Low-Intensity Mixed Use. Alternative 3 generally represents the Fort Ord Task Force recommendation. Under this alternative, approximately 15% of the undeveloped land would be developed, primarily in the north-central portion of the installation, except for a small portion of low-density development in the southern portion. The buildout population would be approximately 82,900.

Alternative 3 would have significant impacts on many environmental resources. The population increases, location and extent of new development, new water and wastewater requirements, endangered species impacts, and conflicts in land use and transportation plans for the region would require revisions and mitigation to be implementable. Changes would need to be made to make this alternative more compatible with physical and environmental constraints and be economically feasible for development and operation within Fort Ord and in the region. It would need to comply with federal laws and policies

concerning air quality, endangered species, floodplains, the California coastal zone, the Monterey Bay National Marine Sanctuary, historic preservation, and noise.

After review of the EIS and as a result of comments received on the draft EIS, this reuse alternative has been eliminated from further consideration. This alternative does not adequately reflect the results of the real estate screening process and would result in significant environmental impacts if implemented as formulated. No new analyses have been conducted for the final EIS.

Alternative 4: Institutional Use. Alternative 4 generally represents preliminary proposals received from other federal, state, and local agencies and incorporates institutional uses from the vision plans proposed by the local agencies and the Fort Ord Task Force. Under this alternative, approximately 10% of the undeveloped land would be developed, primarily in the north-central portion of the installation, except for a small portion of low-density development in the southern portion. The buildout population would be approximately 31,000.

This alternative would have significant impacts on many environmental resources. The location and extent of new development, new water and wastewater requirements, endangered species impacts, and conflicts in land use and transportation plans for the region would require revisions and mitigation to be implementable. Changes would need to be made to make this alternative more compatible with physical and environmental constraints and to be economically feasible for development and operation within Fort Ord and in the region. It would need to comply with federal laws and policies concerning air quality, water quality, endangered species, floodplains, the Monterey Bay National Marine Sanctuary, historic preservation, and noise.

After review of the EIS and as a result of comments received on the draft EIS, this reuse alternative has been eliminated from further consideration. This alternative does not adequately reflect the results of the real estate screening process and would result in significant environmental impacts if implemented as formulated. No new analyses have been conducted for the final EIS.

Alternative 5: Open Space. Alternative 5 represents preliminary open space proposals from other federal and state agencies and incorporates open space uses from the vision plans proposed by the local agencies and the Fort Ord Task Force. Under this alternative, approximately 1% of the undeveloped land would be developed, primarily in the southern portion of the installation. The buildout population would be approximately 4,800.

This alternative would not have significant impacts on most environmental resources. The large amount of open space and recreation resources would be a significant environmental benefit. Operation of this alternative would be costly. The economic effects of the closure of Fort Ord would be significant in the region and would not be offset by this alternative. Modifications to this alternative would be possible to allow development within previously developed areas and the inland range area (impact area) after unexploded ordnance is removed without destroying key biological resources. This would allow a combination of open space and economic backfill uses that would have many of the same environmentally positive effects while allowing for substantial economic recovery or expansion.

After review of the EIS and as a result of comments received on the draft EIS, this reuse alternative and its subalternatives have been eliminated from further consideration. This alternative does not adequately reflect the results of the real estate screening process and would result in significant economic impacts if implemented as formulated. No new analyses have been conducted for the final EIS.

Alternative 6R: Anticipated Reuse (Revised). The revised Alternative 6 represents the Army's preferred alternative for the POM annex, reserve center, and disposal of lands excess to Army needs. Under this alternative, approximately 23,500 acres of Fort Ord that have been requested by other federal, state, and local agencies through the real estate screening process would be transferred to public agencies for the

uses identified in the screening process. The Army will seek fair market value in disposing of the property. The remaining excess land (approximately 3,000 acres) would be disposed to private entities without the Army determining future use. Future use of these lands would be established by the new owners in accordance with local land use requirements and the requirements of regulatory agencies. Under this alternative, approximately 14% of the undeveloped land would be developed. The buildout population would be approximately 22,800.

Infrastructure at Fort Ord, including water supply and distribution, electricity and gas distribution, sewage collection and disposal, roads and street lights, solid waste collection and disposal, storm water collection and disposal, telephone service, and cable television, would be retained by the Army in the short-term to serve the POM annex, reserve center, and any interim uses approved prior to land disposal. The Army would complete engineering analyses of these systems to determine condition and remaining life, and would upgrade the systems as necessary to support the remaining mission at Fort Ord. In the long term, the Army would transfer ownership of these systems to appropriate local entities as reuse occurs and seek local entities to contract for operation and maintenance of the systems serving the remaining Army properties.

This alternative would result in the transfer of most sensitive environmental areas to other federal and state agencies that are able to manage the lands without significant environmental impacts. Transfer of portions of Fort Ord to local agencies would allow for development of educational, recreational, airport business, and institutional uses that would offset the economic effects of closure of Fort Ord. A cooperative agreement is being developed with local agencies, under which the local governments would determine appropriate uses for these lands and coordinate sales to private owners.

Potential Hospital Operation. It is not known if the existing Silas B. Hays Army Community Hospital will be used. Each of the reuse alternatives could be modified to include a variety of hospital scenarios, including no-hospital, combined-care facility, and outpatient facility. A hospital is not included in Alternative 6R because it was not requested through the real estate screening process.

No Action

The No-Action Alternative represents 1991 baseline conditions and is not a reasonable alternative because of the BRAC 91 directive to realign the 7th IDL to Fort Lewis, Washington. "No action" also refers to the retention of the Fort Ord installation by the Army in a caretaker status.

Preferred Action

The Army's preferred action is retention of the U. S. Army Reserve Center, establishment of the Army's proposed POM annex, and initiation of the disposal of lands excess to Army needs in accordance with federal property law. The disposal process will give priority to federal, state, and local agencies who have requested lands during the Army real estate screening process. Lands not transferred to these government agencies would be disposed of to private interests. Approximately 26,500 acres would be disposed. The revised Alternative 6R is the Army's preferred reuse alternative. It is the only alternative that reflects the results of the real estate screening process and includes considerations to avoid or mitigate the significant environmental impacts described in reuse Alternatives 1, 2, 3, 4, and 6.

Mitigation Responsibility

The following mitigation will be implemented by the Army. Other measures are available to mitigate the impacts of Alternative 6R, which could be implemented by other federal, state, or local agencies and private entities responsible for development; they are described in Section 6.0, "Detailed Analysis of

Alternative 6R", in this volume. Mitigation responsibility of others for Alternatives 1-6 is described in Volume II.

- Limit properties that may be outgranted and restrict access to remediation areas.
- Encourage additional CHAMPUS/PRIME providers.
- Provide for public utilities easements.
- Maintain facilities that collect wastewater from areas outside of the POM annex and reserve center.
- Provide for public utilities easements.
- Disclose information on buried utilities to the underground service alert.
- Conduct periodic maintenance.
- Maintain cable service.
- Create a joint powers agreement to ensure proper oversight and maintenance.
- Disclose information on buried water distribution infrastructure to the Underground Service Alert.
- Implement measures during renovation to minimize NO_x emissions (for establishment of the POM annex only).
- Develop and coordinate an installation-wide multispecies habitat management plan. (Agencies and entities receiving Fort Ord lands would implement the HMP.)
- Maintain historic buildings and condition their sale or transfer with protective covenants.
- Conduct archeological surveys of Fort Ord lands.
- Contact California Native American groups that may have traditional cultural properties located on Fort Ord lands.

The majority of mitigation is related to reuse, which is not the Army's action, and would need to be implemented by non-Army entities.

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Section 1.0 Purpose, Need, and Scope

1.1 PURPOSE AND NEED

The Department of the Army is reducing its force structure in response to changing global security requirements, resulting in fewer installations needed to station the smaller force. By 1995, the Army will be reduced to approximately 535,000 active forces and 567,000 reserve components (i.e., Reserve and National Guard). As the Army reduces in size, activities are being realigned and consolidated to the most efficient installations with maximum readiness that are capable of projecting and sustaining combat power in support of national military objectives.

The process to determine installations for closure and/or realignment was established in the Defense Base Closure and Realignment Act of 1990 (1990 Base Closure Act), Public Law 101-510. The military services used criteria established by the Secretary of Defense and approved by Congress and a force structure plan provided by the Joint Chiefs of Staff to recommend closure and realignment actions. The criteria evaluated military value, return on investment from cost savings, and environmental and socioeconomic impacts. A consolidated Department of Defense list of recommended actions was submitted by the Secretary of Defense to a bipartisan commission appointed by the President and confirmed by the Senate. The Defense Base Realignment and Closure Commission (Commission) evaluated the recommendations and sent the findings to the President, who approved and forwarded the recommendations to Congress on July 11, 1991. The Commission's recommendations for base realignments and closure made in 1991 are commonly referred to as BRAC 91. The 1990 Base Closure Act stipulated that the recommendations would be implemented unless Congress disapproved. Congress considered the actions but did not disapprove, and the recommendations are being implemented as required by the act. The 1990 Base Closure Act requires the closure of Fort Ord, California, and the relocation of the 7th Infantry Division (Light) (7th IDL) to Fort Lewis, Washington.

1.2 SCOPE

The 1990 Base Closure Act specifies that the National Environmental Policy Act (NEPA) does not apply to actions of the President, the Commission, or the Department of Defense, except, "(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated."

The 1990 Base Closure Act further specifies that in applying the provisions of NEPA to the process, the Secretary of Defense and the secretaries of the military departments concerned shall not have to consider: "(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected."

Thus, NEPA does not apply to the BRAC 91 deliberation and decision process nor to the closing action itself, but does apply to disposal and reuse of property and to impacts at installations receiving realignments. The Base Closure Act did not specify a time requirement for disposal of excess Fort Ord land.

Following the direction of the Conference Report for House Resolution 2100 (H.R. 2100), the National Defense Authorization Act for fiscal years 1992 and 1993, the Army is proceeding with an environmental impact statement (EIS) for the disposal and reuse of excess property, which addresses the socioeconomic effects of relocating the Army from the Fort Ord community. This conference report does not affect the Army requirement to proceed with the realignment of the 7th IDL to Fort Lewis. The Army's environmental assessment evaluating impacts of receiving the 7th IDL at Fort Lewis, Washington, is available.

1.3 ACTIONS ANALYZED

The proposed action and alternatives described in Sections 2.0 and 3.0, respectively, include the disposal of excess property made available by the closure of Fort Ord, with the retention of a reserve center and establishment of the Presidio of Monterey (POM) annex; the socioeconomic impacts of relocating the active Army from the Fort Ord community; and identification and evaluation of reasonable uses of the property after disposal. The processes associated with disposal and reuse are shown in Figure 1-1.

1.4 PUBLIC INVOLVEMENT

Preparation of the EIS is designed to involve the public in the federal decision making process. In preparing this EIS, comments from concerned individuals, agencies, and organizations are welcome at any time throughout the process, but formal opportunities to comment and participate have been established as outlined in the following sections. In addition, a public involvement plan has been established as an integral part of the EIS process to disseminate accurate and timely information to the community about the disposal and reuse process at Fort Ord, develop ongoing two-way communication with the community, encourage community involvement, and monitor and respond to community concerns. The EIS public involvement process is shown in Figure 1-2. Methods to involve the public in this EIS process include the following:

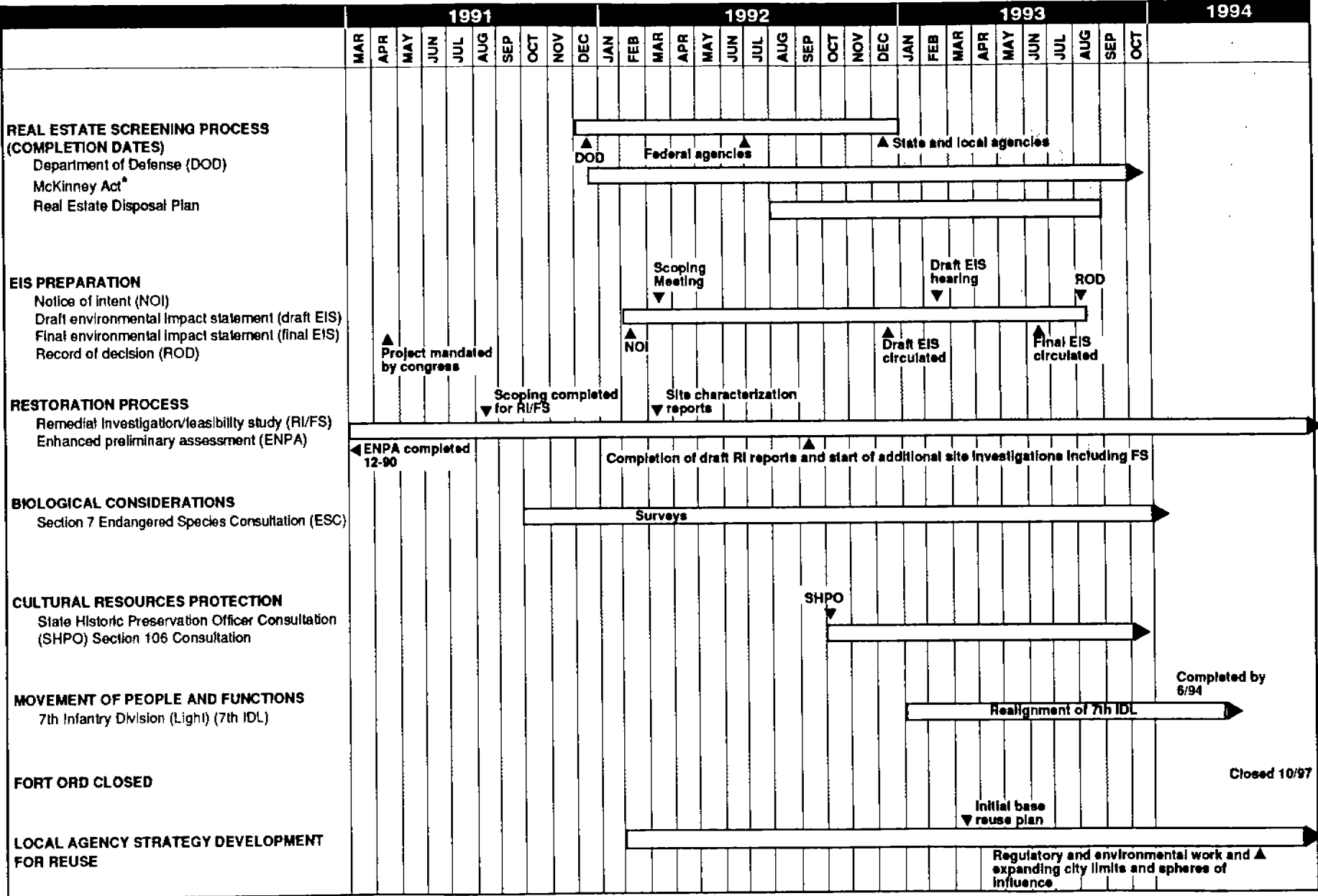
- Designate contact persons to respond to requests for EIS study documents.
- Establish and provide access to technical information in the public repository.
- Conduct periodic public meetings with community members to discuss ongoing activities and provide a forum for expression of concerns; this includes conducting several workshops for local elected officials, representatives of public agencies, public interest groups and associations, and the Fort Ord Task Force (described in Section 2.0, "Proposed Action") and additional workshops for the general public.
- Provide the required public comment period.
- Publish public notice of hearings; mail public announcements; and coordinate media coverage, press releases, and feature articles.
- Create and update a mailing list to disseminate information.
- Prepare and distribute progress reports to parties on the mailing list.

1.4.1 Notice of Intent

The public was notified of the Army's intent to prepare this EIS by publishing a notice of intent (Volume III, Appendix A) in the February 13, 1992 issue of the *Federal Register*. A public notice was published in two local newspapers; press releases were sent to 65 news media; and announcements were sent to public agencies, public interest groups, and individuals known or thought to have an interest in the

Figure 1-1
 Processes Associated with Fort Ord Disposal and Reuse

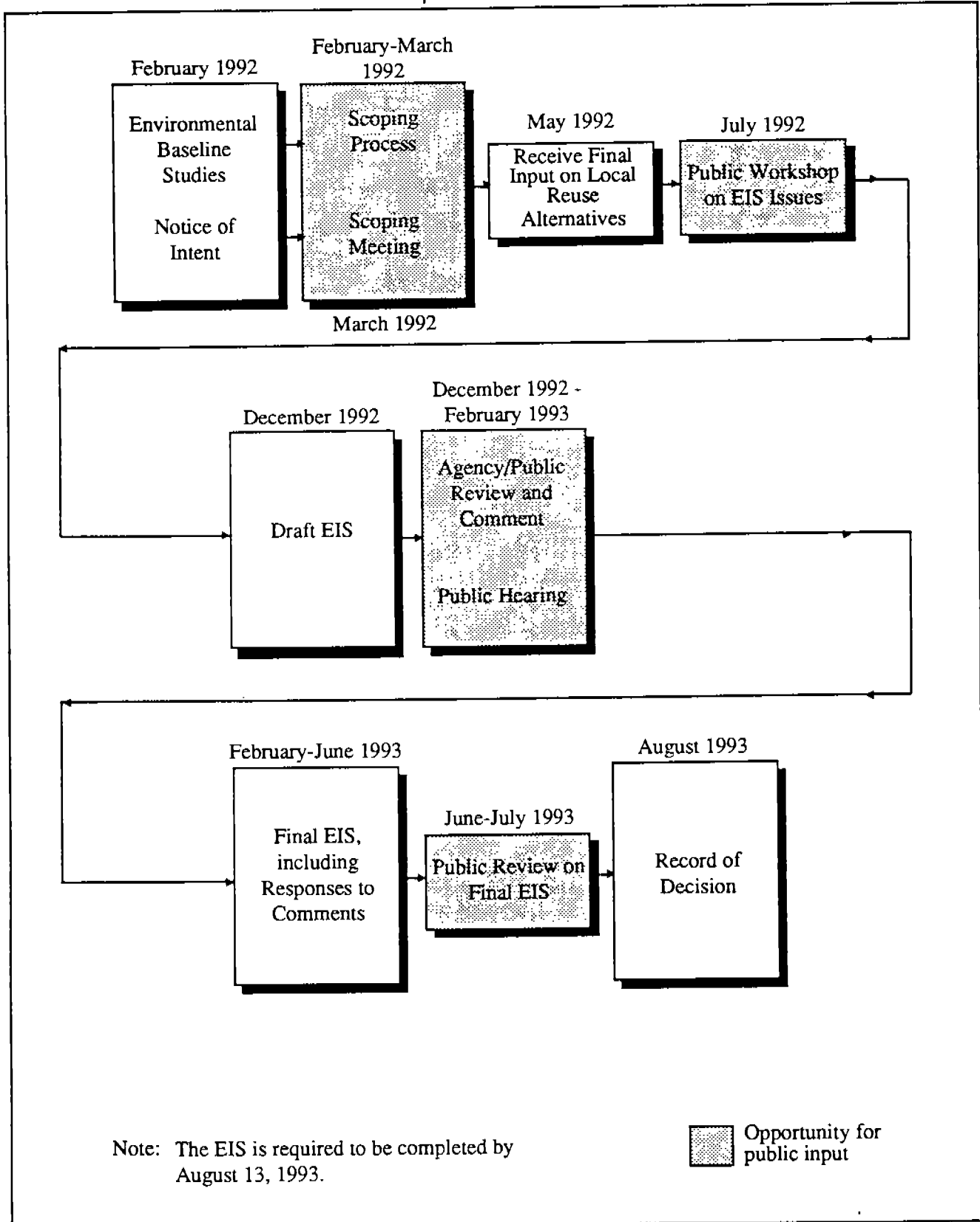
13



* Ongoing - quarterly and annual reports submitted to U.S. Department of Housing and Urban Development on property status.

Figure 1-2

Environmental Impact Statement Public Involvement Process



disposal and reuse of Fort Ord (Volume III, Appendix B). At that time, local, state, and federal legislative bodies were contacted by mail to notify them of the planned EIS preparation (663 notices were mailed). The notices announced a planned scoping meeting in Monterey, California, and invited written scoping comments.

1.4.2 Scoping Process

The first step in the preparation of the EIS is to scope, or identify, the issues to be addressed in the analysis and documentation. At the beginning of the analysis, often little is known about the impacts and public and agency participation are solicited to assist in identifying the critical issues to be analyzed as early as possible.

A public scoping meeting was held on March 5, 1992, at the Hyatt Regency Hotel in Monterey, California, to receive public input on critical issues to be addressed in this EIS. The meeting was recorded by a court reporter, in the form of a public transcript, and on audio and video tape. Comment letters were subsequently received, which were accepted after the established response period had ended.

Approximately 78 individuals, including Army representatives, various media representatives, and members of the public, attended (Volume III, Appendix C). Twenty-two individuals registered to comment and 22 attendees spoke. The major concerns and questions raised at the scoping meeting centered on the following:

- socioeconomic (regional):
 - concerns about socioeconomic impacts and adequate documentation of impacts;
 - analysis of socioeconomic impacts on businesses, such as theaters, bowling alleys, and health clubs that provide recreational activities;
 - documentation of the supply of housing that will become available;
 - adequate documentation of impacts in economic base of the community;
 - concerns about impacts on schools; and
 - concerns about impacts on water supply and wastewater service;
- direct and indirect effects of changes to support the POM annex and reserve center:
 - concerns about the configuration of the POM annex and reserve center; analysis of full impacts of POM annex and reserve center;
 - concerns about impacts on water supply;
 - request for EIS to include maps of boundaries of communities, spheres of influence, water districts, and groundwater contamination sites;
 - discussion of use of nonpotable or reclaimed water for the golf course and landscaping; and
 - analysis of capacity of and impacts on the wastewater system;
- issues associated with disposal of real property:
 - concerns about the objectives and methodology of disposal;
 - concerns about disposal and protection of Stilwell Hall;
 - analysis and consideration of mitigation and protection of plant and wildlife species and sensitive habitat;
 - identification of cultural resources and impacts;
 - documentation of potential risks of hazardous sites;
 - statement of when remedial investigation/feasibility statement will be complete;
 - concerns about vandalism and lack of weekend patrols;

- analysis of loss of recreational facilities at installation; and
 - concerns about disposal of Army-owned utilities.
- issues associated with reuse alternatives:
 - impacts on federally protected plants and wildlife; disturbance to sensitive plants and wildlife;
 - comments of concern for and adequate documentation of protection of plants and wildlife;
 - discussion of impacts on vegetation from sheep grazing;
 - discussion of lead pollution of plants and wildlife in the dunes area;
 - assessment of erosion damage and rates;
 - degradation of water quality and changes in hydrology;
 - analysis of effects on seawater intrusion project;
 - consideration of reclamation and ponding;
 - discussion of what measures should be taken to protect groundwater from contamination;
 - changes in circulation patterns and traffic congestion on communities;
 - concerns about related effects on bus, rail, and air traffic;
 - general concerns about air quality impacts; evaluation of consistency with air quality management plan;
 - concerns about noise parameters;
 - documentation of potential impacts of soil and water contamination from hazardous waste;
 - concerns about safety and cleanup of contaminated areas; restoration of dunes and wildlands;
 - impacts on cultural resources;
 - consideration of federal, state, and local agency requirements;
 - consideration of impacts on all public services;
 - description of impacts on schools, especially effects on enrollment;
 - documentation of potential additional landfill capacity;
 - evaluation of sewage and storm drain outfall along coastal zone;
 - discussion of potential conversion to individual meters for installation houses;
 - concern about impacts, including outpatient and pharmacy services;
 - changes in population, housing, and employment;
 - concerns about impacts, assumptions, and methodology changes in population, housing, and employment;
 - documentation of changes in local jobs/housing balance (and any imbalance), assumptions, and methodology; and
 - clear analysis and documentation of the impacts on regional economy.

All agency and individual comments are contained in the *Environmental Impact Statement Scoping Report Disposal and Reuse of Fort Ord, California* (U.S. Army Corps of Engineers, Sacramento District 1992f), available for review at the information repository located at Seaside Branch Library, 550 Harcourt Avenue, Seaside, California 93955, 408/899-2055.

The Secretary of Defense proposed closing of Fort Ord in January 1990. The Army held a scoping meeting in September 1990. This closure action was discontinued when the 1990 Base Closure Act established a new commission. This EIS considers comments received in the 1990 scoping meeting.

1.4.3 Public Workshops

On July 7, 1992, the Army conducted a public workshop at Oldemeyer Center in Seaside, California. The purpose of the workshop was to present the EIS timeframe, provide an overview of the environmental baseline studies that were prepared to provide baseline information for various resource categories and

identify environmental issues to be analyzed in the EIS, discuss disposal and real estate issues, and present the Army action and alternatives. The workshop was a participatory session with an information presentation followed by a breakout session in which the workshop attendees were given the opportunity to ask questions of the workshop participants.

The workshop was announced in the local newspaper; a press release was released to 65 media organizations; and 663 notices were mailed to agencies, organizations, and interested individuals. The workshop was recorded by video camera.

1.4.4 Coordination with Reuse Committees

The reuse development process is described in detail in Section 2.0, "Proposed Action".

From February 1992 to March 1993, 12 meetings were conducted by the Army with representatives of Monterey County Local Agency Formation Commission; Monterey County; the Cities of Del Rey Oaks, Marina, Monterey, Sand City, and Seaside; the Fort Ord Task Force; and the Fort Ord Reuse Group.

The Army met with the City of Marina and its consultant and the Federal Aviation Administration (FAA) on March 18, 1993, to discuss the city's proposal for transfer of Fritzsche Army Airfield to a general aviation airport.

These meetings were used to work cooperatively with the surrounding local agencies and the task force to develop a reasonable range of reuse alternatives for the Army to analyze in the EIS, as well as brief the local agencies and task force on the EIS status. The local agencies and task force reviewed and provided local input on the EIS.

The meetings provided an update on federal screening decisions, presented real estate leases and outgrants and discussed the effect on them because of the Army disposal process, and discussed vision plans or changes to existing vision plans of surrounding local jurisdictions and conflicts with existing vision plans of surrounding jurisdictions.

1.4.5 Draft Environmental Impact Statement

The public, along with concerned organizations and agencies, was invited to review and comment on the draft EIS. A notice of availability was published in the *Federal Register* on December 31, 1992. The public comment period (December 23, 1992-February 22, 1993) provided an opportunity for the public to review the issues addressed in the impact analysis, as well as offer appropriate comments on any aspect of the process. The Army had compiled a mailing list of those agencies, groups, and individuals interested in the proposed action. At the beginning of the comment period, 598 copies of the EIS had been distributed and a notice of the document's availability to another 112 entities, including news media. Some of these entities responded by requesting copies of the draft EIS. By the close of the review period, 710 copies of the EIS had been circulated.

1.4.6 Public Hearing

During the period of public review and comment of the draft EIS a public hearing was held on February 11, 1993, at the Monterey Conference Center in Monterey, California, to formally receive oral and written comments and recommendations. The hearing was announced in the local news media. The public hearing was attended by approximately 66 persons. Twenty-three persons spoke at the hearing. Their comments were recorded by a certified court reporter and video and audio tape. By the close of the review period, sixty four entities had submitted letters of comment. The hearing record was held open for 10 days following the hearing to receive written comments from individuals and organizations unable to attend.

1.4.7 Final Environmental Impact Statement

This final EIS, that incorporates and responds to comments received on the draft EIS, was furnished to all who commented on the draft document and is available to anyone requesting a copy. A notice of availability has been published in the *Federal Register*.

1.4.8 Contaminated Site Remediation

Remediation or cleanup of contaminated sites under the Army's Hazardous, Toxic, and Radiological Waste Program includes public involvement. This program is separate from, but often confused with, the EIS process because the actions usually occur simultaneously. Studies and reports for remediation actions are made available at the public information repository located at the Seaside Branch Library. Remedial actions under the Comprehensive Environmental Response Compensation and Liability Act include formal opportunities for public participation in reviewing documents and public hearings. This EIS analysis addresses the sites under investigation by describing the nature and extent of the contamination in an overall environmental context and referring to the remedial studies. (Refer to Sections 4.10 and 5.10, "Hazardous and Toxic Waste Site Remediation", and Volume II.) The public will be informed about the studies as they become available and will be invited to participate in public meetings for those actions.

Section 2.0 Proposed Action

2.1 INTRODUCTION

The Defense Base Closure and Realignment Act of 1990 (1990 Base Closure Act) directs the closure of Fort Ord, California, and the relocation of the 7th Infantry Division (Light) (IDL) to Fort Lewis, Washington, by October 1, 1997. As indicated in Section 1.2, the 1990 Base Closure Act exempted the closure decision and action from National Environmental Policy Act (NEPA) analysis. Subsequently the Conference Report for House Resolution 2100 (HR 2100), for the National Defense Act for Fiscal Years 1992 and 1993, directed the Army to proceed immediately with an environmental impact statement (EIS) for the disposal and reuse of Fort Ord specifically addressing socioeconomic effects of the Army relocating from the Monterey Bay area. These two legislative actions have helped define the proposed action for this EIS and the level of impact analysis required to support the action.

The proposed action analyzed in this EIS is the disposal of excess property made available by the closure of Fort Ord, with the retention of the Reserve Center and establishment of a Presidio of Monterey (POM) annex. The socioeconomic impacts of relocating the active Army from the Fort Ord community are analyzed in this EIS, following the requirements of the conference report for HR 2100. Reasonable alternative uses of the property after disposal are identified and evaluated.

2.1.1 Mission

Fort Ord is operated as a permanent installation of Headquarters, Department of the Army, Forces Command (FORSCOM). The primary mission of Fort Ord is to train troops, but it also serves to provide command, administration, and logistical support on the installation, and other functions necessary to operate and maintain facilities at Fort Ord and its subinstallations, the Presidio of Monterey, Fort Hunter Liggett, and Camp Roberts. It also supports active Army tenant units and other activities as assigned, attached, or stationed, including satellite activities off the installation.

The principal unit assigned to Fort Ord is the 7th IDL. The major function of the Fort Ord mission is to maintain the 7th IDL in a state of readiness that ensures that national defense requirements will be fulfilled. Other components of Fort Ord's mission include the following:

- Organize, train, and equip all assigned and attached units and individuals to perform assigned duties.
- Provide for the operation, safety, security, administration, education and training, procurement support, service, maintenance and supply of all individuals, units, and activities assigned, attached, or under the command of the installation.
- Support Army reserve components in conducting training and mobilization.
- Plan for accomplishment of domestic emergency missions as directed.
- Support the Test and Experimentation Command Center on Fort Ord, Fort Hunter Liggett, and the Defense Language Institute (DLI) on the Presidio of Monterey.

2.1.2 Location

Fort Ord is an Army installation located along the Pacific Ocean in northern Monterey County, California approximately 100 miles south of San Francisco (Figure 2-1). Fort Ord occupies approximately 28,000 acres or 43 square miles adjacent to Monterey Bay (a national marine sanctuary) and the Cities of Marina, Seaside, Sand City, Del Rey Oaks, and Monterey (Figures 2-2 and 2-3). Figure 2-4 is a locator map for the installation. The Southern Pacific Railroad and SR 1 (also known as State Route 1) cross the western section of Fort Ord, separating the beachfront from the majority of the installation. Fort Ord is bound on the east by undeveloped land.

Of the total Fort Ord acreage, 73% (approximately 20,000 acres) is in unincorporated Monterey County, 15% (approximately 4,100 acres) is within the Seaside city limits, and 12% (approximately 3,400 acres) is within the Marina city limits. Refer to Section 4.0, "Setting", for more detail.

2.1.3 Realignment of Personnel and Functions

The Army plans to make the following realignment of personnel and functions to implement requirements of the 1990 Base Closure Act at Fort Ord:

- The 7th IDL will relocate to Fort Lewis, Washington; the Army will transfer responsibility of all off-installation properties and area support, tenants will relocate, and the Army will dispose of excess property.
- Fort Hunter Liggett will become a subinstallation of Fort Lewis, Washington.
- The Presidio of Monterey will become a U.S. Army Training and Doctrine Command (TRADOC) installation.
- Forces Command will retain the reserve center complex located on 12 acres of Fort Ord at the corner of Reservation and Imjin Roads. Fort Lewis will become the owner.
- A portion of Fort Ord will be retained by the Army to provide operations support to the remaining military services in the Monterey area. This enclave is referred to as the POM annex because its major recipient of support is the Presidio of Monterey. The POM annex and its resources will be transferred to TRADOC on closure of Fort Ord.

2.2 PRE-DISPOSAL ACTIONS

2.2.1 Caretaker (No Action Alternative)

As the 7th IDL realigns from Fort Ord, the Army will place structures, utilities, and operation and maintenance systems into a caretaker status until property disposal decisions are implemented. Caretaker status is defined by Army regulation as "the minimum required staffing to maintain an installation in a state of repair that maintains safety, security, and health standards." If environmental restoration is not accelerated and complete disposal is not possible, the Army may retain segments of the lands remaining outside the POM annex and reserve center in a caretaker status.

The transition from current conditions at Fort Ord to a caretaker condition and eventually to disposal is a continuum that is not easily separated into distinct components. This is especially true when a specific

Figure 2-1
Regional Location

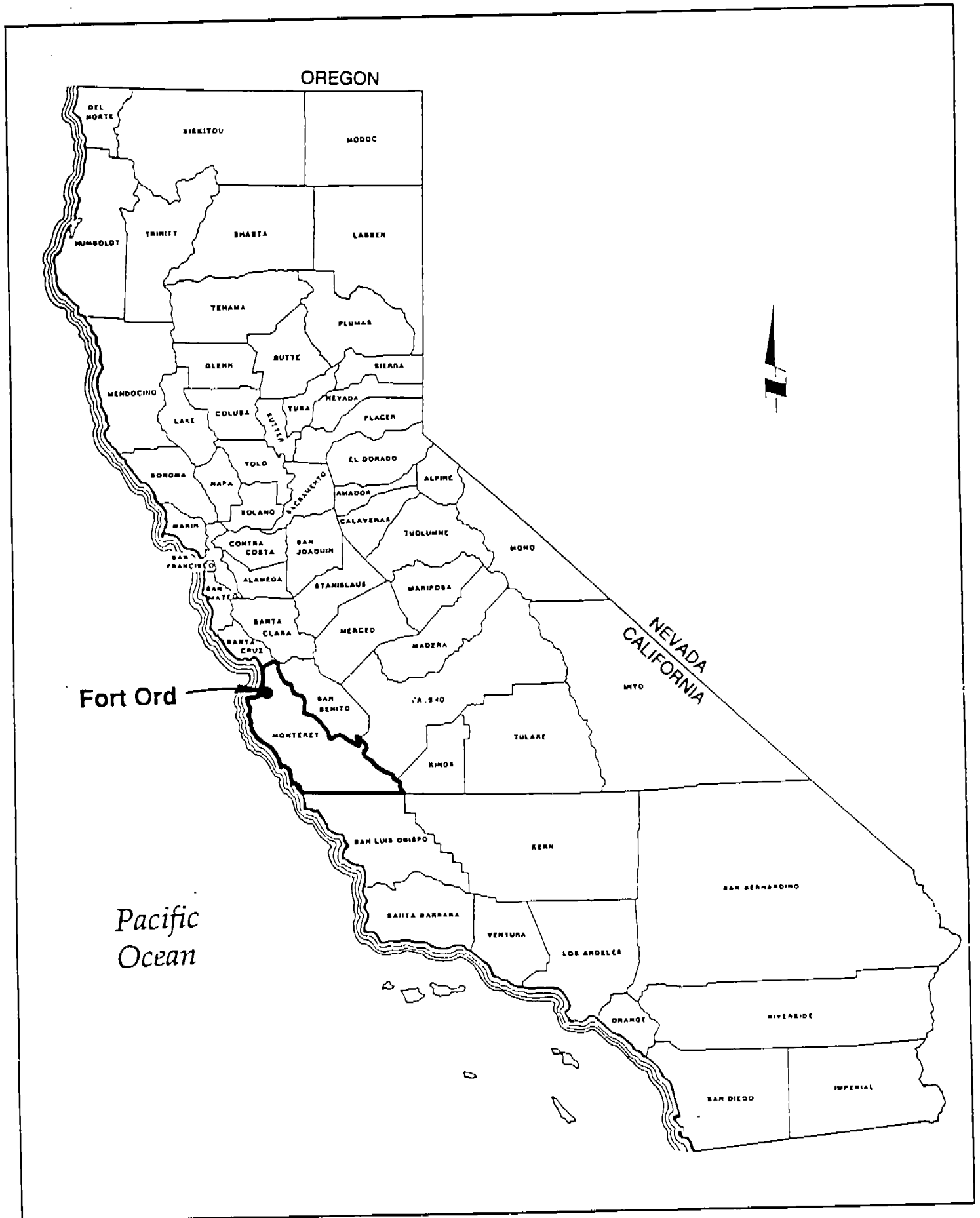


Figure 2-2
Location of Cities Surrounding Fort Ord

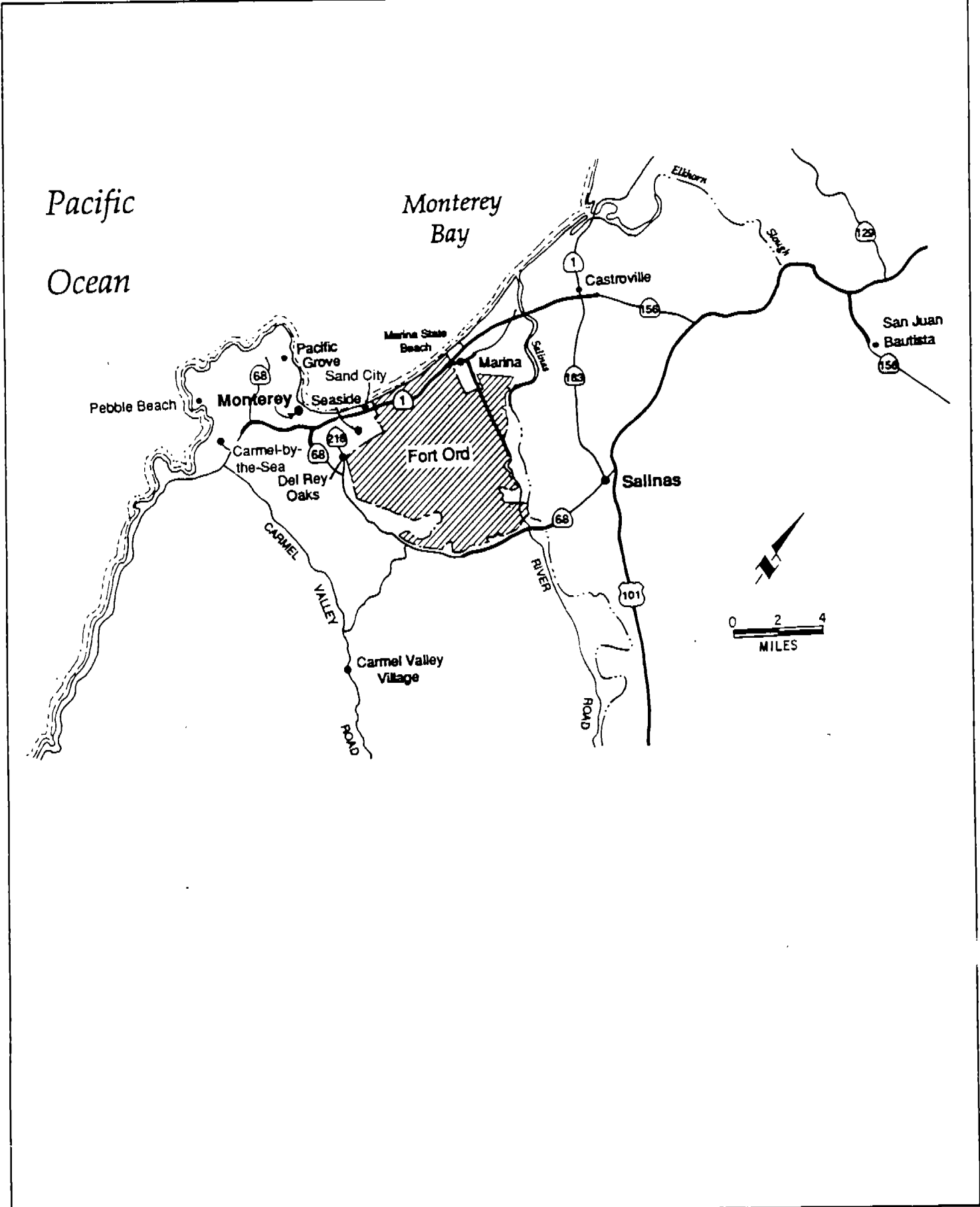


Figure 2-3
 Local Jurisdictional Boundaries Surrounding Fort Ord

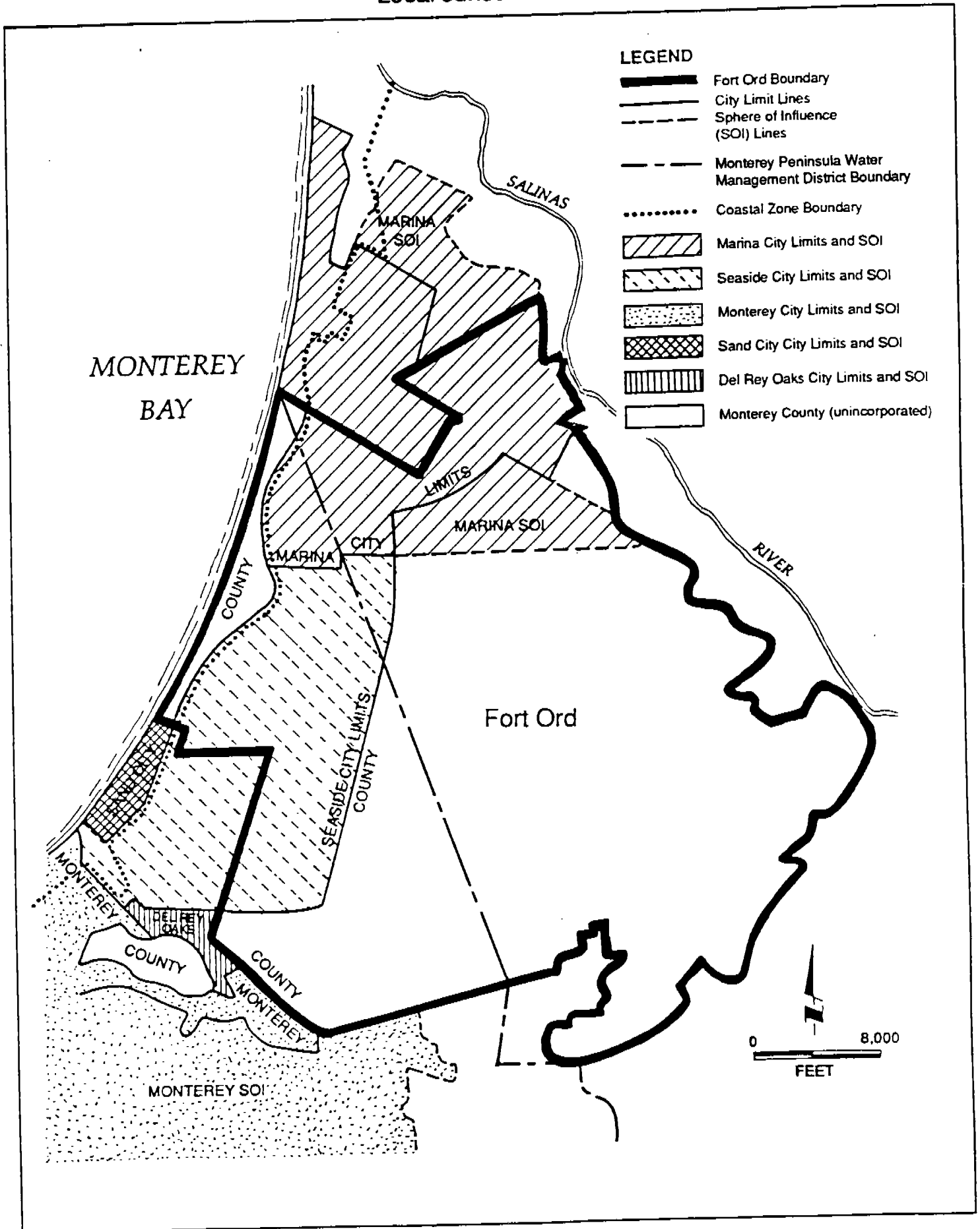
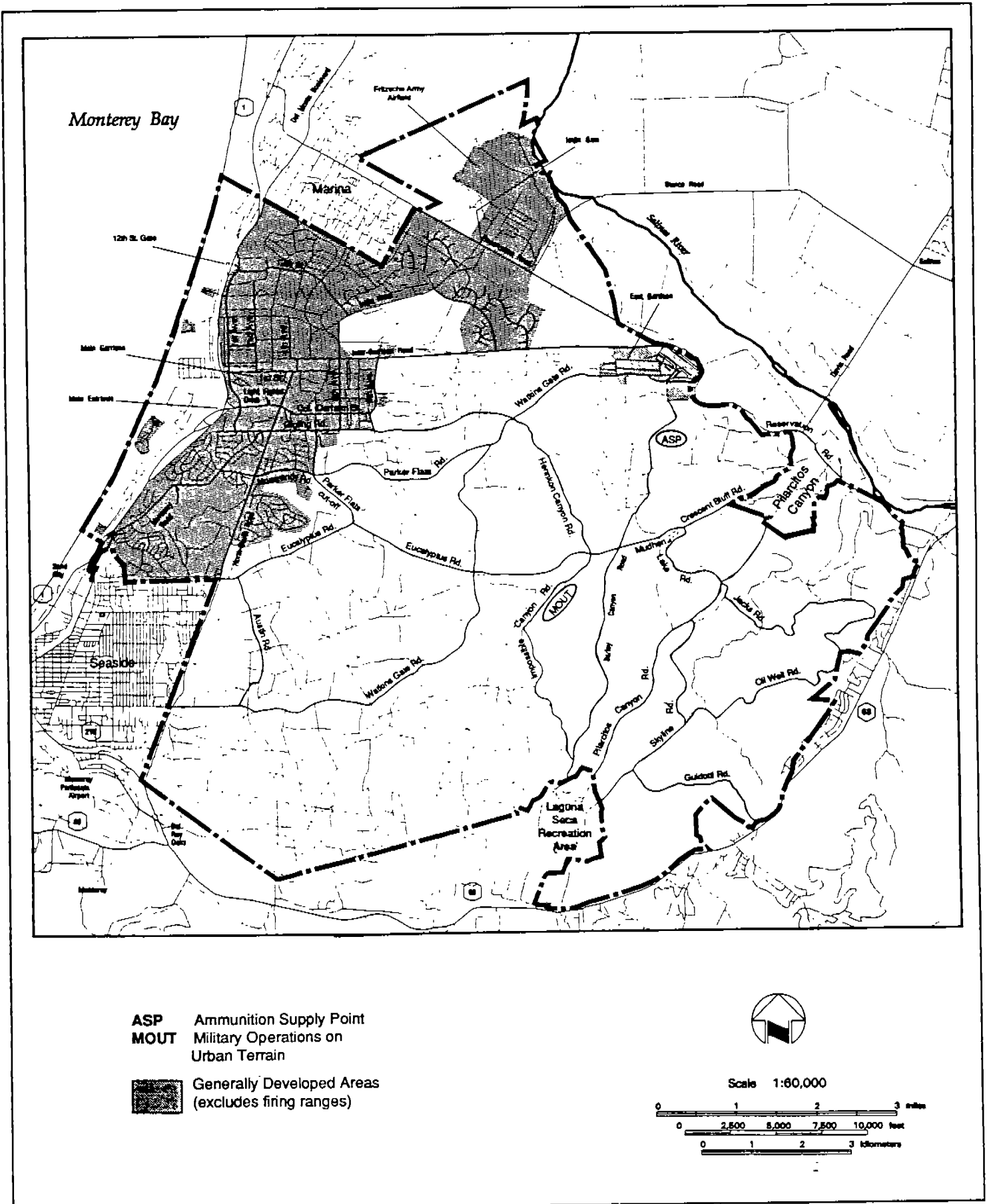



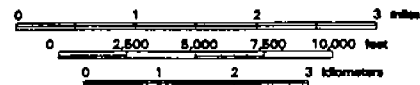
Figure 2-4
Installation Locator Map



- ASP** Ammunition Supply Point
- MOUT** Military Operations on Urban Terrain
-  Generally Developed Areas (excludes firing ranges)



Scale 1:60,000



disposal action has not been determined and the effects of ongoing remediation on the timing of disposal are not known.

Actions planned to implement the caretaker operation include:

- All utility systems (i.e., water, wastewater, electric, natural gas, telecommunications, roads, and storm drainage) will be left intact and will receive periodic inspection and maintenance to the extent necessary to avoid irreparable deterioration; periodic use of these systems will occur as necessary to avoid deterioration.
- Unoccupied structures will be stabilized as appropriate for the anticipated period of vacancy.
- Landscape maintenance around unoccupied structures will continue periodically as necessary to protect the structure from fire or prevent nuisance conditions.
- Access will be maintained onto the installation to service and maintain publicly or privately owned utility or infrastructure systems.
- Public access onto the installation will be severely restricted; fishing, hunting and woodcutting programs will cease; and occasional public access onto the installation for large-scale events, such as dog trials, bicycle races, trail rides, and scouting jamborees, will cease.
- Installation security patrols and maintenance of security systems will continue; perimeter fences will be maintained and additional interior fencing around toxic and hazardous waste sites may be added, depending on the length of time that Fort Ord is in caretaker status.
- Fire department protection, structural and wildland, will be provided within and outside the POM annex. Additionally, a fire control program will continue, including maintenance of perimeter and interior fire breaks, periodic controlled burns, and an annual fire training program.
- Grazing leases and outgrants for telecommunications equipment will continue on a year-to-year basis.
- Land management programs, such as pest control, erosion control, tree removal, and protection of threatened or endangered species, will continue as needed to support the reduced level of installation activity.
- Public access through the installation for occasional events at Laguna Seca Raceway will continue.
- Occasional public access for passive recreational events, such as birding and nature tours, will continue.

2.2.2 Contaminated Site Cleanup

Significant steps in preparing lands for disposal are the certification that lands are suitable for disposal and the cleanup of contaminated sites to the degree required by the proposed future use.

The entire Fort Ord installation is listed on the National Priorities List as a Superfund site. The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Community Environmental Response Facilitation Act of 1992 (CERFA), requires the Army to identify clean parcels and to expedite the remedial investigation, feasibility study, and cleanup of potentially contaminated lands.

In cooperation with local communities, CERFA requires that the Army identify real property that offers the greatest opportunity for reuse and redevelopment where operations are terminating. The Army must identify uncontaminated property within 18 months through a process that includes record and title searches, inspection of the property and aerial photographs, interviews, and sampling if appropriate. The identification of clean parcels is complete when the concurrence of the administrator of the U.S. Environmental Protection Agency (EPA) is obtained. This process is underway at Fort Ord, and 17 parcels have been identified as potentially clean parcels (Figure 2-5). This process will be completed by April 1994.

A remedial investigation/feasibility study (RI/FS) is underway and is being expedited to facilitate transfer of real estate and reuse of the lands. As shown in Figure 2-6, land at Fort Ord will be placed into one of two categories: potentially contaminated or potentially uncontaminated. Potentially uncontaminated parcels are evaluated under CERFA for historical use to demonstrate to the lead regulatory agency (EPA) that the parcels are clean. With concurrence of the EPA, the parcels can be released for disposal. Although CERFA does not explicitly require the California Environmental Protection Agency's (Cal EPA's) concurrence, Cal EPA's Department of Toxic Substances Control will also be involved in the concurrence process.

An environmental assessment is conducted on potentially contaminated lands to confirm presence or absence of hazardous and toxic waste contamination. If the environmental assessment demonstrates that the parcel is clean or no threat to human health or the environment is present, a record of decision (ROD) is prepared and the land is made available for disposal. If contamination is present, the remedial process is completed culminating in a remedial action and potential deed restriction before land disposal.

The remedial action is considered taken when the construction and installation of an approved remedial design has been installed and the remedy has been demonstrated to the EPA administrator to be operating properly. Long-term pumping and treating or operation and maintenance after the remedial action is operating properly and successfully would not preclude transfer of the property with appropriate restrictions.

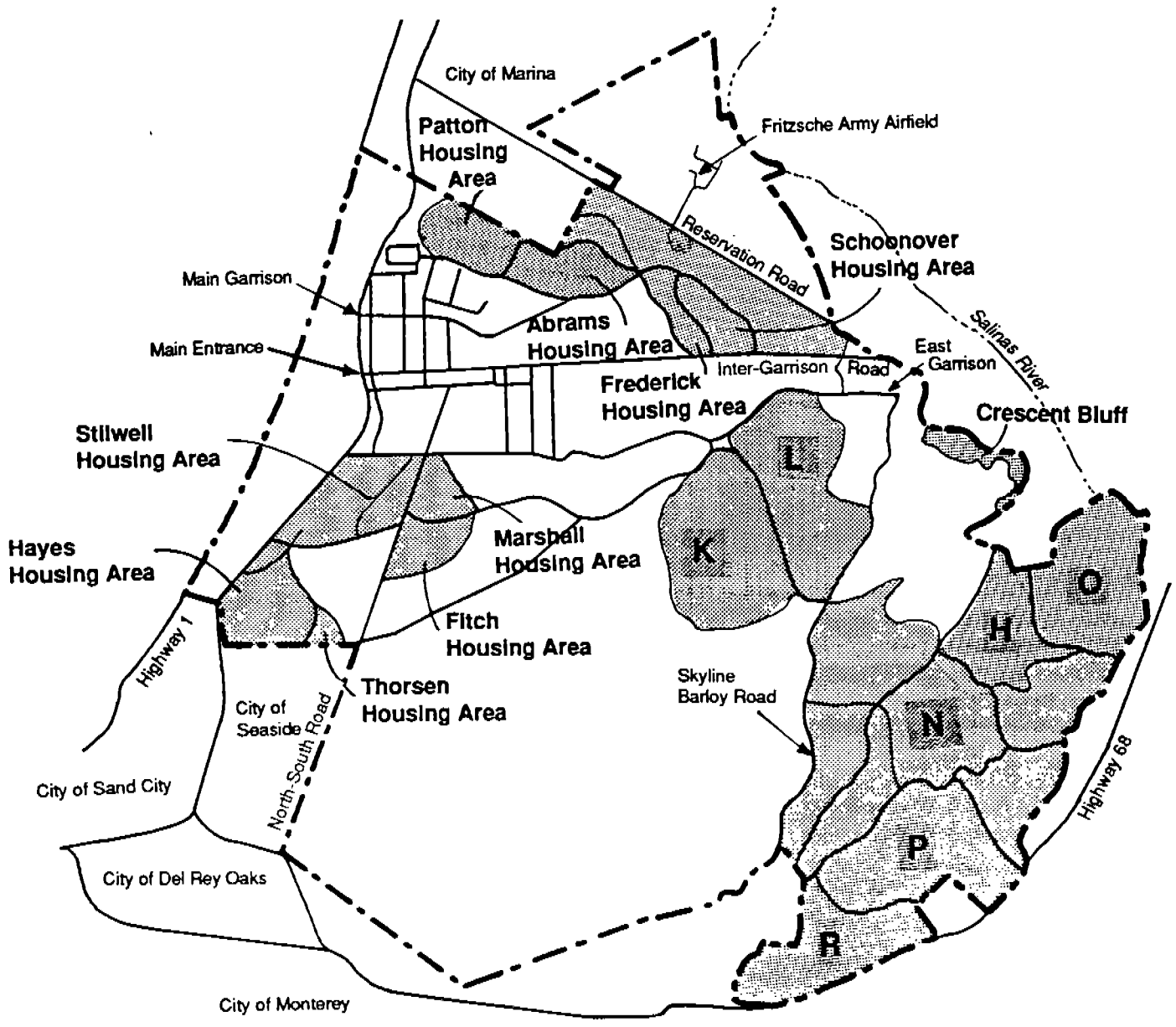
Remedial actions, including preparation of RI/FSs and corrective actions are being expedited to facilitate environmental protection and the sale or transfer of real property to mitigate adverse economic effects on the surrounding community. Fort Ord has prepared an action plan describing actions to be taken to expedite the processes described above. The action plan is a document incorporating CERFA and RI/FS activities (U.S. Army Corps of Engineers, Sacramento District 1992g).

2.2.3 Interim Uses

Predisposal use of real property by a non-Army entity is accomplished through real estate documentation, such as leases, licenses and permits (outgrants). The Army is conducting an analysis regarding "interim leasing", which will allow use of excess land before disposal. Organizations interested in interim use should apply directly to the installation and identify their requirements. Approval for such use will be staffed through the Army. The term of the lease will be for no more than 1 year, but may be renewed annually at the option of the Army.

Interim leases will not be granted until the ROD on the EIS is signed and the Army no longer has a need for property requested. Interim use cannot foreclose any future Army options and cannot irrevocably

Figure 2-5
 Areas Defined as Potentially Clean at Fort Ord



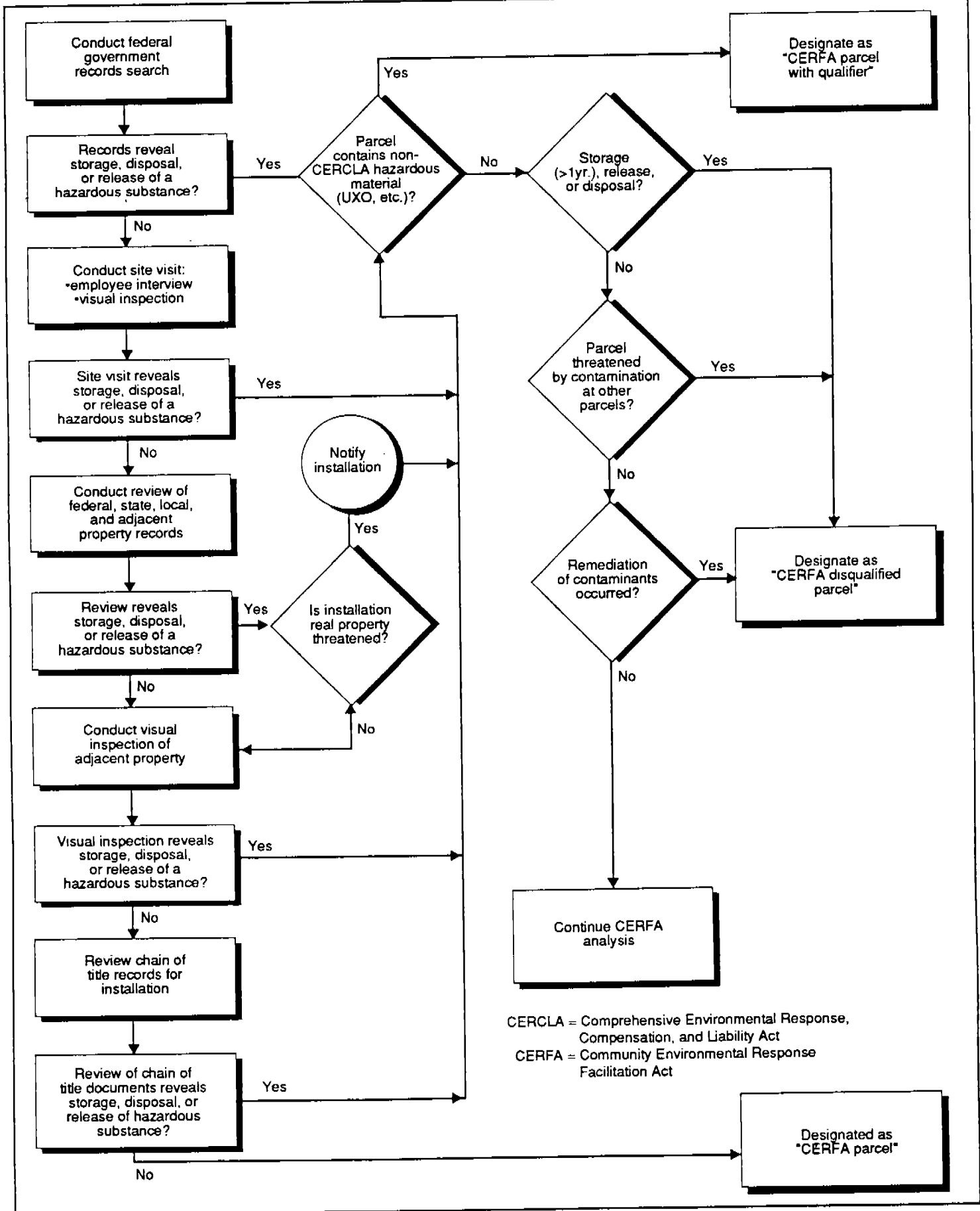
 Potential clean parcels

Note: This does not consider unexploded ordnance potential

Source: Harding Lawson Associates 1992

Figure 2-6

Process for Identifying CERCLA and CERFA Parcels for Remediation



or irreversibly commit resources. Interim uses could range from leasing buildings for residential office or storage purposes, to issuing permits for military and nonmilitary use of firing ranges and training areas.

2.3 DISPOSAL

2.3.1 Real Estate Disposal Process

After closure of Fort Ord, the Army plans to dispose of approximately 26,000 acres, or 95% of the installation. The remainder of the installation will be established as a POM annex and retained as a reserve center.

The process for disposal of Army properties involved in base realignment and closure (BRAC) is governed by the 1990 Base Closure Act; the Federal Property and Administrative Services Act of 1949, as amended; and federal property management regulations. In disposing of property, the Army also must comply with the Stewart B. McKinney Homeless Assistance Act (McKinney Act) and other laws and regulations (including Title 10 of the U.S. Code and Army regulations) affecting the disposition of federal real property. A block diagram of the real estate process is shown in Figure 2-7.

In general, the first step in the process is to screen real property no longer required by the Army with other departments and instrumentalities within the U.S. Department of Defense (DOD). The U.S. Coast Guard is considered in this step by special legislative authority. If no military requirements exist for the property, the second step is to offer the property to other federal agencies. If there is no federal need, the property is determined surplus. The third step is to screen the property for use by the homeless under provisions of the McKinney Homeless Assistance Act. The property is reported to the U.S. Department of Housing and Urban Development (HUD) for a determination of suitability for homeless assistance purposes. Upon a finding of suitability, availability of the property is determined by the Army. The Army must submit annual and quarterly reports to HUD on the status of the property. The HUD publishes suitability and availability determinations in the *Federal Register* on a quarterly basis. Each time suitable/available property is published in the *Federal Register*, 60-day "holding period" is triggered for homeless providers to express interest in the property. During these holding periods, the property is not available for any purpose other than to assist the homeless. If no homeless requirement exists for the property, the next step is to screen the property with state and local governments. If no state or local government requirements exist for the property, the Army can then make the property available for sale to the general public. Sale is usually accomplished competitively by auction or sealed bids.

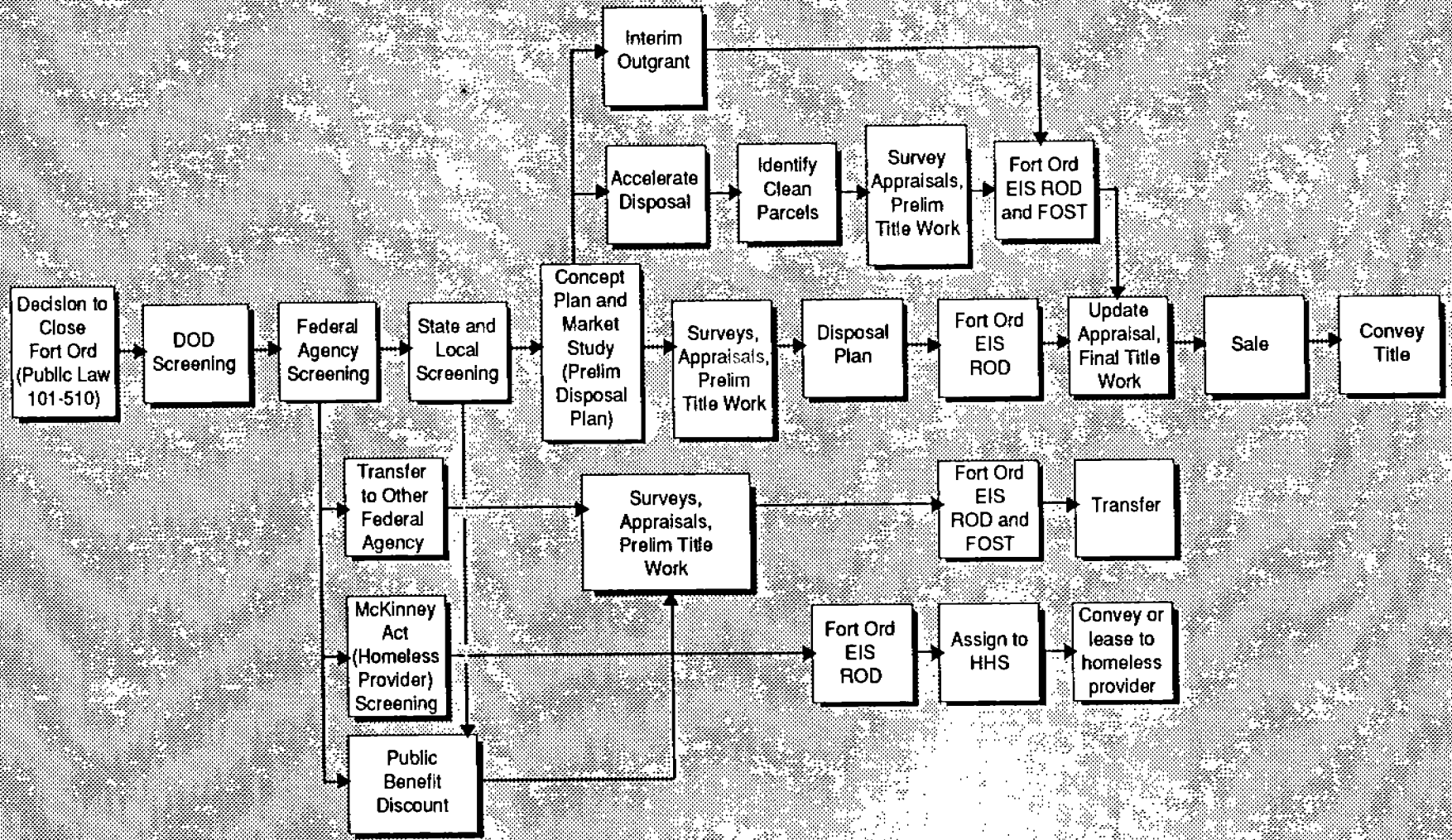
2.3.1.1 Real Estate Disposal Actions

After screening but before disposal, EPA must approve the proposal to dispose of clean parcels rather than Fort Ord as a whole. The Army must then determine the availability of clean parcels considering:

- management and protection of natural and cultural resources,
- clearing of live ordnance,
- hazardous and toxic waste cleanup, and
- decision regarding level of cleanup required for limited use parcels as opposed to unlimited use for clean parcels.

Block Diagram of Real Property Disposal Process

2-12



DOD - U.S. Department of Defense
 EIS - environmental impact statement
 FOST - Finding of Suitability for Transfer
 HHS - U.S. Department of Health and Human Services
 Prelim - preliminary
 ROD - Record of Decision

2.3.1.2 Real Estate Disposal Methods

Methods used by the Army to dispose of real estate property are:

- Transfer to Other Federal Agency. The Army would transfer administrative or jurisdictional control to another federal agency.
- Assignment Pursuant to McKinney Act. The Army would assign the property to the U.S. Department of Health and Human Services, which would convey or lease the property to homeless providers.
- Public Benefit Discount Conveyance. State or local government entities may obtain property at less than fair market value when sponsored by a federal agency for uses that would benefit the public (i.e., health and education, parks and recreation, wildlife conservation, public health, and airport).
- Negotiated Sale. The Army would sell the property by negotiation to state and local agencies at fair market value. A sale could also be negotiated with private entities (i.e., existing third party leases).
- Competitive Sale. Sale to the public could occur through either an invitation for bids or an auction.

2.3.2 Parcels

As described in Section 2.2, there are at least two processes that might allow for early disposal of individual parcels at Fort Ord. Based on the assumption that one of these processes will be available, the Army is reviewing plans to initiate preparation of an Environmental Baseline Study for Transfer (EBST) and a Finding of Suitability for Transfer (FOST) for at least the 17 areas identified in Figure 2-5.

This early identification of clean parcels for accelerated disposal does not include any resource-based analyses and is not limited to the above areas. To expedite preparation of a FOST and an EBST, the Army will conduct preliminary assessment screenings at the selected areas.

2.3.3 Infrastructure

Studies being conducted by the Army have provided additional detail regarding the disposition of various infrastructure elements at Fort Ord. These details do not represent final decisions because engineering studies and negotiations with potential purveyors are needed for informed decision making. The information represents presently preferred approaches to disposal. The key elements include water supply and distribution, electricity and gas distribution, sewage collection and disposal, roads and street lights, solid waste collection and disposal, storm water collection and disposal, telephone service, and cable television service. Disposal of these systems will be made considering both the short-term and long-term service needs of the POM annex and the reserve center, and other uses that will eventually occupy excessed lands at Fort Ord.

Based on information and analysis compiled to date, the Army intends to dispose of its Fort Ord infrastructure as follows:

- Water supply and distribution - The existing well field, storage facilities, and distribution system will be retained in the short term to serve the annex, the reserve center, and any interim uses

granted prior to disposal. The Army will explore contracting for operation and maintenance of the system or forming a county services district. Studies will be completed to determine the condition and remaining life of the system, and portions of the system not expected to be used within the remaining life will be abandoned. In the long term, the Army intends to work cooperatively with local agencies to determine the appropriate water purveyor to serve the remaining military facilities and to take over operation of the existing water supply system. The Army does not intend to be the long-term purveyor of water service to the Fort Ord area.

- Electrical and gas supply and distribution - The existing gas and electrical systems will be retained in the short term to serve the annex, the reserve center, and any interim uses granted prior to disposal. The Army will explore contracting for operation and maintenance of the systems or forming a county services district and will conduct studies to determine the condition and remaining life of the systems. Portions of the systems that serve areas that are not expected to be reused during the remaining life will be abandoned. In the long term, the Army will split its POM annex system from the reuse area. Pacific Gas and Electric Company service will be retained in areas it already serves; franchising for POM annex service through the City of Seaside will be investigated.
- Sewage collection and disposal - The existing sewage collection and disposal system will be retained in the short term to provide service to the annex, the reserve center, and any interim uses granted prior to disposal. System condition and remaining life will be investigated, and portions of the system expected to be unused for the remaining life will be abandoned. Portions of the system that are retained will be upgraded as needed, and easements will be reserved for all facilities located outside the annex and the reserve center. In the long term, the Army will divide its POM annex system from any interim or short-term uses outside of the annex and dispose of the elements not needed for annex service. The jurisdiction receiving that infrastructure will be determined through the local land use decision-making process, consistent with Monterey County Local Agency Formation Commission (LAFCO) recommendations. The Army will consider turning over the POM annex system to the Seaside County Sanitation District.

The Army/Department of Defense will retain sufficient treatment plant capacity at the regional treatment facility to provide for future DOD requirements with an allowance for future expansion. The remainder of the Army's treatment allocation at the regional plant will either be transferred back to the Monterey Regional Water Pollution Control Agency (MRWPCA) or be transferred to new users outside the annex and reserve center. The financial implications of transfer back to MRWPCA are being investigated; transfer to new federal or federally sponsored users would be at no cost, while transfer to other local agency or private users would be for a negotiated cost. Allocation transfers would be subject to local review for consistency with local plans to implement the Clean Air Act.

- Roads and street lights - In the short term, the Army intends to retain the road and lighting system needed to support the POM annex and reserve center and to retain access to key infrastructure facilities outside the annex and reserve center. A study will be conducted to assess traffic patterns around the annex and determine road condition. Roads not needed to support the annex, reserve center, key facilities, or caretaker operations will be abandoned. Interim users outside the annex will be required to maintain access via routes other than through the annex. In the long term, the Army will abandon all roads not needed to support the annex or reserve center and will require all permanent uses outside the annex to retain their own access independent of the annex and reserve center.

- Telephone - The Army intends to continue to operate its telephone system for the annex and reserve center and to retain the system needed to serve interim uses for the short term. The remainder of the system will be abandoned. Interim users with long-term interest in the property will be encouraged to bring in separate telephone service as early as possible. Contracting for operation and maintenance with an outside purveyor will be explored. In the long term, the Army will replace the system needed for the annex and reserve center as adjacent reuse brings in new service. The telephone service will eventually be contracted directly with Pacific Bell or Seaside.
- Solid waste - In the short term, the Army intends to continue to receive solid waste service from the Carmel Marina Corporation (CMC). The existing transfer station will be closed as waste-generating activities are curtailed, but the household hazardous waste facility will be retained. Interim users will need to develop their own service consistent with the franchise agreements of Seaside and Marina. In the long term, the Army intends to comply with the Seaside franchising agreement with CMC as it relates to service for the POM annex and to negotiate a volume discount with Seaside for collection and disposal service once the current CMC contract expires. Users outside the annex and reserve center will manage their solid waste collection and disposal contracts consistent with Marina, Seaside, or Monterey County requirements.
- Storm drainage collection and disposal - The Army intends to continue to operate the storm drainage system serving the annex and reserve center for the short term. Drainage facilities on all roads, including abandoned roads, will be retained. A study will be conducted to assess the condition of the system needed to support the annex and reserve center. Interim users will be asked to share responsibility for maintenance of the system. In the longterm, the Army will deed the ownership, maintenance, and regulatory function of the storm drainage system to local communities.
- Cable television - In the short term the Army intends to negotiate an agreement with Coastside for continuation of cable service to the annex and reserve center. If the reduced service area is not acceptable to coastside, the Army will investigate developing a new contract with other purveyors who provide service in the installation area. Long-term service to the annex and reserve center is expected to remain with the purveyor selected for short-term service. Cable service for users outside of the Army areas will have to be consistent with the service agreements in existence with the Cities of Marina and Seaside or Monterey County.

2.4 ESTABLISHMENT OF PRESIDIO OF MONTEREY ANNEX

The Presidio of Monterey is located approximately 8 miles south of Fort Ord. Because it cannot accommodate all operations support functions onsite, many support facilities are housed on Fort Ord. The residual portion of Fort Ord retained by the Army needed to continue to provide support to the Presidio of Monterey is referred to as the POM annex.

To meet the goals identified above, the Army will retain control of the following elements at Fort Ord:

- Presidio of Monterey support: Includes the combined supporting engineer, maintenance, utilities, logistics, legal, information management, medical, contracting, and finance activities (requires 246,000 square feet [sf]).

- **Army family housing requirement:** Involves Army and DOD activities in the areas that have continuing requirement for 1,590 units of family housing; this would support the DLI school requirement.
- **Morale-welfare-recreation requirement:** Provides recreation facilities (e.g., youth centers, child development center, library, and recreation center) to the active and retired military population; few facilities in the area are accessible to the military (requires 329,000 sf).
- **Defense Language Institute School Support:** The DLI cannot support the entire requirement with existing facilities; administrative, housing, classroom, and dining facilities are required for an additional 500 students (requires 786,000 sf).
- **Local Department of Defense Requirements:** Army and DOD activities in the area are in leased space; they include Defense Manpower Data Center, Personal Security Research and Education Center, Army Research Institute, Logistics Assistance Office, and the Defense Reutilization and Marketing Office (requires 129,000 sf).

The DOD's proposed plans are to establish a POM annex of approximately 1,500 acres (5% of Fort Ord's approximately 28,000 acres) east and south of the installation's main entrance under military control (Figure 2-8). This does not include land and easements that will be required for access and utilities. The proposed POM annex includes the following facilities, which are summarized in Table 2-1, with further detail contained in Appendix D (Volume IV, Section 6.0): 1,590 housing units, including Fitch Park, Marshall Park, Stilwell Park, and Hayes Park housing areas; two schools (Marshall and Stilwell); post exchange/commissary complex; two 18-hole golf courses; and various other support facilities identified in Figure 2-8. The housing will be retained to house Navy, Coast Guard, and DLI students.

New construction is not proposed as part of establishing the POM annex. The Army will execute a project to renovate or convert 14 existing buildings, on the proposed POM annex. These facilities will house relocated installation operations activities for the Presidio of Monterey. This work will include renovation of administrative buildings, warehouses, maintenance shops, chemical storage areas, and cold storage areas. (Appendix D in Volume IV, Section 6.0, contains a list of facilities involved in the renovation and conversion project.)

The following 14 buildings are to be renovated: 4463, 4481, 4489, 4488, 4499, 4499A, 4512A, 4512B, 4418, 4448, 4490, 4491, 4423, and 4450. These buildings range in size from 1,883 to 19,354 square feet, totaling 134,400 square feet. Major effects of building modification activities, such as demolition and construction, could include generation of noise, air emissions, and hazardous waste.

It has not been determined whether the Silas B. Hays Army Community Hospital would be retained. For purposes of this EIS, the hospital will not be retained within the POM annex.

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Table 2-1. Proposed Presidio of Monterey Annex Space Allocation

Building Name	Gross Square Footage
Administration/operations	337,718
Bachelor officer quarters	243,522
Barracks	446,523
Bowling Alley	20,180
Credit Union	6,216
Community buildings	171,973
Commissary	111,313
Dining	34,197
Exchange	106,186
Gyms	26,122
Health/dental clinics	69,317
Maintenance	55,882
Restaurant/cafe	6,292
Service station	9,169
Warehouse	<u>105,900</u>
Total	1,750,510

2.5 RETENTION OF RESERVE CENTER

The DOD's proposed plans are to retain a 12-acre parcel of land with a 21,000-square foot reserve center, located at Imjin Gate near Reservation Road, under military control (Figure 2-8). The reserve center provides support functions to reservists (Army, Navy, Air Force, or Marines) for training. The reserve center operates during standard hours during the week and operates only on those weekends when training occurs. Access to the reserve center is through Imjin Gate. Many camouflage trucks are parked in the reserve center parking lot.

The reserve center is not contiguous with the proposed POM annex.

2.6 REUSE

2.6.1 Reuse Development Process

The primary focus of this EIS is evaluation of the action required by Congress, which is disposal of excess Fort Ord property after closure, an action to be taken by the Army. Reuse of the property, which is an action to be taken by others, is analyzed in this document as an indirect, or secondary, effect of executing this legislated action.

The reuse development process is evolving and plans are continuously being revised, and new plans may be forthcoming. The Army has identified five levels of development intensity to categorize foreseeable reuse alternatives. These categories are sufficiently defined to identify planning-level effects for consideration by the public and Army decision makers.

The five categories are:

- high-intensity mixed use,
- medium-intensity mixed use,
- low-intensity mixed use,
- institutional use, and
- open space use.

The process used to identify and develop foreseeable reuse alternatives is described in this section. Section 3.0, "Alternatives", defines the reuse alternatives analyzed. Development and refinement of reuse proposals will be a continuing process over the next few years. This EIS presents a range of reuse alternatives, which represent the range of options presented to the Army through scoping and public involvement. The environmental effects of those alternatives are qualitatively, and in some cases quantitatively, described. Followup environmental documentation may be required as appropriate by future users as details of reuse proposals become more specific. The Army plans no further analysis of future uses of the excess property.

The future use of the Fort Ord property as ownership changes from the Army to a yet unknown owner is an issue of significant interest to the impacted communities. The Army acknowledges its responsibility to assure, within the limits of its authority, that succeeding uses do not lessen the quality of the community life or degrade the environment. In so far as possible, steps will be taken to assure that succeeding owners protect historic or cultural resources, endangered species, wetlands, and other valuable resources.

The local governments are the zoning authorities of the future uses of the property, and may at any time change their decisions to meet the formulating and evolving goals of the community. This EIS presents a qualitative impact analysis of potential future uses without recommendation. The final decision will be made in the context of establishing legal requirements receiving a fair market value or providing maximum public benefit.

The Army looks to the local communities to take the lead in formulating and developing reuse proposals that satisfy local zoning, plans and requirements. The Office of Economic Adjustment of the DOD is presently working with the local committees to accomplish these goals. Regardless of the use intended by the succeeding owner, the Army will seek a fair market value for the excess land.

With the exception of a POM annex and a reserve center, the land within Fort Ord will be disposed by DOD making it available for reuse. Major factors that have influenced the range of reuse alternatives

considered in this EIS include the 1990 Base Closure Act, federal property management regulations, existing use of the facility, extent of environmental contamination, National Historic Preservation Act requirements, other environmental restrictions or constraints, zoning, and the real estate market. Ultimate reuse of the installation will depend on the result of the interaction of these factors.

The Army has been working cooperatively with federal, state, and local agencies and the Fort Ord Task Force to determine a broad range of reasonably foreseeable reuse alternatives for inclusion in the EIS. Following is a general description of the process used in developing the reuse alternatives analyzed in this EIS. Details of the development and definition of each reuse alternative are described further below and in Section 3.0, "Alternatives".

2.6.2 Agency/Task Force Involvement

2.6.2.1 Local Agency/Task Force Meetings

As described in Section 1.0, "Purpose, Need, and Scope", meetings were conducted by the Army from February 1992 to March 1993 as part of this effort. The agencies and organizations involved in these reuse meetings included Monterey County LAFCO and Monterey County Planning and Building Inspection Department; Cities of Del Rey Oaks, Marina, Monterey, Sand City, and Seaside; the Fort Ord Task Force (described below); the Fort Ord Reuse Group (FORG); and the Army.

The purpose of the reuse meetings was to work with the local agencies and task force to develop a wide range of reuse alternatives and define land uses and assumptions based on input contained in their vision plans. (Appendix E in Volume III contains the original vision plan maps of Monterey County; the Cities of Del Rey Oaks, Marina, Monterey, Sand City, and Seaside; and the task force.)

2.6.2.2 Fort Ord Task Force

The task force was originally commissioned by Congressman Leon Panetta to report on the reasons for closing Fort Ord and the likely impacts of closure on Monterey County. It includes federal, state, county, city, private sector, and general public representatives.

The task force began meeting in February 1991 to oppose the closure and determine the consequences of closure. After testifying at a regional hearing in San Francisco in May 1991, the task force began studying reuse and redevelopment of Fort Ord. By July 1991, an office in the City of Marina (supported by Monterey County) and seven advisory groups were established.

The task force is a consensus and advisory organization, not a decision-making organization, with the ultimate goal of developing a strategy for the reuse and redevelopment of Fort Ord. The strategy of the task force is to develop "a statement of community consensus regarding the reuse and redevelopment of Fort Ord to induce a series of prioritized alternatives with evaluations". The strategy will be used to develop an installation reuse plan, which contains the best use of the property, including the highest dollar value; ensures environmental considerations; and contains other implementation details.

2.6.2.3 Federal and State Agency Involvement

Because the federal and state real estate screening process had not been completed for inclusion in the draft EIS, the Army distributed a letter on April 17, 1992 to all federal agencies in the western United States and to all California state agencies to solicit potential interest in reusing portions of Fort Ord. Reuse proposals, support of other federal or state reuse proposals, or federal or state agency public-benefit sponsor proposals were received from eight federal agencies, six California state agencies, and seven other

agencies. The agencies that submitted these preliminary reuse proposals are listed below under Section 2.6.3.5, "Alternative 4: Institutional Use", and in Appendix F in Volume III.

On February 8, 1993, the state and local real estate screening had been completed. Alternative 6R incorporates all of the federal, state, and local screening requests. Requests were received from 3 federal agencies, 5 California state agencies, and 20 local agencies or institutions. A summary of the screening requests and copies of letters of intent received by the Army is contained in Volume V, "Real Estate Screening Requests", and is also presented in Section 2.6.3.7.

2.6.3 Development of Reuse Alternatives

This section describes the methodology and assumptions used to develop each reuse alternative. Local agencies and the Fort Ord Task Force were encouraged to submit vision plans for Fort Ord to the Army by May 27, 1992. From February to May 1992, the Army worked with the local agencies and the task force to present baseline information on land use, air quality, soils, and other physical attributes. Because the endangered species surveys had not been completed, the Army presented preliminary baseline information on biological resources.

The Army outlined assumptions needed from the local agencies to develop the reuse alternatives (i.e., land use map and summary; population, housing, and employment generation; circulation network; infrastructure plan; public service generation rates; roadway levels of service; and other information necessary to conduct the impact analysis). During this period, the county and the five cities worked cooperatively to develop common assumptions for use in the Army's EIS (Appendix Q in Volume III).

During development of the reuse alternatives, Monterey County LAFCO, in agreement with all of the local agencies and task force served as the liaison between the local agencies and the Army. By mid-May 1992, Monterey County LAFCO submitted to the Army a package containing the vision plans of the county, five cities, and the task force. This package contained the visions that resulted in the development of Alternatives 1, 2, and 3; subalternative C; and portions of Alternatives 4, 5, and 6 analyzed in this EIS (Appendix E in Volume III).

To develop the alternatives analyzed in this EIS, the Army examined each local alternative and formulated consistent land use categories. Because the land use categories received from the local agencies were specific in some alternatives but general in others, specific land uses were grouped into various broad land use categories by the Army to provide consistent land use designations for purposes of analysis.

In developing the reuse alternatives, the Army replaced specific reuse proposals with general land use categories (i.e., California State University expansion campus is designated as "university"); therefore, the alternatives do not indicate jurisdictional boundaries or other federal, state, or local agencies' proposals.

The following describes the agencies represented by reuse alternative.

2.6.3.1 Alternative 1: High-Intensity Mixed Use

This alternative generally represents the Fort Ord Economic Development Authority (FOEDA) vision for Cities of Marina and Seaside, the vision for the City of Sand City, information provided by the Cities of Del Rey Oaks and Monterey, and the county's vision for the remaining unincorporated area.

2.6.3.2 Subalternative C: Partial Variation of High-Intensity Mixed Use

This subalternative generally represents the FOEDA vision for the Cities of Marina and Seaside, which extends beyond the cities' existing jurisdictional boundaries, and the county's vision for remaining unincorporated area in the far eastern portion of the installation.

2.6.3.3 Alternative 2: Medium-Intensity Mixed Use

This alternative generally represents the county's vision in all of the unincorporated area and the FOEDA vision in the incorporated areas of the Cities of Marina and Seaside.

2.6.3.4 Alternative 3: Low-Intensity Mixed Use

This alternative generally represents the task force recommendation.

2.6.3.5 Alternative 4: Institutional Use

This alternative generally represents preliminary proposals received as a result of the April 17, 1992 letter sent by the Army from other federal and state agencies, including federal agencies (National Oceanic and Atmospheric Administration, National Parks Service, U.S. Bureau of Land Management, U.S. Department of Education, U.S. Department of Health and Human Services, U.S. Department of Justice, Federal Bureau of Prisons, and U.S. Fish and Wildlife Service), state agencies (California Coastal Conservancy; California Department of Fish and Game; California Department of Parks and Recreation; California Department of Transportation; California State University; and University of California), and other agencies (Goodwill Industries Vocational Rehabilitation Unit, Monterey County Housing Authority, Monterey County Parks Department, Monterey Institute of International Studies, Monterey Peninsula College, Monterey Peninsula Unified School District, and York School). This alternative also incorporates institutional uses from the vision plans proposed by the local agencies and task force.

Some proposals for reuse of undeveloped land did not specify a location. Most of these proposals could be classified as institutional and have been included with other institutional proposals. The locations of these reuse proposals were determined by avoiding areas specified in other proposals for institutional uses and by considering known environmental constraints.

2.6.3.6 Alternative 5: Open Space

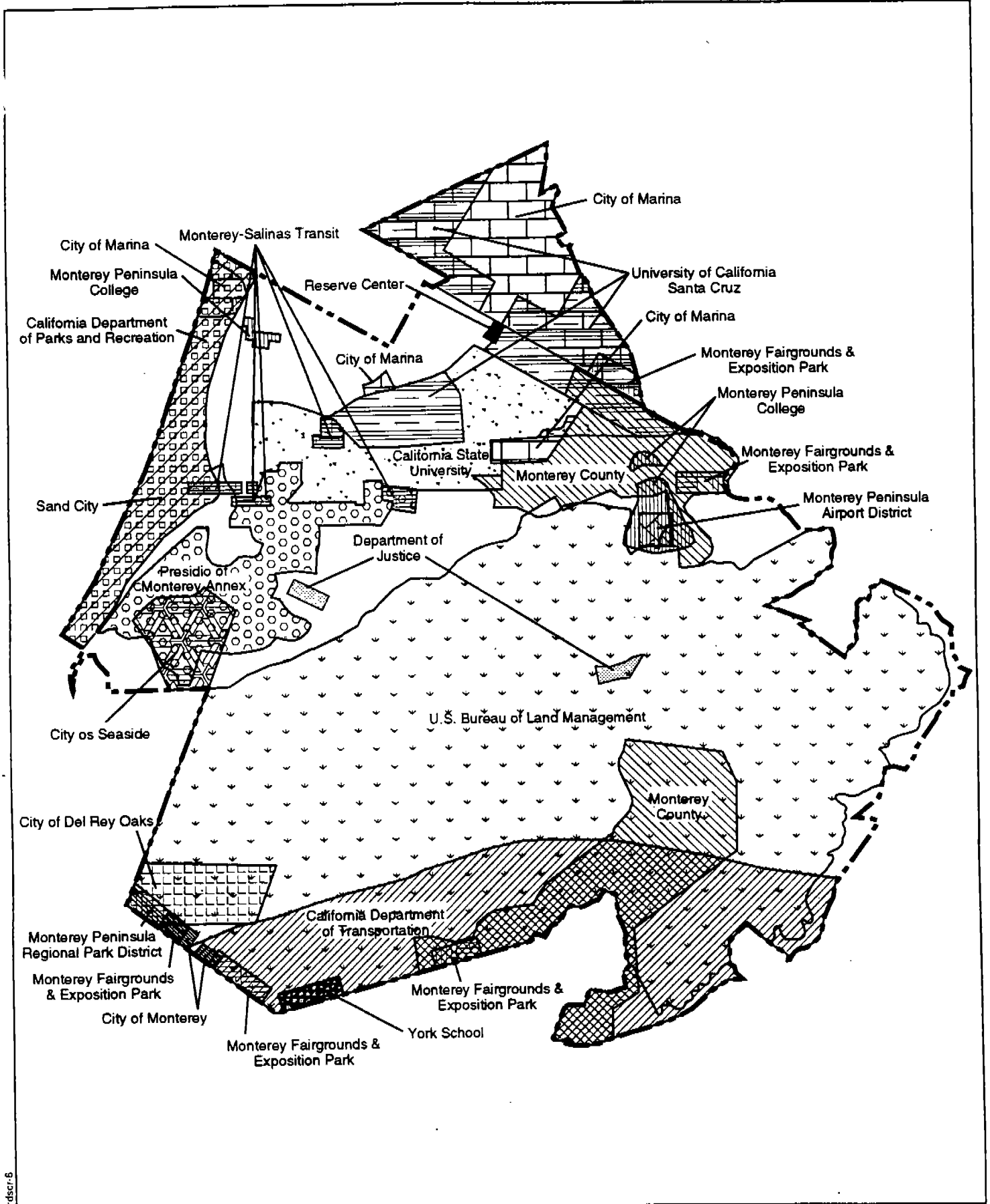
This alternative represents preliminary open space proposals from other federal and state agencies and also incorporates open space uses from the vision plans proposed by the local agencies and task force.

2.6.3.7 Alternative 6R: Anticipated Reuse (Revised)

This alternative was originally developed by the Army from preliminary screening requests from DOD, and other federal, McKinney Act, and state and local entities, while incorporating market and other community factors. It included some development by private interests on lands that could be sold after priority requests from other federal, state, and local agencies are acted on. The alternative has been revised to reflect the results of the official real estate screening process, which was completed subsequent to release of the draft EIS. There are requests from agencies in several areas where the original alternative contained private land uses. Alternative 6R proposes the priority agency use for these areas. Also, for the areas where there have been no government agency requests, an NPU designation is shown in the revised alternative, reflecting ongoing local planning and uncertain desires of private parties who will acquire the lands. Each of the screening requests and the way in which they were incorporated into Alternative 6R are described briefly below. The requests are shown in Figures 2-9 and 2-10.

Figure 2-9.

Requests Received Through the Federal, State, and Local Real Estate Screening Process



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From the federal screening process, property interests were received from the U.S. Department of Interior, Bureau of Land Management (BLM), and the U.S. Department of Justice, Federal Bureau of Investigation (FBI). The BLM requested the majority of the undeveloped central and southern portions of Fort Ord to be managed for protection of the natural resource values that exist in the training and inland range areas. The boundaries of the requested area were modified to add lands along the northern edge and to remove lands along the southern and western edges to accommodate other screening requests. This use is included in the natural resources management area (NRMA) land use designation of Alternative 6R.

The FBI requested the existing officers club and adjacent bachelor officers quarters to support classroom training of federal, state and local law enforcement officers. The agency also requested the existing MOUT facility for weapons training. These two requests are reflected as government center (GOVT) and peace officers standards and training (POST) land uses in Alternative 6R.

The McKinney Act screening process resulted in approved applications for housing units, warehouses, a child development center, Martinez Hall, and other real estate assets. A total of 11 homeless housing advocates with a request for approximately 90 buildings have been included in the McKinney (MCK) land use designation in Alternative 6R. The applicants include Peninsula Outreach, Interim Inc., Monterey County Housing Authority, YMCA, John XXIII Ministry, Vietnam Vets, Food Bank, Childrens Services International, Salvation Army, RSNC Valley Center, and Shelter Plus. Although most of these requests were developed independently and were for individual structures or groups of structures, they have been included in generalized land areas for purposes of the alternatives analysis.

The state screening process generated land requests from the California Department of Parks and Recreation (through the U.S. National Parks Service), the California Department of Transportation, the California State University system, the California Highway Patrol, and University of California, Santa Cruz (the latter two through the U.S. Department of Education).

The California Department of Parks and Recreation request for all lands west of SR 1 was included in the initial version of Alternative 6R and remains unchanged. The land use designations include disturbed habitat zone (DHZ), coastal dunes zone (CDZ), multi-use area (MUA), and service areas (SA); these uses are intended to support habitat preservation and public recreation. A request for land immediately east of SR 1 for a contact services center conflicted with a local request for a transit center and was removed from Alternative 6R. The services center could be incorporated into the MUA use west of the highway.

The University of California, Santa Cruz request for research lands and lands to support a university research institute have been included in Alternative 6R as university research area (URA) and university science office (USO) land use categories. The boundaries of the lands intended for research park development have been modified at Fritzsche Army Airfield to reflect an overlapping request for airport use by the City of Marina. The airport use was given precedence due to federal legal mandates to give priority to airport reuse when federal air facilities are declared excess. Consideration of a request for facilities from the U.S. National Oceanic and Atmospheric Administration is also included in the USO land use area.

The California State University request for lands to support a new state university campus has been included in Alternative 6R as the university (UNIV) land use designation.

The California Highway Patrol request for administrative space is included in Figure 3-14.

The California Department of Transportation (Caltrans) requested a large section of southern Fort Ord as a corridor to be considered for realignment of SR 68. The corridor would support a 1,000-foot highway right-of-way; the remainder of the land would be used as mitigation land. This request has been substantially modified and included in Alternative 6R as the transportation corridor (T) land use designation. The corridor was moved to the southern edge of the installation because of conflicts with the BLM land

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6R as the airport (AIR) land use designation. The existing air facilities are included in this area, but adjacent undeveloped lands were removed because there was no identified airport use and state screening requests for educational uses were given precedence.

The City of Del Rey Oaks requested a number of road easements and a large amount of acreage in the southwestern corner of Fort Ord for development of an office park. This request was modified to account for overlapping requests from BLM, the Monterey Peninsula Regional Park District, and the City of Monterey. The city and park district requests were tied to extensions of existing adjacent uses and could not be accommodated in other areas. The shape of the area Del Rey Oaks requested was modified to insure BLM could safely and efficiently manage the land it has requested. This use is included in Alternative 6R as office park (OP) land use.

The City of Monterey requested lands along the southern edge of Fort Ord to allow for expansion of an existing park and corporation yard. These uses are reflected in Alternative 6R as community park (CPRK) and corporation yard (CORP).

The City of Sand City requested all lands on Fort Ord west of SR 1 and all associated roads and infrastructure to support a community public park and visitor-serving recreation area. This request overlapped with the California State Parks and Recreation request. Therefore Alternative 6R reflects the recreation use proposals of the state park system rather than those of Sand City. The state request is given precedence over the local request.

The City of Seaside made screening requests for road rights-of-way and various infrastructure systems, but did not specify land areas. Therefore, this request was not translated into a land use designation for Alternative 6R.

A number of local educational institution requests were received directly or through the U. S. Department of Education. Most of these requests were for specific buildings or groups of buildings and are mapped in Figure 3-14. Requests from Monterey College of Law, Monterey Institute for Research in Astronomy, Monterey Peninsula Unified School District, and Goodwill Industries are included in this figure. A request from Golden Gate University for 8-10 acres for university facilities is considered part of the UC research park request and is included within the USO land use designation.

Requests from the Monterey Peninsula Community College and the Monterey Institute for International Studies overlapped with requests from the federal, McKinney Act, and other local screening and could not be accommodated as specified. However, these proposed uses are consistent with other land uses proposed in Alternative 6R and could be relocated to other structures in NPU areas.

The York School, a local private school, requested 150 acres of open land in the southern portion of the installation for development of an outdoor science lab and cross-country running course. The location of this proposal overlapped with the California Department of Transportation request for a State Route (SR) 68 corridor and the BLM request for NRMA lands. Therefore, the use was reshaped, moved slightly north and is mapped as school expansion (SE) in Alternative 6R.

Various agencies have applied for infrastructure and utility systems and capacities in these systems through the screening process. See Section 2.3.3 for a discussion of the disposition of infrastructure and utility systems.

Applications were also received through the real estate screening process for non-real estate property such as furniture, vehicles, and equipment. These properties are not disposed through the screening process and will be based on existing property disposal procedures.

Volume V contains copies of the letters of intent received through the real estate screening process. This is an unpublished document available upon request.

2.7 LOCAL REUSE PLANNING STATUS

2.7.1 Introduction

This section describes the status of local community reuse planning for Fort Ord at the time of printing of this EIS. (Appendix G in Volume III contains information pertaining to recent developments.) The reuse alternatives analyzed in this EIS are based on the alternatives defined in May 1992. Because of the Congressionally mandated 18-month EIS preparation timeframe, refinements in the ongoing, continually evolving reuse planning process have not been incorporated into and analyzed in this report. The EIS timeframe required that reuse planning occur rapidly to develop alternatives to be analyzed in the Army's EIS.

At the time that the reuse alternatives were being developed, neither the endangered species surveys or the infrastructure planning study had been completed; therefore, several known environmental constraints were not considered in development of reuse alternatives by local agencies.

2.7.2 Monterey County

In September 1992, the Monterey County Board of Supervisors directed the county planning staff to revise the Fort Ord Interdepartmental Committee Schematic Plan (Monterey County's vision plan for Fort Ord) to reflect the open space criteria of the U.S. Bureau of Land Management. The following actions were approved by the board of supervisors to:

- create a habitat/open space/recreation overlay on interior Fort Ord territory, covering the inland range area and the U.S. Bureau of Land Management area of interest;
- continue to meet with federal and state agencies that have jurisdiction over rare and endangered species to develop an installationwide natural resource mitigation program; and
- officially recognize that the U.S. Bureau of Land Management plays a role in the process; the county will work with the bureau to see that its role is fulfilled so as to be beneficial to all parties.

Appendix G in Volume III contains a copy of the revised county schematic plan.

2.7.3 City of Marina

The Marina City Council held a "Fort Ord Issues Workshop" so that the community could help define and work through key issues arising from possible alternatives regarding Fort Ord's future. The workshop was held on September 26, 1992, from 9:00 a.m. to 1:00 p.m. in the Marina City Hall Council chambers. Copies of the public announcements and a copy of the adopted City Council minutes are contained in Appendix G in Volume III.

The City of Marina has requested a Cooperative Agreement to assist the Army in the marketing of the property. The Secretary of the Army stated in a letter to FORG on April 21, 1993 that all of the communities should consider whether they wish to pursue a single cooperative agreement. This issue, along with the redevelopment contract, is being worked on by the U.S. Army Corps of Engineers.

2.7.4 City of Seaside

During the preparation of the EIS analysis, the City of Seaside's recommended POM annex footprint changed so that boundaries of the proposed annex fit within the Seaside sphere of influence. The footprint, analyzed as Subalternative B in this EIS, includes undeveloped lands outside the Seaside city limits. The revised footprint is coterminous with the city limit. Because the revised Seaside POM annex footprint was received late in the analysis process, the original Seaside proposed annex is analyzed in this EIS.

On November 20, 1992, the Deputy Assistant Secretary of the Army for Installations and Housing announced that the Army would continue to evaluate the POM annex briefed to the communities in February 1992 and analyzed in this EIS as the Army's proposed POM annex, but that the Army would consider an alternative proposal from Seaside. The City of Seaside resubmitted their original proposal in March 1993. On April 21, 1993, the Secretary of the Army stated that Seaside's alternative POM annex proposal was unacceptable to the Army. However, the Secretary of the Army reiterated that if Seaside submitted a different proposal, the Army would evaluate it. In March 1993, the Secretary of the Army announced to the City of Seaside that the Army may consider outgranting the golf courses to the City of Seaside.

2.7.5 Fort Ord Task Force

In July 1992, the Fort Ord Task Force issued a request for qualifications for a project coordinator to manage the Fort Ord Reuse Planning Committee and to coordinate the preparation of the Initial Base Reuse Plan.

2.7.6 Fort Ord Reuse Group

The FORG was established by Monterey County and the Cities of Marina, Seaside, Del Rey Oaks, Monterey, and Sand City on October 1, 1992, as a cooperative planning committee to begin the next step in implementing the June 1992 Fort Ord Task Force strategy. The FORG was established to supersede the Fort Ord Task Force because the staff coordinator was retiring.

On March 24, 1993, FORG submitted its Initial Base Reuse Plan to the Army. Since this proposal was submitted after the February 22, 1993 deadline for comments on the draft, it cannot be included as a separate alternative in the EIS without missing Congress' August 1993 deadline for completion of the EIS. The Secretary of the Army has directed, however, that the Army will undertake an alternative evaluation of the FORG proposal to determine whether it is a "reasonable alternative" that is not already covered by the broad alternatives analysis set out in the EIS. If the evaluation indicates that the FORG proposal is a "reasonable alternative", the Army will compile a supplemental EIS to address the FORG proposal.

The FORG also requested participation in issues relating to consultation under Section 7 of the Endangered Species Act. Although the FORG will not be able to participate in the process as an applicant, the Army, in cooperation with the U.S. Fish and Wildlife Service (USFWS), will ensure that Endangered Species Act consultation at Fort Ord is accessible to all interested parties. The Army and USFWS conducted a public workshop on May 26, 1993 to explain the consultation process. In addition, the USFWS has agreed to allow their draft Biological Opinion on the reuse of Fort Ord to be available for citizen review and explanation by the USFWS at a public meeting.

2.7.7 California State University

California State University has revised boundaries for the proposed new university campus so that it is compatible with DOD and Army requirements for POM annex functions and facilities. The revised proposal is analyzed in the Alternative 6R analysis. The university is also adjusting its proposal to reflect a phased plan to avoid conflicting with ongoing hazardous and toxic waste site remediation.

2.7.8 State Route 68 Project

On November 10, 1992, the California Department of Transportation (Caltrans) issued a letter indicating that the notice of preparation (NOP) for the SR 68 EIR/EIS had been withdrawn pending completion of further studies. Caltrans staff has submitted a request for conveyance to the Army for a 1,000-foot corridor through the southern section of Fort Ord. At present, there is no schedule or funds to pursue development of this project.

The project would study several alternatives to alleviate traffic congestion along an 11-mile portion of SR 68. These alternatives include a No-Build Alternative, a Transportation Systems Management Alternative, an In-Corridor Alternative, and a South Fort Ord Alternative. The South Fort Ord Alternative proposes realignment of 7.1 miles of SR 68 between the junction of SR 218 and the Toro Park Interchange; by realigning this portion to the north, SR 68 will be routed through the southern part of the installation.

The SR 68 project is being prepared separately from this EIS. The reuse alternatives developed in cooperation with the local agencies and the Fort Ord Task Force do not include improvements to SR 68.

2.7.9 Salinas Westside/Fort Ord Multimodal Transportation Corridor Study

On February 22, 1993, the Transportation Agency for Monterey County hired a consultant team to conduct a corridor study for a new multimodal transportation corridor connecting the west side of the City of Salinas with the Monterey Peninsula. The study, which is being guided by a technical advisory team of representatives from local, regional, state, and federal government agencies as well as private interests, is scheduled to be complete in June 1993. Transportation Agency for Monterey County staff is also working closely with FORG to develop a Fort Ord reuse plan to be used in future-year transportation model runs.

Several alternative corridors are being studied, including routes through Fort Ord. Environmental, land use, engineering, cost, and transportation planning considerations will guide the choice of corridor. In addition to studying alternative routes between Salinas and the Monterey Peninsula, and a bypass connecting U.S. 101 with the new corridor, the location of a multimodal terminal near the Fort Ord main gate is also being studied.

Section 3.0 Alternatives

3.1 INTRODUCTION

The Defense Base Closure and Realignment Act of 1990 (1990 Base Closure Act) mandates the closure of Fort Ord. The Army plans to dispose of excess property through the process described in Section 2.0, "Proposed Action"; establish a Presidio of Monterey (POM) annex; and retain the existing reserve center. This section describes the alternatives considered to establish the POM annex and retain the reserve center and describes the reuse alternatives identified and analyzed in this document.

3.2 ESTABLISHMENT OF PRESIDIO OF MONTEREY ANNEX

3.2.1 Army's Proposed Presidio of Monterey Annex

The location of the POM annex is based on the need to:

- establish a contiguous facility,
- retain minimum facilities and functions,
- maintain quality of life for residual military and families,
- support retirees where possible,
- enhance morale factors, and
- accommodate other Department of Defense (DOD) activities where possible.

Alternatives to establishing the POM annex considered new construction, leasing of installation lands, and use of other military installations and various sites or facilities located throughout the installation. New construction, leasing, and other military installations were eliminated because of high cost and disruption.

A major consideration in establishing the POM annex is locating the housing; administrative support; and the morale, welfare, recreation (MWR) facilities in the same areas as the Defense Language Institute. Various combinations of sites and facilities were evaluated throughout the installation, but the alternative selected was the only solution to the contiguous requirement. No other alternative provided contiguous housing, administrative support, and MWR facilities.

3.2.2 City of Seaside's Recommended Presidio of Monterey Annex

The City of Seaside is proposing a land exchange with the Army that locates the POM annex east of North-South Road. In the proposal, the city would receive the golf course and contiguous areas west of North-South Road. Implementation of Seaside's recommended POM annex would result in new construction of all facilities west of North-South Road located within the Army's proposed POM annex footprint.

The details of the City of Seaside proposal are discussed further in this section. Impacts of establishing Seaside's recommended POM annex at this location are included with the reuse analysis of Alternative 1: High-Intensity Mixed Use, Subalternative C: Partial Variation of High-Intensity Mixed Use and Alternative 2: Medium-Intensity Mixed Use in Section 5.0, "Environmental and Socioeconomic Consequences" and in Volume II, respectively.

3.3 RETENTION OF RESERVE CENTER

A reserve center must meet the Army requirements of mission, efficiency, and cost-effectiveness and must be accessible and visible. Consideration was given to new construction, leasing of installation lands, and use of other facilities located throughout the installation.

Leasing was not cost-effective and the cost of new construction of a replacement center exceeds the estimated revenue from sale of the existing property. No other facilities within the boundaries of the installation meet the requirements of the reserve center. Therefore, no alternative to retaining the existing reserve center is feasible.

3.4 REUSE

Reuse alternatives analyzed in this environmental impact statement (EIS), developed through the processes described in Section 2.0, "Proposed Action", are as follows:

- Alternative 1: High-Intensity Mixed Use
- Alternative 2: Medium-Intensity Mixed Use
- Alternative 3: Low-Intensity Mixed Use
- Alternative 4: Institutional Use
- Alternative 5: Open Space Use
- Alternative 6: Anticipated Reuse (Revised)

The level of detail describing the alternatives in this EIS is based on the best information available, provided by federal, state, and local agencies and the Fort Ord Task Force regarding proposed land uses and assumptions. The community vision package used to develop Alternatives 1, 2, and 3 is contained in Appendix E in Volume III.

The specific land uses proposed in each reuse alternative have been placed in one of the following general land use categories: open space, parks and recreation, tourism, agriculture, commercial/business park, industrial, institutional/public, residential, and other. "Other" includes the POM annex; reserve center; transportation corridor; and areas with no proposed use (NPU), which is defined as "caretaker status", or the minimum required staffing to maintain safety, security, and health standards in a state of repair. The land use definitions are contained in Appendix H in Volume III. (Appendix H has been reprinted in Volume IV, Section 6.0.)

Additionally, the following subalternatives are analyzed relative to the reuse alternatives:

- Subalternative A: No Presidio of Monterey Annex/No Reserve Center
- Subalternative B: Seaside's Recommended Presidio of Monterey Annex/No Reserve Center
- Subalternative C: Partial Variation of High-Intensity Mixed Use

Subalternative A is analyzed under Alternatives 1, 2, and 5. Alternative 3 generally represents the Fort Ord Task Force recommendation, which includes the Army's proposed February 14 POM annex; therefore, no alternatives to the POM annex are analyzed under this alternative. Alternative 4 represents DOD and other federal, state, and local institutional proposals. Because the POM annex was requested as a result of the screening process, no alternatives to the POM annex are analyzed under this alternative. The revised Alternative 6 (6R) represents the results of the screening process and, therefore, includes the Army's proposed POM annex and reserve center.

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Table 3-1 Alternative 1: High-Intensity Mixed Use

Land Use Category	Specific Land Use	Acreage
Open Space	Coastal Dunes Zone	433
	Habitat Preserve	223
	Natural Area Expansion	50
	Natural Resource Management Area	2,209
Parks and Recreation	Fairgrounds	265
	Golf Course	682
	Park	
	Community	537
	Regional	774
	Recreation Area Expansion	166
	Reservoir	233
	RV Park/Campground	255
	Sports Center	192
	Sports Complex	199
Sports Field	146	
Tourism	Ampitheater	203
	Botanical Garden	336
	Cultural Center	209
	Ethnic Village	132
	Festival Plaza	167
	Film Complex	333
	Golf Hall of Fame/Smithsonian West	99
	Museum/Performing Arts Center	254
	National Innovation Center	401
	Resort Hotel	522
	Theme Park	570
	Wildlife Park	261
Zoo	423	
Agriculture	Vineyards	1,072
Commercial/Business Park	Asilomar-Type Facility	123
	Central Business	332
	Commercial Center	506
	Conference Center	283
	Corporate Headquarters	427
	Corporate Offices	357
	Office Park	559
	Regional Shopping Center	145
	Retail	260
	Industrial	Airport
Aquaculture		35
Light Industry		1,528

Table 3-1 Alternative 1: High-Intensity Mixed Use - Continued

Land Use Category	Specific Land Use	Acreage
Institutional/Public		2,696
	Cemetery	164
	Fire Training	417
	Government Center	96
	High School	36
	Marine Research	219
	Police Academy	252
	Regional Medical Center	208
	Trade Schools	533
	Transit Center	157
	University	614
Residential		7,040
	Rural (RR)	1,301
	Very Low (VLR)	358
	Low (LR)	1,186
	Medium (MR)	1,297
	High (HR)	2,898
Other		1,475
	Army-Proposed POM Annex	1,463
	Reserve Center	12
No Proposed Use		142
Total*		27,725
<p>* There are slight differences in the total acreage for each alternative and subalternative due to rounding of individual acreages. The acreage total for Alternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.</p>		
<p>Note: This table corresponds with Figure 3-1.</p>		

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Table 3-2 Alternative 1: High-Intensity Mixed Use
Subalternative A: No Presidio of Monterey Annex/No Reserve Center

Land Use Category	Specific Land Use	Acreage
Open Space	Coastal Dunes Zone	433
	Habitat Preserve	223
	Natural Area Expansion	50
	Natural Resource Management Area	2,209
Parks and Recreation		3,873
	Fairgrounds	285
	Golf Course	1,086
	Park	
	Community	537
	Regional	774
	Recreation Area Expansion	166
	Reservoir	233
	RV Park/Campground	255
	Sports Center	192
	Sports Complex	199
Sports Field	146	
Tourism		3,948
	Ampitheater	203
	Botanical Garden	336
	Cultural Center	209
	Ethnic Village	132
	Festival Plaza	167
	Film Complex	333
	Golf Hall of Fame/Smithsonian West	99
	Hotel	38
	Museum/Performing Arts Center	254
	National Innovation Center	401
	Resort Hotel	522
	Theme Park	570
Wildlife Park	261	
Zoo	423	
Agriculture		1,072
Vineyards	1,072	
Commercial/Business Park		3,157
	Asilomar-Type Facility	123
	Central Business	481
	Commercial Center	519
	Conference Center	283
	Corporate Headquarters	427
	Corporate Offices	360
	Office Park	559
	Regional Shopping Center	145
Retail	260	
Industrial		2,014
	Airport	451
	Aquaculture	35
	Light Industry	1,528

**Table 3-2 Alternative 1: High-Intensity Mixed Use
Subalternative A: No Presidio of Monterey Annex/No Reserve Center – Continued**

Land Use Category	Specific Land Use	Acreage
Institutional/Public		2,696
	Cemetery	164
	Fire Training	417
	Government Center	96
	High School	36
	Marine Research	219
	Police Academy	252
	Regional Medical Center	208
	Trade Schools	533
	Transit Center	157
	University	614
Residential		7,278
	Rural (RR)	1,301
	Very Low (VLR)	358
	Low (LR)	1,186
	Medium (MR)	1,297
	High (HR)	3,136
No Proposed Use		773
Total*		27,726
<p>* There are slight differences in the total acreage for each alternative and subalternative due to rounding of individual acreages. The total acreage for Alternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.</p>		
<p>Note: This table corresponds with Figure 3-2.</p>		

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**Table 3--3 Alternative 1: High-Intensity Mixed Use
Subalternative B: Seaside's Recommended Presidio of Monterey Annex/No Reserve Center**

Land Use Category	Specific Land Use	Acreage
Open Space		2,915
	Coastal Dunes Zone	433
	Habitat Preserve	223
	Natural Area Expansion	50
	Natural Resource Management Area	2,209
Parks and Recreation		3,874
	Fairgrounds	285
	Golf Course	1,086
	Park	
	Community	538
	Regional	774
	Recreation Area Expansion	166
	Reservoir	233
	RV Park/Campground	255
	Sports Center	192
	Sports Complex	199
	Sports Field	146
Tourism		3,848
	Ampitheater	203
	Botanical Garden	336
	Cultural Center	209
	Ethnic Village	132
	Festival Plaza	167
	Film Complex	332
	Hotel	38
	Museum/Performing Arts Center	254
	National Innovation Center	401
	Resort Hotel	522
	Theme Park	570
	Wildlife Park	261
	Zoo	423
Agriculture		1,072
	Vineyards	1,072
Commercial/Business Park		3,157
	Asilomar-Type Facility	123
	Central Business	481
	Commercial Center	519
	Conference Center	283
	Corporate Headquarters	427
	Corporate Offices	360
	Office Park	559
	Regional Shopping Center	145
	Retail	260
Industrial		1,838
	Airport	451
	Aquaculture	35
	Light Industry	1,352

**Table 3-3 Alternative 1: High-Intensity Mixed Use
Subalternative B: Seaside's Recommended Presidio of Monterey Annex/No Reserve Center – Continued**

Land Use Category	Specific Land Use	Acreage
Institutional/Public		2,431
	Cemetery	164
	Fire Training	417
	Government Center	96
	High School	36
	Marine Research	246
	Police Academy	252
	Trade Schools	533
	Transit Center	157
	University	530
Residential		7,107
	Rural (RR)	1,301
	Very Low (VLR)	358
	Low (LR)	1,186
	Medium (MR)	1,297
	High (HR)	2,965
Other		1,486
	Seaside-Recommended POM Annex	1,428
	No Proposed Use	58
Total*		27,728

* There are slight differences in the total acreage for each alternative and subalternative due to rounding of individual acreages. The total acreage for Alternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.

Note: This table corresponds with Figure 3-4.

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**Table 3-4 Alternative 1: High-Intensity Mixed Use
Subalternative C: Partial Variation of High-Intensity Mixed Use**

Land Use Category	Specific Land Use	Acreage
Open Space		2,563
	Coastal Dunes Zone	354
	Natural Resource Management Area	2,209
Parks and Recreation		4,053
	Park	
	Community	537
	Regional	658
	Golf Course	1,740
	Recreational Area Expansion	166
	Reservoir	233
	RV Park/Campground	182
	Sports Center	192
	Sports Complex	199
Sports Field	146	
Tourism		4,298
	Ampitheater	203
	Botanical Garden	336
	Cruise Ship Pier	35
	Cultural Center	161
	Ethnic Village	132
	Festival Plaza	167
	Film Complex	333
	Golf Hall of Fame/Smithsonian West	99
	Hotel	38
	Marina	247
	Museum/Performing Arts Center	254
	National Innovation Center	401
	Resort Hotels	638
	Theme Park	570
	Wildlife Park	261
Zoo	423	
Agriculture		1,072
	Vineyards	1,072
Commercial/Business Park		3,037
	Central Business	328
	Commercial Center	519
	Corporate Headquarters	942
	Corporate Offices	361
	Office Park	482
	Regional Shopping Center	145
	Retail	260
Industrial		1,979
	Airport	451
	Light Industry	1,528
Institutional/Public		2,749
	Cemetery	164
	Fire Training	417
	Government Center	96
	High School	36
	Marine Research	219
	Police Academy	252
	Regional Medical Center	208
	Trade Schools	533
	Transit Center	71
	University	614
Weather Station	139	

**Table 3-4 Alternative 1: High-Intensity Mixed Use
Subalternative C: Partial Variation of High-Intensity Mixed Use - Continued**

Land Use Category	Specific Land Use	Acreage
Residential		7,575
	Rural (RR)	1,301
	Very Low (VLR)	358
	Low (LR)	1,111
	Medium (MR)	1,276
	High (HR)	3,529
No Proposed Use		679
Total*		28,005

* There are slight differences in the total acreage for each alternative and subalternative due to rounding of individual acreages. The total acreage for Alternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.

Note: This table corresponds with Figure 3-5.

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Table 3-5 Alternative 2: Medium-Intensity Mixed Use

Land Use Category	Specific Land Use	Acreeage
Open Space		4,884
	Coastal Dunes Zone	727
	Habitat Preserve	1747
	Natural Resource Management Area	2,410
Parks and Recreation		1,493
	Park	
	Community Park	144
	Regional Park	201
	Recreation Area Expansion	936
	RV Park/Campground	128
	Sports Fields	84
Tourism		902
	Cultural Center	191
	Golf Hall of Fame/Smithsonian West	57
	Museum/Performing Arts Center	253
	National Innovation Center	401
Commercial/Business Park		3,185
	Asilomar--Type Facility	68
	Central Business	329
	Commercial Center	371
	Corporate Headquarters	350
	Corporate Offices	361
	High Tech Business Park	285
	Office Park	1,421
Industrial		1,831
	Agri--Center	756
	Airport	451
	Aquaculture	38
	Light Industry	586
Institutional/Public		5,131
	Fire Training	1,098
	Government Center	96
	High School	36
	Marine Research	888
	Medical Research	260
	Police Academy	2,382
	Regional Medical Center	116
	School Expansion	30
	Trade Schools	57
	Transit Center	130
	University	38
Residential		6,239
	Rural (RR)	2,618
	Very Low (VLR)	360
	Low (LR)	2,470
	High (HR)	791

Table 3-5 Alternative 2: Medium-Intensity Mixed Use - Continued

Land Use Category	Specific Land Use	Acreage
Other		1,475
	Army-Proposed POM Annex	1,463
	Reserve Center	12
No Proposed Use		2,589
		<hr/>
Total*		27,729
<hr/>		
<p>* There are slight differences in the total acreage for each alternative and subalternative due to rounding of individual acreages. The total acreage for Alternative 1, Subalternative C is greater because it includes the proposed marina and cruise ship pier that extend off the installation.</p>		
<p>Note: This table corresponds with Figure 3-6.</p>		

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Table 3-6 Alternative 2: Medium-Intensity Mixed Use
 Subalternative A: No Presidio of Monterey Annex/No Reserve Center

Land Use Category	Specific Land Use	Acres
Open Space		4,884
	Coastal Dunes Zone	727
	Habitat Preserve	1747
	Natural Resource Management Area	2,410
Parks and Recreation		1,897
	Golf Course	404
	Park	
	Community Park	144
	Regional Park	201
	Recreation Area Expansion	936
	RV Park/Campground	128
Sports Fields	84	
Tourism		940
	Cultural Center	191
	Golf Hall of Fame/Smithsonian West	57
	Museum/Performing Arts Center	253
	National Innovation Center	401
Resort Hotel	38	
Commercial/Business Park		3,337
	Asilomar-Type Facility	68
	Central Business	481
	Commercial Center	371
	Corporate Headquarters	350
	Corporate Offices	361
	High Tech Business Park	285
	Office Park	1,421
Industrial		1,831
	Agri-Center	756
	Airport	451
	Aquaculture	38
	Light Industry	586
Institutional/Public		5,131
	Fire Training	1,098
	Government Center	96
	High School	36
	Marine Research	888
	Medical Research	260
	Police Academy	2,382
	Regional Medical Center	116
	School Expansion	30
	Trade Schools	57
	Transit Center	130
University	38	
Residential		6,489
	Rural (RR)	2,618
	Very Low (VLR)	360
	Low (LR)	2,482
	High (HR)	1,029

**Table 3-6 Alternative 2: Medium-Intensity Mixed Use
Subalternative A: No Presidio of Monterey Annex/No Reserve Center – Continued**

Land Use Category	Specific Land Use	Acreage
No Proposed Use		3,220
Total*		27,729
<p>* There are slight differences in total acreage for each alternative and subalternative due to rounding of individual acreages. The total acreage for Alternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.</p>		
<p>Note: This table corresponds with Figure 3-7.</p>		

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Table 3-7 Alternative 2: Medium-Intensity Mixed Use
 Subalternative B: Seaside's Recommended Presidio of Monterey Annex

Land Use Category	Specific Land Use	Acreage
Open Space	Coastal Dunes Zone	4,884
	Habitat Preserve	727
	Natural Resource Management Area	1747
		2,410
Parks and Recreation	Golf Course	1,897
	Park	404
	Community Park	144
	Regional Park	201
	Recreation Area Expansion	936
	RV Park/Campground	128
	Sports Fields	84
Tourism	Cultural Center	683
	Museum/Performing Arts Center	191
	National Innovation Center	253
	Resort Hotel	401
Commercial/Business Park	Asilomar - Type Facility	38
	Central Business	481
	Commercial Center	371
	Corporate Headquarters	350
	Corporate Offices	361
	High Tech Business Park	285
	Office Park	1,421
		3,337
Industrial	Agri-Center	1,831
	Airport	756
	Aquaculture	451
	Light Industry	38
		586
Institutional/Public	Fire Training	4,782
	Government Center	1,098
	High School	96
	Marine Research	36
	Police Academy	915
	School Expansion	2,382
	Trade Schools	30
	Transit Center	57
	University	130
		38
Residential	Rural (RR)	6,172
	Very Low (VLR)	2,618
	Low (LR)	360
	High (HR)	2,451
		743

Table 3-7 Alternative 2: Medium-Intensity Mixed Use
 Subalternative B: Seaside's Recommended Presidio of Monterey Annex - Continued

Land Use Category	Specific Land Use	Acreage
Other	Seaside-Recommended POM Annex	1,428
No Proposed Use		2,513
Total		27,727
<p>* There are slight differences in total acreages for each alternative and subalternative due to rounding of individual acreages. The total acreage for Alternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.</p>		
<p>Note: This table corresponds with Figure 3-8.</p>		

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Table 3-8 Alternative 3: Low-Intensity Mixed Use

Land Use Category	Specific Land Use	Acreage
Open Space		9,741
	Coastal Dunes Zone	421
	Habitat Preserve	492
	Natural Resource Management Area	8,828
Parks and Recreation		1,539
	Disturbed Habitat Zone	558
	Recreation Area Expansion	890
	RV Park/Campground	63
	Service Area	11
	Contact Station Area	17
Tourism		73
	Museum/Performing Arts Center	73
Agriculture		722
	General Agriculture	722
Commercial/Business Park		786
	Central Business	136
	Financial Center	63
	High Tech Business Park	305
	Office Park	282
Industrial		682
	Agri-center	361
	Airport	292
	Aquaculture	29
Institutional/Public		2,201
	International Studies	93
	Regional Medical Center	81
	Transit Center	32
	University	1,995
Residential (3)		2,818
	Low (LR)	2,818
Other		1,475
	Army-Proposed POM Annex	1,463
	Reserve Center	12
No Proposed Use		7,689
Total*		27,726

* There are slight differences in total acreages for each alternative and subalternative due to rounding of individual acreages. The total acreage for Alternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.

Note: This table corresponds with Figure 3-9.

Table 3-9 Alternative 4: Institutional Use

Land Use Category	Specific Land Use	Acreage
Open Space		6,694
	Coastal Dunes Zone	421
	Natural Resource Management Area	6,273
Parks and Recreation		856
	Contact Station Area	17
	Disturbed Habitat Zone	530
	Multi-Use Area	29
	Recreation Area Expansion	269
	Service Area	11
Industrial		953
	Agri-Center	322
	Airport	621
	Storage	10
Institutional/Public		8,037
	Cemetery	187
	Correctional Facilities	435
	High School	50
	Hospital	81
	International Studies	93
	Medical Research	244
	POST Academy	301
	School Expansion	611
	University/Science Office	286
	Trade Schools	153
	Transit Center	32
	University	2,122
	University Research Area	3414
	Weather Station	28
Other		1,475
	Army-Proposed POM Annex	1,463
	Reserve Center	12
No Proposed Use		9,711
Total*		27,726
<p>* There are slight differences in total acreages for each alternative and subalternative due to rounding of individual acreages. The total acreage for Alternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.</p>		
<p>Note: This table corresponds to Figure 3-10.</p>		

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Table 3-10 Alternative 5: Open Space

Land Use Category	Specific Land Use	Acreage
Open Space		10,718
	Coastal Dunes Zone	421
	Natural Area Expansion	29
	Natural Resource Management Area	9,544
	Habitat Preserve	724
Parks and Recreation		1,014
	Contact Station Area	17
	Disturbed Habitat Zone	558
	Equestrian Center	28
	Multi-Use Area	29
	Recreation Area Expansion	269
	RV Park/Campground	102
	Service Area	11
Other		1,475
	Army--Proposed POM Annex	1,463
	Reserve Center	12
No Proposed Use		14,518
Total		27,725
<p>* There are slight differences in total acreages for each alternative and subalternative due to rounding of individual acreages. The total acreage for Alternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.</p>		
<p>Note: This table corresponds with Figure 3-12.</p>		

**Table 3-11 Alternative 5: Open Space
Subalternative A: No Presidio of Monterey Annex/No Reserve Center**

Land Use Category	Specific Land Use	Acreage
Open Space		10,730
	Coastal Dunes Zone	421
	Habitat Preserve	736
	Natural Area Expansion	29
	Natural Resource Management Area	9,544
Parks and Recreation		1,014
	Contact Station Area	17
	Disturbed Habitat Zone	558
	Equestrian Center	28
	Multi-Use Area	29
	Recreation Area Expansion	269
	RV Park/Campground	102
	Service Area	11
No Proposed Use		15,981
Total*		27,725
<p>* There are slight differences in total acreages for each alternative and subalternative due to rounding of individual acreages. The total acreage for Subalternative 1, Subalternative C, is greater because it includes the proposed marina and cruise ship pier that extend off the installation.</p>		
<p>Note: This table corresponds with Figure 3-13.</p>		

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Table 3-12. Alternative 6R: Anticipated Reuse (Revised)

Land Use Category	Specific Land Use	Acreage
Open Space		16,117
	Coastal Dunes Zone	421
	Natural Resource Management Area	14,781
	Natural Area Expansion	53
	University Research Area	862
Parks and Recreation		2,076
	Disturbed Habitat Zone	538
	Multi-Use Area	29
	Recreation Area Expansion	1,123
	Community Park	29
	Service Area	11
	Fairgrounds	97
	RV Park	249
Commercial/Business Park		829
	Office Park	352
	University Science Office Park	477
Industrial		1,773
	Agri-Center	890
	Airport	837
	Corporate Yard	46
Institutional/Public		1,569
	Post Academy	39
	University	1,210
	Fire Training	79
	Government Center	36
	Transit Center	55
	School Expansion	150
Residential		133
	McKinney Act Housing	133
Other		1,773
	Army--Proposed POM Annex	1,463
	Reserve Center	12
	Transportation Corridor	298
No Proposed Use		3,456
Total		27,726

Note: This table corresponds with Figure 3-14.

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Section 4.0 Affected Environment

SETTING

Fort Ord is a Department of the Army (Army) installation located along the Pacific Ocean in northern Monterey County in central California. Fort Ord occupies approximately 28,000 acres adjacent to Monterey Bay, a national marine sanctuary.

In addition to the county, surrounding local jurisdictions include the Cities of Del Rey Oaks, Marina, Monterey, Sand City, and Seaside. Most of Fort Ord (73% or 20,194 acres) is unincorporated, and 15% (4,122 acres) and 12% (3,361 acres) of the installation are in the Cities of Seaside and Marina, respectively. Although 27% is in incorporated areas, the two cities have no jurisdictional authority over and provide no services to the installation.

Fort Ord has a generally mild climate because of the Pacific Ocean's effect on the coastal area. Temperatures near the coast are uniform throughout the year, with an average annual temperature of 55°F. Precipitation amounts vary greatly as a result of the maritime influence and terrain. The average annual precipitation is 14.2 inches and is concentrated from November through April. The maritime influence also results in foggy weather during the summer.

The topography of Fort Ord is dome like; the center of the installation has the greatest elevation, while the boundaries are low-lying areas. The most notable topographical features are the coastal dunes and the steep slopes in the eastern portion of the installation, both of which have high erosion potential.

The baseline conditions described in this section are the 1991 conditions, when the installation was in full and active operation. This baseline allows a realistic evaluation of impacts on Fort Ord resources as a result of the change from a military installation to a combination of military and community uses.

4.1 LAND USE

This section incorporates by reference information from the Land Use Baseline Study of Fort Ord, California, which is available at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992b).

4.1.1 Installation Land Uses

Most of the approximately 28,000-acre installation is undeveloped training and open space areas, with approximately 82% (23,000 acres) undeveloped and 18% (5,000 acres) developed. The developed area can be divided into seven different types of land uses. Figure 4.1-1 illustrates existing land uses on and immediately adjacent to the installation, and Table 4.1-1 presents a brief description and division of the land uses on the installation. The Main Garrison and East Garrison are described in the Land Use Baseline Study of Fort Ord, California.

Fritzsche Field and its immediate environs consist of approximately 1,700 acres on a plateau overlooking the Salinas Valley at an elevation of 134 feet above mean sea level. The airfield consists of a single 3,000-foot-long, 75-foot-wide asphalt runway with a 500-foot-long overrun at either end. The airfield also has eight helicopter landing pads.

The buildings and facilities at Fritzsche Field include five aircraft hangars with approximately 100,000 total square feet of usable floor space and 70,000 square feet of office, shop, and storage space. Approximately 36 other buildings of various sizes and functions are located within the airfield environs. About half these buildings are the small "temporary" World War II-vintage wood frame buildings that have little to no reuse value.

Several reports prepared on the airfield provide information on the average number of daily operations for both fixed-wing and rotary aircraft. The 1987 AICUZ report states that there were 123,239 operations (both fixed-wing and rotary) or 338 daily operations at the airfield. A 1990 expansion feasibility study on the airfield prepared by the U.S. Army Corps of Engineers reported a total of approximately 219,000 aircraft operations annually, or approximately 600 a day. Approximately 90% of all operations at the airfield are conducted by rotary aircraft.

4.1.1.1 Developed

The three major developed areas within Fort Ord are the Main Garrison, East Garrison, and Fritzsche Army Airfield. The East Garrison and Fritzsche Army Airfield are relatively small areas, primarily classified as military/industrial support. Most of the development is concentrated in the Main Garrison (Figures 4.1-1 and 4.1-2).

4.1.1.2 Undeveloped

The undeveloped areas include the coastal zone and inland area. The coastal zone includes 4 miles of unincorporated beachfront land west of State Route (SR) 1, and is used for weapons-firing activities and open space. The inland area consists of infantry training areas; the ammunition storage point; and open space areas used for livestock grazing and recreational activities, including hunting, fishing, and camping. The training portion of the inland area is divided into 18 training areas, the largest of which is the 8,000-acre inland range area, an impact zone for artillery and other types of ordnance.

4.1.2 Adjacent Land Uses

The types of land uses surrounding Fort Ord are described briefly below and are illustrated in Figure 4.1-1.

Table 4.1-1 Existing Land Uses on Fort Ord

Land Use Category	Definition	Approximate Acreage	Percentage of Total Acreage
UNDEVELOPED			
Open Space/Training	Undeveloped areas in primarily a natural state (inland range area, firing range, hunting/fishing/camping areas, grazing)	23,000	70
DEVELOPED		5,000	15
Residential	Family and military housing	1,300	4
Commercial	Retail and other commercial services, such as gas stations and mini-markets	30	<1
Industrial	Industrial operations such as motor pools, machine shops, Fritzsche Army Airfield	1,400	4
Mixed	Combination of residential, commercial, and industrial (military support operations)	1,200	3
Institutional	Silas B. Hays Army Community Hospital, medical and dental facilities, and helipad; five elementary schools and one middle school	230	<1
Parks and Recreation	Developed open space including golf course and club house, baseball diamonds, tennis courts, and playgrounds	600	2
Training Areas	Central track and field, stadium, and recreation complex	<u>240</u>	<u><1</u>
TOTAL		28,000	100

4.1.2.1 Residential

Fort Ord is surrounded by various densities of residential development. Adjacent land uses in Marina, Seaside, and Del Rey Oaks (to the north and east) are primarily residential subdivisions. Additionally, numerous residential developments are immediately southeast and south of the installation. Most residential units to the northeast are rural residential, except for the residential development north of

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Pilarcitos Canyon, west of Reservation Road. Some rural residential use is also located to the south, immediately west of Laguna Seca Recreation Area.

4.1.2.2 Commercial

The limited commercial development adjacent to Fort Ord includes a variety of commercial development east of SR 1 and along Reservation Road (west of Fritzsche Army Airfield) in Marina, a retail shopping center east of SR 1 in Seaside, and numerous neighborhood commercial centers scattered throughout the residential areas southeast of Fort Ord.

4.1.2.3 Industrial

The limited industrial development adjacent to Fort Ord includes construction yards southwest of the Main Garrison between the Southern Pacific Railroad tracks and SR 1 in Sand City, corporation and transportation yards south of the installation in Monterey, and the regional wastewater treatment plant north of Fort Ord.

4.1.2.4 Office/Business Park

The only office/business parks adjacent to Fort Ord are the Ryan Ranch industrial park in Monterey and an office park in the county, both located at the southern tip of the installation.

4.1.2.5 Institutional

Schools. Two schools are adjacent to Fort Ord. York School, a nonprofit secondary day school, is located at the southern tip of the installation just east of the Monterey city limits. Seaside High School, which serves students in Seaside as well as on Fort Ord, is located at the southwest corner of the installation just outside the Monterey Road gate.

Monterey Peninsula Airport. Monterey Peninsula Airport is located southwest of Fort Ord, just south of SR 218.

4.1.2.6 Agriculture

Agriculture is the primary land use adjacent to Fort Ord on the northeast, between the installation and the Salinas River. The most productive agricultural lands in the vicinity are extremely fertile lands along the Salinas River. The primary type of agricultural production in this area is irrigated row crops.

4.1.2.7 Grazing/Rangelands

Grazing or rangelands are located to the north, adjacent to Fritzsche Army Airfield, and to the east and southeast, south of SR 68 and near Laguna Seca Recreation Area. Cattle are the primary grazing animals around Fort Ord.

4.1.2.8 Parks and Recreation

Two major recreational areas border Fort Ord: the 500-acre Laguna Seca Recreation Area to the south and a small part of the 4,789-acre Toro Regional Park to the southeast. Additionally, several golf courses and smaller parks are located around Fort Ord, primarily to the south.

4.1.2.9 Undeveloped Open Space

Other than agriculture, grazing/rangelands, and parks, undeveloped open space adjacent to Fort Ord includes the Marina State Beach north of the Fort Ord coastal zone in Marina; vacant coastal land south

of the Fort Ord coastal zone in Sand City; the Frog Pond Natural Area, an undeveloped nature park to the southwest in Del Rey Oaks; vacant land to the south in Del Rey Oaks and Monterey; and a horse ranch area to the south, west of Laguna Seca Recreation Area.

4.1.3 Relevant Plans and Policies

The following documents were reviewed to determine project consistency with relevant plans and policies:

- California Coastal Act of 1976, Chapter 3;
- Monterey Bay National Marine Sanctuary Final Environmental Impact Statement;
- Monterey County General Plan;
- Greater Monterey Peninsula Area Plan;
- Monterey County Local Coastal Program, North County Land Use Plan;
- Monterey County Growth Management Policy;
- City of Marina General Plan Land Use Element;
- City of Seaside General Plan Update Program - Issues, Goals, and Policies Report;
- Sand City Local Coastal Program Land Use Plan;
- City of Del Rey Oaks General Plan Land Use Element;
- City of Monterey Land Use Element Policies;
- Association of Monterey Bay Area Governments Regional Land Use Element; and
- Monterey County Local Agency Formation Commission (LAFCO) Spheres of Influence Policies and Criteria.

The documents and relevant policies are described briefly in Volume II, Section II.1, Table II.1-1. The entire text of these policies is contained in the appendices of the land use baseline study. It is important to note that the plans and policies were developed before it was known that Fort Ord would be closed.

4.2 SOCIOECONOMICS

This section describes the regional socioeconomic setting and Fort Ord's contribution to the regional economy in 1991. This setting constitutes baseline conditions for the analysis of socioeconomic effects of closure, disposal, and reuse effects discussed in Section 5.0, "Environmental and Socioeconomic Consequences", Volume II, Section II.2.

For the purposes of this analysis, Monterey County has been established as the region of influence for evaluating the regional economic effects of the reuse alternatives. This treatment of Monterey County as an individual economic unit is based on the movement of goods and services, labor and money flows, and pattern of transactions within the county and larger region. In addition, Monterey County has been designated by the federal government as a metropolitan statistical area. A metropolitan statistical area is defined as an integrated economic and social unit with a recognized population center that includes a city of specified population and the county in which it is located (California Employment Development Department 1991). Because Monterey County is designated as a metropolitan statistical area, it can be viewed as a geographically defined economic unit.

For some issue areas, the cities of Marina and Seaside, which are within and contiguous to the boundaries of Fort Ord, are singled out for concentrated study because of the expected severity of impacts on these communities (Figure 2-2).

4.2.1 Population and Housing

4.2.1.1 Population

Recent Trends and Projected Population Growth. In 1991, Monterey County contained 361,560 residents, most of whom lived in cities on the Monterey Peninsula, including Monterey, Marina, Sand City, Seaside, Carmel-by-the-Sea, and Pacific Grove, and cities within the Salinas Valley. Much of Fort Ord lies within the unincorporated portion of the county, but the westernmost portions lie within the incorporated boundaries of the Cities of Marina and Seaside.

Population growth, and forecasts of future population levels, within Monterey County and its communities are depicted in Figure 4.2-1 and Table 4.2-1. The population forecasts were prepared by the Association of Monterey Bay Area Governments prior to the announcement of Fort Ord closure.

Between 1980 and 1990 the county's population grew at an average annual rate of 2.2%, which lagged behind the state average growth rate of 2.6% during the same period. The county's population growth rate is projected to slow to an average annual rate of nearly 1.0% between 1988 and 2010. (U.S. Bureau of Economic Analysis 1990.)

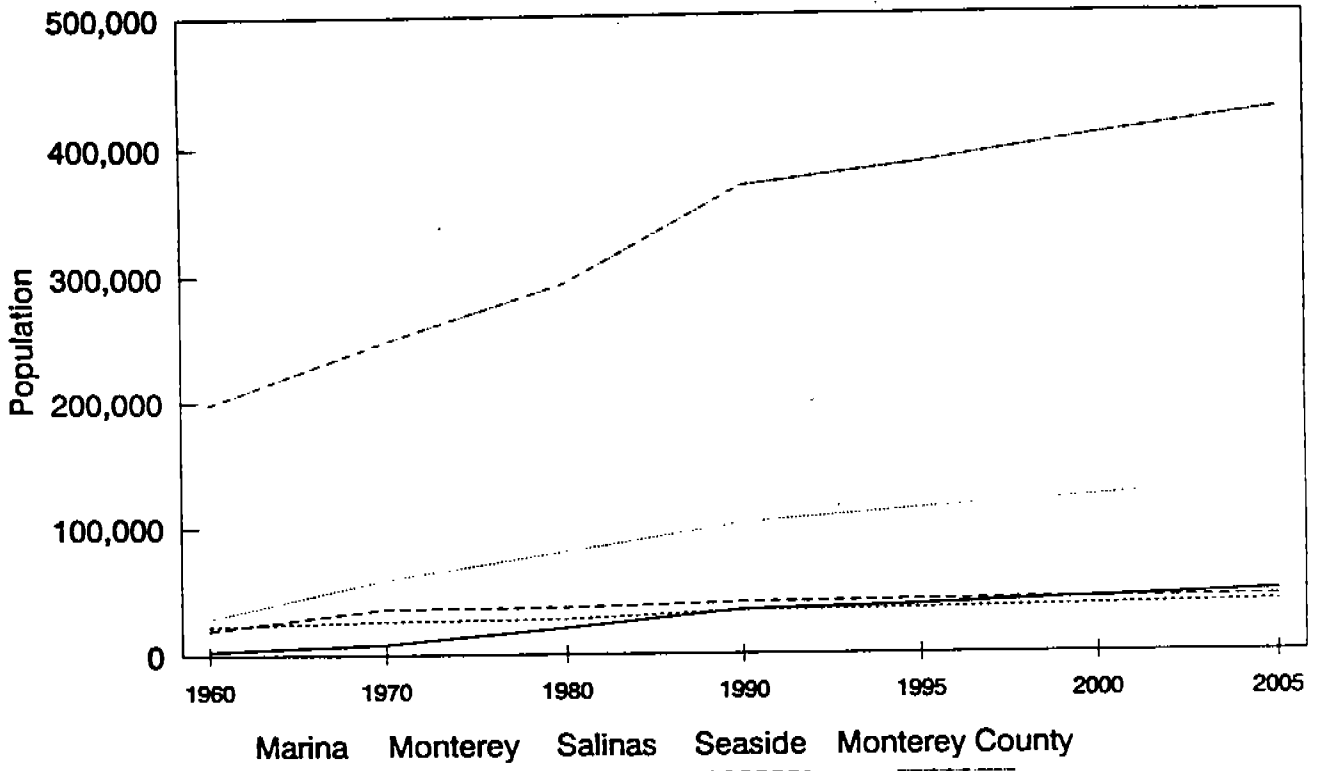
Salinas is the largest city in the county with a population of 110,675, accounting for about 31% of total county population. Between 1980 and 1990 the city grew faster than the county average at a rate of 3.5%, and is projected to be the growth center of the county between 1990 and 2010.

The City of Monterey has maintained a steady growth rate over the past decade of about 1.6%. With a population of 31,818 in 1991, Monterey is projected to grow by 0.4% each year between 1990 and 2010.

Pacific Grove contained a population of 16,166 in 1991. Growth between 1980 and 1990 was slow and averaged 0.2% each year. Projections show Pacific Grove will grow at a similar rate, 0.4% each year, between 1990 and 2010.

Figure 4.2-1

Historical Projected Population of Monterey County and Affected Cities



Sources:

1980 and 1990 county and city population - U.S. Bureau of the Census 1990.

2000 and 2010 Monterey County population projections - U.S. Bureau of Economic Analysis 1990.

2000 and 2010 city population projections - Association of Monterey Bay Area Governments 1988.

Table 4.2-1 Historical and Projected Population of Monterey County and Cities within Monterey County

County Area	Estimated Population				Average Annual Growth Rate 1980-1990 (%)	Average Annual Growth Rate 1990-2010 (%)
	1980 ^a	1990 ^a	2000 ^{b,c}	2010 ^{b,c}		
All Monterey County	290,444	355,660	406,000	443,000	2.25	0.98
Carmel-by-the-Sea	4,707	5,160	5,740	4,800	0.96	-0.28
Del Rey Oaks	1,557	1,661	1,840	1,840	0.67	0.43
Gonzales	2,891	5,180	6,020	6,510	7.92	1.03
Greenfield	4,181	7,290	8,466	11,300	7.44	2.20
King City	5,495	8,581	13,176	11,140	5.62	1.19
Marina	20,647	26,436	42,613	31,330	2.80	0.74
Monterey	27,558	31,954	37,070	35,300	1.60	0.42
Pacific Grove	15,755	16,117	18,839	17,700	0.23	0.39
Salinas	80,479	108,777	122,530	175,000	3.52	2.44
Sand City	182	200	836	970	0.99	15.40
Seaside	36,567	38,893	42,370	41,500	0.64	0.27
Soledad	5,928	8,090	9,331	22,200	3.65	6.98
Unincorporated County	83,914	103,095	119,269	114,760	2.29	0.45

^a Source: U.S. Bureau of the Census 1990 (1980 and 1990 county and city population).

^b Source: U.S. Bureau of Economic Analysis 1990 (2000 and 2010 projections for Monterey County).

^c Source: Association of Monterey Bay Area Governments 1988 (2000 and 2010 projections for cities).

Del Rey Oaks supported a population of 1,648 in 1991. Del Rey Oaks grew at an annual rate of 0.7% between 1980 and 1990, and is projected to grow at an annual rate of 0.4% between 1990 and 2010. Del Rey Oaks' growth is limited because it is a land-locked community.

Sand City is the smallest city in the county with a population of 194 in 1991, up from 182 in 1980. The growth of this community is expected to substantially increase between 1990 and 2010, with annual population growth projected at 15.4% each year; however, this large annual growth rate is related more to the small existing population of the community than to the level of absolute growth expected in Sand City. By 2010 the population is projected to grow to 970.

Seaside and Marina are the second and fourth largest cities in the county, respectively. Both communities have city limits that extend onto the Fort Ord installation. Seaside supported a population of 40,288 and Marina a population of 26,830 in 1991. Marina grew faster than Seaside between 1980 and 1990 with an average annual growth rate of 2.8%. Seaside grew at an average rate of 0.6% during that period. Seaside's growth is limited because it is a land-locked community. Projections indicate that population growth within both cities may slow to less than 1% annually between 1990 and 2010 (Table 4.2-1).

Fort Ord's permanent military population during fiscal year (FY) 1991 totaled 14,372 personnel, including 1,281 officers, 267 warrant officers, and 12,824 enlisted personnel. The installation's civilian personnel totaled 3,855 comprised of 1,550 civilian employees, 879 Army-Air Force exchange service employees, 524 nonappropriated fund employees, 136 commissary employees, 68 other U.S. Department of Defense (DOD) employees, 585 medical and dental department employees, and 113 information management employees. Fort Ord also supported a total of 18,283 people, including 1,026 transient military personnel, 219 other active military personnel, and 17,038 family members of active-duty personnel.

The resident population of Fort Ord totaled 31,270 during FY 1991. Approximately 85% of the permanent military personnel and transient military and military family members resided on the installation.

Almost 20% of Fort Ord's civilian work force is comprised of military spouses who also likely live on the installation.

The largest number of Fort Ord personnel residing off-installation live in Marina and Monterey. During FY 1991, 1,251 Fort Ord military personnel lived in Marina, 1,351 lived in Monterey, and 231 lived in Seaside. These individuals represented 33%, 30%, and 6% respectively, of all Fort Ord military personnel residing off-installation. Similarly, 22% of Fort Ord's civilian personnel reside in Marina, while 24% live in Monterey and 13% live in Seaside. Almost 17% of Fort Ord military personnel living off-installation and almost 24% of civilian personnel live in Salinas.

On-installation and off-installation military and civilian personnel represent a substantial portion of the total population of local cities. Over 50% of Marina's population, 25% of Seaside's population, and 5% of Monterey's population is comprised of Fort Ord military and civilian personnel and their families.

Over 10,000 retired military live within a 60-mile radius of Fort Ord (Table 4.2-2). Fort Ord personnel estimate that about 8,000 of those retirees and 12,000 of their family members continue to use facilities such as the commissary and post exchange at Fort Ord.

4.2.1.2 Housing

Existing Housing Supply and Characteristics. Between 1980 and 1990, Monterey County's housing supply grew from 103,557 units to 121,224 units, an increase of 17.1%. During that time the county's population grew by 22%, indicating that housing availability declined during the last decade. This is evidenced by county residential vacancy rates that have declined from 7.5% in 1980 to 6.8% in 1990 (Table 4.2-2) and by the increase in population per household from 2.85 to 2.96 during that period. (California Department of Finance 1992.) The most apparent result of the county's housing shortage is the sharp increase in housing costs. The median price of a home in Monterey County increased by 130.5% between 1980 and 1990 while the median income increased by only 73.5% during that time (U.S. census data from Sedway & Associates 1992). By comparison, the statewide median price of a home rose by 94%, growing from \$99,760 in 1980 to \$194,010 in 1990 (Bay Area Council 1991).

Just over half (51%) of the county's housing supply is owner occupied and 49% is renter occupied. By comparison, 55.62% of total housing within the state was owner occupied in 1990. Within the county, the distribution of owner-occupied and renter-occupied units varies widely (Table 4.2-3).

Fort Ord has the largest on-installation family housing supply in the Department of the Army. Fort Ord currently supports 23,716 housing units. This includes 6,365 family housing units, 515 of which are provided by private contractors. The unaccompanied personnel housing consists of 9,745 barracks spaces, including 117 units for bachelor officers and senior enlisted personnel. Additionally, 290 units are intended for transient use (i.e., quarters for visiting officers, enlisted personnel, and distinguished visitors).

On-installation housing units located within the City of Seaside total 8,076 and within the City of Marina total 14,387. Another 1,253 on-installation units are located within the unincorporated county area. Seaside supports a larger portion of the family housing areas and Marina supports more of the barracks facility units.

Of the 6,365 family housing units located on the installation, 3,005 are located within the City of Seaside, 2,107 within the City of Marina, and 1,253 within the unincorporated county area. Other housing areas, including barracks, visiting officer and enlisted personnel quarters, bachelor officer quarters, and guest housing, total 10,142 units and are spread throughout the installation. For purposes of this analysis, it is assumed half of these units (5,071) are located in Seaside and half are located in Marina. Distinguished visitor quarters, World War II barracks, and senior enlisted personnel quarters total 7,209 and are all located within the City of Marina.

**Table 4.2-2 Residence Locations of Retired Military Personnel
within a 60-Mile Radius from Fort Ord**

Residence Location	County	Number of Retirees	Percentage of Total
Aptos	Santa Cruz	189	1.77
Aromas	Monterey	10	0.09
Capitola	Santa Cruz	65	0.61
Carmel-by-the-Sea	Monterey	457	4.28
Carmel Valley	Monterey	102	0.96
Fort Ord	Monterey	65	0.61
Gilroy	Santa Clara	137	1.28
Hollister	San Benito	121	1.13
King City	Monterey	61	0.57
Los Gatos	Santa Clara	237	2.22
Marina	Monterey	1,045	9.79
Monterey	Monterey	630	5.90
Morgan Hill	Santa Clara	140	1.31
Moss Landing	Monterey	19	0.18
Pacific Grove	Monterey	335	3.14
Pebble Beach	Monterey	227	2.13
Salinas	Monterey	1,519	14.22
San Jose	Santa Clara	3,951	37.00
San Juan Bautista	San Benito	19	0.18
San Martin	Santa Clara	14	0.13
Scotts Valley	Santa Cruz	60	0.56
Seaside	Monterey	1,004	9.40
Soledad	Monterey	15	0.14
Watsonville	Santa Cruz	<u>257</u>	<u>2.41</u>
Total		10,679	100.00

Note: This table includes retirees who live within and outside of the 40-mile catchment area of Silas B. Hays Army Community Hospital. These retirees may, or may not, use facilities at Fort Ord. Retiree locations have been determined based on zip codes and may, or may not, be in the cities listed above. Data were compiled from the Retired Military Personnel Data Base on April 1, 1992. Retiree counts do not match retiree numbers in Table 4.2-13 because the counts reflect different periods. Table 4.2-13 reflects only those retirees residing within the 40-mile catchment area.

Military personnel are required to reside in installation housing, if vacant units are available. If no housing is available, military personnel are placed on a waiting list and paid a basic allowance for quarters variable housing allowance to compensate for the cost of obtaining housing off the installation. Fort Ord's housing supply is summarized in Table 4.2-4.

Table 4.2-3 Distribution of Existing Occupied Monterey County Housing by Type and Tenure

Type of Unit by City	Single-Family Units		Multifamily Units		Total Units	
	Number of Units	Percentage of Total	Number of Units	Percentage of Total	Number of Units	Percentage of Total
Marina						
Owner-occupied units	2,253	52.80	36	2.80	2,728	34.50
Renter-occupied units	<u>2,014</u>	47.20	<u>1,251</u>	97.20	<u>5,180</u>	65.50
Total units	4,267		1,287		7,908	
Monterey						
Owner-occupied units	4,106	63.53	158	5.83	4,539	35.76
Renter-occupied units	<u>2,357</u>	36.47	<u>2,554</u>	94.17	<u>8,154</u>	64.24
Total units	6,463		2,712		12,693	
Salinas						
Owner-occupied units	13,646	70.63	130	2.07	15,430	46.25
Renter-occupied units	<u>5,674</u>	29.37	<u>6,152</u>	97.93	<u>17,930</u>	53.75
Total units	19,320		6,282		33,360	
Seaside						
Owner-occupied units	3,716	47.48	7	1.01	4,042	37.99
Renter-occupied units	<u>4,110</u>	52.52	<u>683</u>	98.99	<u>6,599</u>	62.01
Total units	7,826		690		10,641	
Unincorporated County						
Owner-occupied units	19,098	75.7	65	11.0	21,589	69.1
Renter-occupied units	<u>6,131</u>	24.3	<u>527</u>	89.0	<u>9,670</u>	30.9
Total units	25,229		592		31,259	
County Total						
Owner-occupied units	50,930	67.83	501	3.76	57,202	50.64
Renter-occupied units	<u>24,151</u>	32.17	<u>12,823</u>	96.24	<u>55,763</u>	49.36
Total units	75,081		13,324		112,965	

Note: Duplex-nineplex, mobile home, and other housing categories are part of total but not detailed here.

Source: U.S. Bureau of the Census 1990.

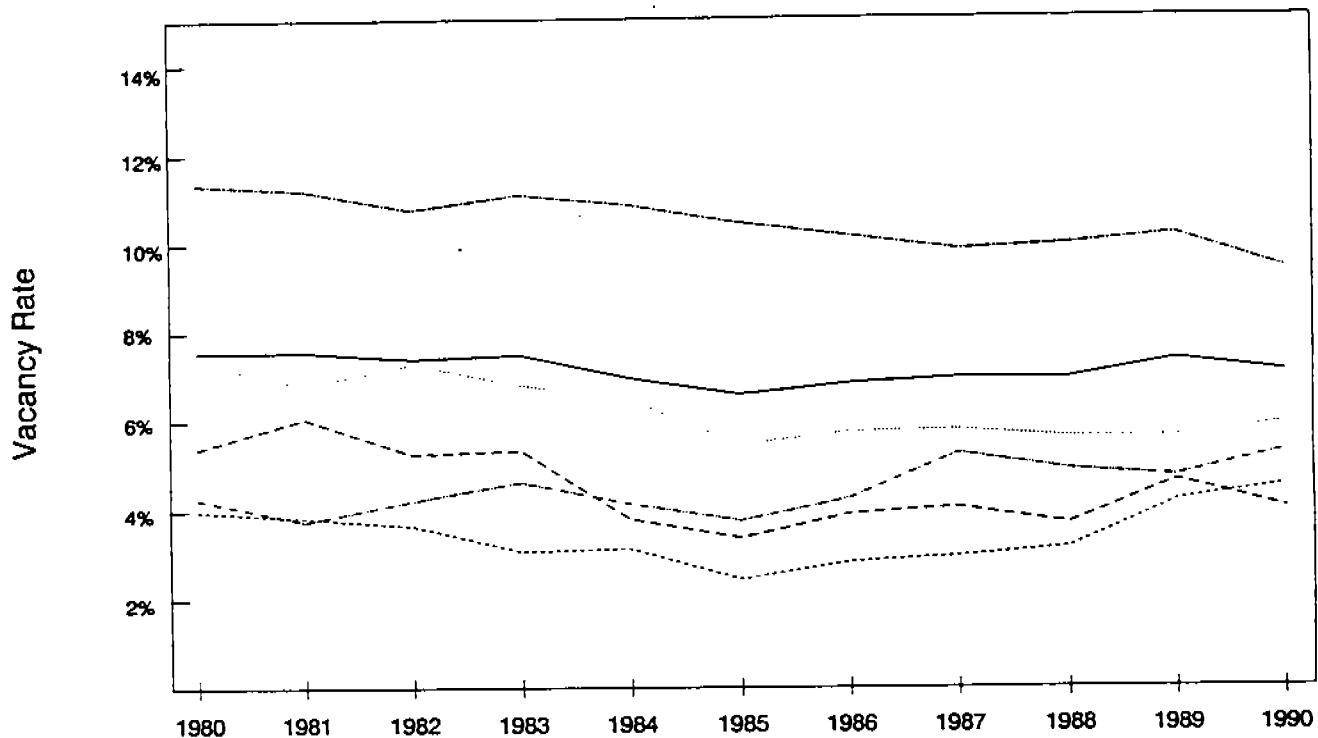
Table 4.2-4 Inventory of Existing Housing at Fort Ord

Housing Area	Total Number of Units
Family Housing Areas	
General Officer Area	2
Schoonover Park	787
Frederick Park	466
Preston Park	385
Abrams Park	942
Patton Park	780
Stilwell Park	1,009
Hayes Park	676
Brostrom Park (third-party lease)	219
Marshall Park	353
Fitch Park	450
Thorson Village (third-party lease)	<u>296</u>
Subtotal	6,365
Other Housing Areas	
Barracks	9,745
Visiting Officer and Enlisted Quarters	204
Bachelor Officer Quarters	112
Distinguished Visitor Quarters	5
WWII Barracks	7,029
Senior Enlisted Quarters	175
Guest Housing Quarters	<u>81</u>
Subtotal	17,351
Total Housing Units	23,716

Vacancy Rates. Recent vacancy rates for Monterey County and select cities within the county are presented in Table 4.2-5. Historic vacancy rates in Monterey County are illustrated in Figure 4.2-2. Vacancy rates in many cities within the county are generally too low to provide opportunities for household mobility and turnover. As stated in a recent study of the housing effects of Fort Ord downsizing:

The industry standard for an optimum overall vacancy level is 4.5% to ensure the market operates effectively and efficiently. A 6% vacancy rate for rental units and a 2% effective vacancy level for sale units are considered optimal. Although the county's overall vacancy level was reported to range between 6.5 and 7.5% throughout the past decade, the "real vacancy rate" is considerably lower when seasonal units are deducted from the equation. Subtracting seasonal and recreational units, Monterey County's 1990 vacancy rate for rental and for-sale units was 1.8 and 1.1%, respectively. (Sedway & Associates 1992.)

Figure 4.2-2
 Historical Vacancy Rates in Monterey County 1980-1990



Monterey County Marina Monterey Salinas Seaside Unincorporated

Source: California Department of Finance 1992.

Table 4.2-5 Vacancy Status of Existing Monterey County Housing Units (1990)

City	Number of Units	Number of Vacant Units	Percentage of Overall Vacancy Rate
Marina	8,261	353	4.3
Monterey	13,497	804	6.0
Salinas	34,577	1,217	3.5
Seaside	11,238	597	5.3
Unincorporated County	<u>34,350</u>	<u>3,091</u>	<u>9.0</u>
Total	121,224	8,259	6.8

Source: U.S. Bureau of the Census 1990.

Approximately 2.9% of the housing units located at Fort Ord were vacant during 1991. Most of these vacancies were the result of the need to perform preventive maintenance on certain units.

Affordability. Median housing prices on the Monterey Peninsula have historically been higher than median prices elsewhere in Monterey County and the state. For example, in 1990 the median price of a single-family home in the City of Monterey was \$266,600 compared to \$198,200 countywide. Median prices varied considerably elsewhere in the county, as the following 1990 median home prices indicate: Marina, \$172,500; Salinas, \$161,500; Pacific Grove, \$262,000; Seaside, \$150,100; and Carmel-by-the-Sea, \$434,700.

As shown by Table 4.2-6, the median value of a home in Monterey County increased from \$86,000 in 1980 to \$198,200 in 1990, a 130% increase. This increase far outpaced the 73% growth in county median income during that same period. Interestingly, home ownership affordability, the percentage of the population able to afford the median priced home, rose from 8.8% in 1980 to 12.8% in 1990. This resulted primarily from relative decreases in monthly mortgage costs caused by substantially declining mortgage interest rates.

As indicated by Table 4.2-6, the relative affordability of rental housing in Monterey County remained stable during the 1980s, even though the median contract rent more than doubled over the 10-year period.

Jobs-to-Housing Balance. A balance between the number of jobs and housing units available in a specific area is often a stated goal of local government jurisdictions. Achieving a jobs-housing balance is felt to reduce excessive commute distances, reduce automobile-related air pollution, reduce traffic congestion, and decrease upward pressure on housing prices.

A jobs/housing ratio is often used to evaluate the balance between local jobs and housing, even though income distribution and housing prices play an important role in achieving a realistic balance. Jobs/housing ratios, however, provide an indication of whether a local area provides a sufficient supply of housing to meet the needs of the local workforce. Communities are generally considered to be in balance when the ratio of jobs to housing units lies within the range of 0.75 to 1.25. (Sedway & Associates 1992.)

Table 4.2-6 Ownership and Rental Affordability in Monterey County

Year	Median Income	Median Home Value	Percentage of Ownership Affordability	Median Contract Rent	Percentage of Rental Affordability ^a
1980	\$17,661	\$86,000	8.80	\$262	92.30
1990	\$30,634	\$198,200	12.80	\$566	93.70

Note: Ownership affordability refers to the percentage of households in a region that would be able to purchase the median-priced home assuming a 20% downpayment and prevailing interest rates on a 30-year term loan. Payments must not exceed 30% of the median gross income.

^a Rental affordability represents the percentage of occupied rental units that were renting at or below the affordable rental rate that is calculated as 30% of the county median income.

Sources: U.S. Bureau of the Census, National Association of Realtors, Sedway & Associates 1992.

Table 4.2-7 provides a summary of jobs/housing ratios for the greater Monterey Peninsula housing market area, the greater Salinas housing market area, and the county as a whole. As indicated by these ratios, Marina and Seaside do not achieve balances. These two communities have traditionally provided housing for military personnel and civilians working at Fort Ord. Salinas and Monterey serve as employment centers within the county, as indicated by their high ratios of jobs to housing. The overall county jobs/housing ratio of 1.36, based on 165,000 jobs and 121,224 housing units within the county in 1990, indicates a somewhat imbalanced housing market where demand exceeds supply, and helps explain relatively high housing costs within the county.

Future Housing Development Potential. Based on an analysis of existing zoning in each jurisdiction within Monterey County, the maximum residential development potential in the entire county is estimated at 26,842 units. Accounting for environmental and infrastructure capacity constraints, the actual residential buildout potential is most likely 50% to 75% of the allowable building capacity. Residential development is primarily constrained by lack of available land zoned for residential uses, insufficient water supply, insufficient sewer capacity, traffic congestion, and environmental issues. (Sedway & Associates 1992.)

4.2.2 Regional Economy

Economic variables used to measure effects on the regional economy in Section 5.0, "Environmental and Socioeconomic Consequences", Volume II, Section II.2, include employment, personal income, total output, and public revenue levels. Existing conditions for these measures of economic activity are described below.

4.2.2.1 Employment

Monterey County's economy has historically relied on three main employment sectors: tourism, agriculture, and the military. This economic structure is illustrated by the distribution of employment among industrial sectors, as shown by Table 4.2-8.

Table 4.2-7 Jobs/Housing Ratios and Housing Costs in Monterey County in 1990

Housing Market Area	Jobs/Housing Ratio	Median Single-Family Housing Value	Average Rent
Greater Monterey Peninsula Housing Market Area			
Marina	0.13	\$172,500	\$607
Monterey	1.35	\$266,600	\$654
Seaside	0.55	\$150,100	\$565
Greater Salinas Housing Market Area			
Salinas	1.54	\$161,500	\$528
Total Monterey County	1.36		

Note: Jobs/housing ratios for Monterey County were calculated based on 165,008 jobs and 121,224 housing units located in Monterey County in 1990.

Source: Jobs/housing ratios for cities and housing cost data - Sedway & Associates 1992.

The government, including federal, state and local agencies, accounts for almost 20% of countywide employment (Table 4.2-8). Not included in government employment shown by Table 4.2-9 are an estimated 21,600 military (noncivilian) positions at Fort Ord, Camp Roberts, Fort Hunter Liggett, the Defense Language Institute, the Naval Postgraduate School, the Presidio of Monterey, and the County of Monterey (Sedway & Associates 1992). Other large employment sectors include the agricultural sector (21%), the services sector (20%), and the retail trade sector (17%).

Monterey County's civilian labor force expanded steadily during the last decade from 142,400 in 1983 to 160,000 in 1990. At the same time, the county's unemployment rate declined from 12.6% to 8.8% but has remained an average of 3% higher than the state average (Table 4.2-9). The relatively high unemployment rate is partially explained by the seasonal nature of the county's economy which experiences high unemployment in the winter when agriculture, food processing, and tourist-oriented industries are at a lull. (California Employment Development Department 1991.)

Seaside's labor force participation rate was just over 58% in 1990. Of the city residents in the labor force in 1990, over 38% were members of the armed forces, 22% were employed within the retail trade sector, and 13% were employed in the personal services sector. The city's unemployment rate stood at 4.4% in 1990, with 989 individuals considered unemployed. (U.S. Bureau of the Census 1990.)

Table 4.2-8 Estimated Number of Jobs by Industry in Monterey County, 1980-1990

Industry	Number of Workers (in thousands)		
	1980	1985	1990
Agricultural	21.7	24.2	30.2
Mining and Construction	3.7	4.3	4.9
Manufacturing	8.9	9.0	10.4
Transportation and Public Utilities	5.2	4.9	4.7
Wholesale Trade	3.3	3.6	5.3
Retail Trade	19.4	23.9	24.9
Finance, Insurance, and Real Estate Services	4.4	4.8	6.3
Federal Government ^a	7.3	8.6	9.0
State and Local Government	<u>16.6</u>	<u>17.2</u>	<u>19.1</u>
Total	110.0	124.3	143.3

^a Does not include military (noncivilian) positions. Noncivilian military employment totaled 21,608 in 1990 (Sedway & Associates 1992).

Source: California Employment Development Department 1991.

Table 4.2-9 Monterey County Civilian Labor Force Employment and Unemployment

	1985	1986	1987	1988	1989	1990
Labor Force	148,100	150,000	154,400	160,000	164,400	160,600
Number Employed	132,400	134,400	141,100	146,500	151,100	146,500
Number Unemployed	15,700	15,600	13,300	13,500	13,300	13,500
Unemployment Rate (percentage of total)	10.6	10.4	8.6	8.4	8.1	8.8

Note: Number of employed residents of Monterey County. The jobs are not necessarily located in the county.

Source: California Employment Development Department 1991.

According to 1990 census data, almost 57% of Marina's population, 15,041 men and women, comprise the city's labor force. Of those, almost 36% are in the armed forces, over 25% are employed in the retail trade sector, and 15% are employed in the public administration sector. Unemployed civilians totaled 526 in 1990, resulting in an unemployment rate of 3.5%. (U.S. Bureau of the Census 1990.)

Fort Ord employed a total workforce of 18,227 in FY 1991, including 14,372 permanent military personnel, 3,855 civilian personnel, and a varying number of contractual workers. Fort Ord's mission and organization have remained fairly stable over the last decade. No major tenants were gained or lost during this period.

Military spouses hold an estimated 20% of the installation's civilian jobs and work primarily in non-professional white-collar jobs.

4.2.2.2 Output

Industrial output is a general measure of the economic activity of an area. Output, as used in this study, is defined as gross industry sales from production, and is measured as the total value of all goods and services produced by all industries within the county.

Baseline output levels by industry within Monterey County are shown in Table 4.2-10. The industrial output levels shown in Table 4.2-10 represent 1985 levels, presented in 1991 dollars. As shown, output in Monterey County totaled \$12.2 billion in 1985. The largest output sectors include government, services, agriculture, and manufacturing. Together, these four sectors generated approximately 66% of total industrial output within Monterey County.

Table 4.2-10 Monterey County Output by Industry Aggregations

Industry Aggregation	Total Output (in millions of 1991 dollars)
Agriculture, Forestry, and Fishing	\$1,565
Construction and Mining	676
Manufacturing	1,448
Transportation and Public Utilities	1,113
Wholesale Trade	353
Retail Trade	827
Finance, Insurance, and Real Estate	1,229
Services	2,490
Government	<u>2,545</u>
Total	\$12,246

Note: 1985 dollars were converted to 1991 dollars using the Consumer Price Index.

Source: Impact Analysis for Planning Computer Model database 1985.

4.2.2.3 Personal Income

Personal income is another measure of economic activity within an area. The personal income of an area is defined by the U.S. Bureau of Economic Analysis (1989) as the income received by, or on behalf of, all the residents of an area.

The most recent personal income data for Monterey County was published in 1989 and reflects 1988 personal income levels. In 1991 dollars, personal income within Monterey County totaled approximately \$6.8 billion in 1988, resulting in per capita personal income of \$19,500 (U.S. Bureau of Economic Analysis 1989).

Earnings are a subset of total personal income, representing approximately 71% of personal income in Monterey County. Earnings by industry are shown in Table 4.2-11, presented in 1991 dollars. Three sectors (government, services, and agriculture) accounted for 65% of the \$4.8 billion in earnings generated within Monterey County in 1988. Earnings are used throughout the remainder of this document as a measure of personal income because the two economic models used to evaluate economic effects measure changes in earnings rather than total personal income.

4.2.2.4 Fiscal Conditions

Fort Ord closure and reuse will directly and indirectly affect levels of public costs and revenues for jurisdictions within Monterey County. The evaluation of fiscal effects presented in Section 5.0, Section II.2, focuses on changes in the revenue stream for affected agencies; therefore, the following summarizes baseline review data for affected jurisdictions.

Table 4.2-11 Distribution of Monterey County Earnings by Industry in 1988

Industry	Earnings (in millions of 1991 dollars)
Agriculture	\$ 950
Mining	19
Construction	270
Manufacturing	327
Transportation and Public Utilities	202
Wholesale Trade	168
Retail Trade	486
Finance, Insurance, and Real Estate	182
Services	1,004
Government and Government Enterprises	<u>1,201</u>
Total	\$4,809

Note: Earnings represented approximately 71% of the \$6.8 billion in personal income received in Monterey County in 1988.

Source: U.S. Bureau of Economic Analysis 1989.

Table 4.2-12 summarizes baseline revenue data for FY 1991-92 for Monterey County and cities within the county. For purposes of the impact analysis presented in Section 5.0, "Environmental and Socioeconomic Consequences", Volume II, Section II.2, revenues have been allocated among three categories: local revenues, subvention-related revenues, and other population-related revenues.

Local revenues, including property tax, sales tax, and transient occupancy tax revenues, typically represent almost half of a jurisdiction's total revenues. Property tax revenues fluctuate based on assessed property values and development levels. These revenues can change because of increases or decreases in economic development and property values within a jurisdiction. Sales tax revenues fluctuate with increases or reductions in the resident population, but are greatly influenced in Monterey County by changes in tourist-related activity. Transient occupancy tax is collected based on hotel and motel occupancy, which is generally dependent on tourist and visitor activity. (RKG Associates 1992)

Table 4.2-12 City Budget Revenue Information for Fiscal Year 1992-1993

	Seaside and Sand City	Marina	Monterey ^a	Pacific Grove	Del Rey Oaks	Salinas
City Revenues						
Property Tax	1,341,000	942,000	3,296,000	1,770,275	181,800	6,661,000
Sales Tax	2,650,000	740,000	4,950,000	1,510,000	115,000	11,850,000
Transient Occupancy Tax	<u>375,000</u>	<u>415,000</u>	<u>7,542,000</u>	<u>1,678,039</u>		<u>900,000</u>
Subtotal	\$4,366,000	\$2,097,000	\$15,788,000	\$4,958,314	\$296,800	\$19,411,000
State Subvention Revenues						
Cigarette Tax	55,000	40,000		17,000	6,000	200,000
Motor Vehicle In-lieu	1,450,000	1,004,249	1,482,900	608,899	62,800	4,010,000
Gas Tax (2105, 2106, 2107)	<u>631,715</u>	<u>451,911</u>	<u>842,267</u>	<u>205,773</u>	<u>32,300</u>	<u>1,901,700</u>
Subtotal	\$2,137,565	\$1,496,160	\$2,325,167	\$831,672	\$101,100	\$6,111,700
Other Population-Related Revenues						
Franchise Utility Tax	1,611,000	195,000	940,500	880,470	28,000	5,422,000
Business License Tax	256,000	35,000	787,500	235,000	69,000	1,200,000
Other Licenses	84,100	20,000		2,977	5,900	724,100
Fine Forfeitures	130,000	92,000		267,000	20,600	135,000
Interest on Money	154,000		750,000	188,000	24,000	1,636,800
Other State (Peace Officer Standard Training)	30,000	7,500		40,000	1,300	100,000
Charges for Services	658,200	44,200	1,401,420	240,550	32,415	4,311,700
Other Revenues		<u>50</u>	<u>69,125</u>	<u>336,409</u>	<u>11,500</u>	<u>225,000</u>
Subtotal	\$2,923,300	\$393,800	\$3,948,545	\$2,190,406	\$192,715	\$13,754,600
Total	\$9,426,865	\$3,986,960	\$22,061,712	\$7,980,392	\$590,615	\$39,277,300
Per Capita-Subvention Revenues	\$54.95	\$56.60	\$72.77	\$51.60	\$60.87	\$56.19
Per Capita-Other Revenues	\$75.15	\$14.90	\$123.57	\$135.91	\$116.02	\$126.45

^a City of Monterey "Other Population-Related Revenues" is reduced to one-third the amount shown on the 1991/1992 Budget. This reduction is due to the large tourist-related business creating these revenue sources. The one-third budget amount reflects the population-related revenues.

Source: RKG Associates 1992.

State subvention revenues include cigarette tax, motor vehicle in-lieu tax, and gas tax sources. These revenues are returned by the state to jurisdictions in proportion to their resident population. State subvention revenues received by each county or city are based on the higher of the 1990 U.S. Census population count or the latest California Department of Finance population estimate. Because of this, state subvention revenues would not decrease due to population reductions until a new census count documents the decline. (RKG Associates 1992.)

Many other county and city revenue sources are directly or indirectly related to population levels. These sources include franchise or utility taxes, business licenses, fines, and fees that tend to reflect the size of the local population. Per-capita levels of these revenues are depicted in Tables 4.2-12.

4.2.3 Social Services

Social services provided by the county, local organizations, and the Army could be affected by closure and reuse of Fort Ord. The following sections summarize these programs. The discussion of services provided by the Army focuses on medical services because other services would not be substantially affected by closure.

4.2.3.1 County Support Services

Family-related services provided by Monterey County include basic subsistence, emergency services, services for adults and the elderly, services for children, family planning, and financial planning. These services are funded primarily by state and federal transfer payments; funds are increased with caseload and Monterey County historically has not experienced problems with receiving additional funds to cover increased caseloads.

Over 55,000 county residents (about 15.5% of total county population) were considered economically disadvantaged in 1990. Economically disadvantaged persons are defined as those persons whose income or family income was below the Federal Poverty Guideline (\$12,700 for a family of four) and/or below 70% of the Lower Living Standard Income Level which varies by county of residence (\$15,130 for a family of four in Monterey County). In May of 1990, almost 17,000 people within the county (about 5% of total county population) received basic assistance in the form of Aid to Families with Dependent Children. Of those, almost 12,000 were children. Almost 20,000 individuals received food stamps, 367 received general relief, and 22 received refugee cash assistance. (California Employment Development Department 1991.)

Support services available in Monterey County include substance abuse services, senior systems, suicide prevention, armed services retiree services, and disability services. The primary support organization for seniors (retired military) is Silas B. Hays Army Community Hospital. Specific numbers of individuals in substance abuse treatment were not available. Between 10% and 15% of the clients serviced by Adult Services are retired military, and 10% are family members of retired military. Support services are funded by the state and federal government but funds have not increased with the caseload in recent years and the county has had to appropriate money to this department to compensate for the lack of funding.

Almost 39,000 retired military, 23,286 active military, and 40,226 military families use some type of family-related services, according to responses to a human services survey conducted by the Fort Ord Community Task Force (1992).

4.2.3.2 Job Development

A variety of job development and job placement resources exist within Monterey County. The Private Industry Council (PIC) has resources to assist both expanding businesses and new businesses. The PIC administers the Job Training Partnership Act, providing training and employment services to disadvantaged or dislocated workers in Monterey County. The PIC is a nonprofit corporation of private-sector business people and representatives of education, labor, rehabilitation, job service, and economic development organizations. Programs available from the PIC include classroom or on-the-job training, job applicant assessment and training, and special customized services.

Other job development services available in the county include the Center for Employment Training, Joblink, Mission Trails Regional Occupation Program (ROP), and the county Office of Employment Training.

4.2.3.3 Homeless Services

About 250 emergency shelter bed spaces in Monterey County are currently available for the homeless. Of these, only 30 are located on the Monterey Peninsula. There are currently no transitional housing programs for the homeless in Monterey County. (Fort Ord Community Task Force 1992)

The Northcutt Report (1989), a data base and needs assessment of the Monterey County homeless population, revealed that an estimated 1,300-2,200 homeless adults and 370-630 homeless children reside in Monterey County. This translates to between 1,670 and 2,830 homeless adults and children in Monterey County on any given night. The following represents the approximate distribution of the homeless population in the county: Salinas area 47%, Monterey Peninsula area 22%, North County area 8%, South County 15%, and unknown 8%.

The study identified the need for additional emergency shelter beds, particularly on the Monterey Peninsula and in the rural areas of the county.

4.2.3.4 Military Retiree Benefits

Access to free or low-cost medical treatment on a space-available basis at Silas B. Hays Army Community Hospital is an important service available to retired military personnel. Other major services available to retirees at Fort Ord include the commissary, post exchange, library, athletic facilities, and social clubs.

The commissary is a retail store comparable to a large supermarket. Foods and related consumer goods are the principal items sold. The commissary serves active-duty personnel, reservists, and their family members, in addition to retirees. It serves an estimated 8,000 retirees and 12,000 of their family members in the local area.

The exchange service provides a broad range of consumer products, including automotive fuel and services. The main exchange is comparable to a department store; it features clothing, appliances, sports equipment, and numerous other product lines. As with the commissary, the post exchange serves active military, reservists, and family members, in addition to retirees. Unlike the commissary, it is supported entirely by nonappropriated, patron-supplied funds.

Other facilities are available at the Naval Postgraduate School in Monterey, which offers an officer's club and an installation exchange, together with several small branch exchanges.

No standards exist for a minimum level of service that should be provided to military retirees by the Department of Defense. Retirees may need to travel long distances to obtain certain benefits.

4.2.3.5 Military Medical Care

Medical services available to military retirees and their family members residing within Monterey County are provided by Silas B. Hays Army Community Hospital and 10 medical clinics located at Fort Ord, other military medical facilities located inside and outside of Monterey County, and by a variety of private providers accessible through medical care reimbursement programs offered by the federal government.

Silas B. Hays Army Community Hospital is a 367,000-square-foot acute care facility licensed to provide 440 beds. In practice, the hospital usually maintains 125 beds for patient use. The primary purpose of Silas B. Hays Army Community Hospital is to provide medical support to military personnel in times of war and to provide peacetime care to active duty military personnel and their family members. In addition, the hospital provides medical benefits to retirees and their family members, and to survivors of deceased service members on a space-available basis. Healthcare is provided at no charge to qualified beneficiaries, including retirees and their family members. Silas B. Hays Army Community Hospital is the only military hospital in Monterey County. The 10 adjunct medical clinics located at Fort Ord provide outpatient services on a similar basis.

All eligible patients who reside within a 40-mile radius of a military medical facility (catchment area) must seek in-patient service at that facility before they can qualify for treatment at other military facilities or for partially or fully reimbursable treatment at civilian medical facilities. Eligible patients residing outside of a catchment area may seek healthcare at a military medical facility of their choice or through civilian providers.

An estimated beneficiary population of 64,623 resided within the Silas B. Hays Army Community Hospital catchment area during FY 1992 (Table 4.2-13). Approximately 45% of the beneficiary population were members of the 7th Infantry Division (Light) and their family members; 28% were other active-duty personnel within the catchment area and their family members; and the remaining 27% of the population, or 17,515 beneficiaries, were military retirees and their family members.

Table 4.2-13 Beneficiary Population Residing in the
Silas B. Hays Army Community Hospital Catchment Area

Beneficiary Category	Sponsor ^a	Family Member	Total
7th Infantry Division	12,564	16,333	28,897
Other Active Duty	7,918	10,293	18,211
Retiree	<u>7,298</u>	<u>10,217</u>	<u>17,515</u>
Total	27,780	36,843	64,623

Note: The catchment area includes the area within a 40-mile radius of the hospital, as defined by zip codes.

^a The sponsor includes current and retired active-duty personnel.

In addition to eligible beneficiaries within its catchment area, Silas B. Hays Army Community Hospital serves eligible patients, primarily retirees and their family members, residing outside the catchment area, including elsewhere in Monterey, Santa Cruz, San Benito, Santa Clara, and San Luis Obispo Counties. The exact number of retirees and their family members residing outside of the catchment area that use Silas B.

Hays Army Community Hospital is not known; however, estimates of this population have ranged from approximately 7,000 to 11,000 (Fort Ord Community Task Force 1992).

The average occupancy (average number of beds occupied by patients on a given day) of Silas B. Hays Army Community Hospital during FY 1990 was 57.9% (American Hospital Association 1990). The demand for in-patient services at Silas B. Hays Army Community Hospital is characterized by admissions and bed days. As shown in Table 4.2-14, retirees and their family members accounted for approximately 32% of the 10,635 admissions and 33% of the bed days at Silas B. Hays Army Community Hospital during FY 1990. The demand for out-patient services is characterized by clinic visits. Retirees and their family members accounted for approximately 42% of the 378,445 clinic visits in FY 1990 (Table 4.2-14).

Table 4.2-14 Utilization of Medical Services at Silas B. Hays Army Community Hospital during Fiscal Year 1990

Beneficiary Category	Hospital Admissions	Bed Days	Average Length of Hospital Stay	Clinic Visits*
Active Duty and Family Members	7,279	24,419	3.35	219,951
Retirees and Family Members	<u>3,356</u>	<u>12,053</u>	<u>3.59</u>	<u>158,494</u>
Total	10,635	36,472	3.43	378,445

* Includes out-patients and in-patients who were seen in the clinic during hospitalization.

Because active-duty personnel receive treatment on a higher priority basis at military medical facilities than other eligible patients, family members and retirees sometimes need to obtain medical treatment at civilian facilities. If in-patient medical services are not available at Silas B. Hays Army Community Hospital, or if the patient load is at the hospital's capacity, eligible patients can (after obtaining a Statement of Non-Availability) be treated at civilian hospitals through the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS), a medical benefits program of the federal government. Generally, CHAMPUS requires patients to pay 20-25% of treatment costs plus an annual deductible amount of up to \$150 for individuals and \$300 for families. Retirees and their family members over 64 years of age are transferred to the Medicare system.

The State of California is included in the CHAMPUS Reform Initiative, a demonstration program that includes two beneficiary options for care, in addition to the standard CHAMPUS option. These are CHAMPUS Prime, a health maintenance organization model, and CHAMPUS Extra, a preferred provider program option. CHAMPUS Prime enrollees use network providers and pay a \$5 outpatient visit fee and other reduced charges. CHAMPUS Extra is a non-enrollment program through which beneficiaries experience lower cost shares and lower out-of-pocket expenses for services received from network providers. The original CHAMPUS Reform Initiative contract is scheduled to end in July 1993. Procurement activities are now on-going for the follow-on California/Hawaii CHAMPUS Reform Initiative program.

Some physicians in Monterey County accept standard CHAMPUS patients; however, many physicians and healthcare providers are reluctant to accept CHAMPUS patients because of relatively low reimbursement rates for medical services. Three hospitals within the county, including Community Hospital of Monterey Peninsula in Monterey, Salinas Valley Memorial Hospital in Salinas, and Natividad Medical Center in Salinas, accept CHAMPUS patients. Natividad Medical Center recently signed a contract to accept military beneficiaries enrolled in the CHAMPUS/PRIME and EXTRA programs. Size and occupancy data for the three local CHAMPUS hospitals are presented in Table 4.2-15.

Patients represented by CHAMPUS were a relatively small percentage of total patients at Community Hospital of Monterey Peninsula, Salinas Valley Memorial Hospital, and Natividad Medical Center in 1990. These patients accounted for an estimated 2.7% of Community Hospital of Monterey Peninsula's total bed days in 1990 (Community Hospital of Monterey Peninsula pers. comm.). Similarly, CHAMPUS patients generated approximately 1% of Salinas Valley Memorial Hospital's total revenues during the same year (Salinas Valley Memorial Hospital pers. comm.). No CHAMPUS patient data was available for Natividad Medical Center (Natividad Medical Center pers. comm.).

Table 4.2-15 Size and Occupancy Data for Hospitals Available to Military Medical Beneficiaries

Hospital	Beds ^a	Admissions ^b	Percentage of Occupancy ^c
CHAMPUS Hospitals			
Community Hospital of the Monterey Peninsula	170	11,144	84.7
Natividad Medical Center ^d	114	5,844	50.0
Salinas Valley Memorial Hospital	223	10,226	65.0
Military Hospitals			
Silas B. Hays Army Community Hospital	159	10,126	57.9
Naval Hospital Oakland	263	N/A	N/A
Travis Air Force Base	245	9,709	73.5

Notes: CHAMPUS = Civilian Health and Medical Program of the Uniformed Services.

N/A = data not available.

Data represents information derived from a 1990 survey of hospitals.

- ^a Number of beds, cribs, and pediatric and neonatal bassinets regularly maintained for inpatients.
- ^b Number of patients admitted for in-patient service during a 12-month period ending in 1990.
- ^c Ratio of the average number of inpatients received each day to the average number of beds maintained during the 1990 reporting period.
- ^d Data for Natividad Medical Center excludes activity related to the hospital's nursing home-type facilities.

Sources: American Hospital Association 1990.

Rather than use local CHAMPUS hospitals for in-patient services, medical beneficiaries may travel outside of the region to seek healthcare at other military hospitals. Naval Hospital Oakland and David Grant Medical Center at Travis Air Force Base in Fairfield are the closest military hospitals for retirees in the Monterey region. Size and occupancy data for Naval Hospital Oakland and David Grant Medical Center are presented in Table 4.2-15.

In addition to in-patient and out-patient services potentially available at Naval Hospital Oakland and David Grant Medical Center, out-patient services are also available at two PRIMUS clinics located in Salinas

and at the Presidio of Monterey in Monterey. The PRIMUS clinics are administered by the Sisters of Charity of the Immaculate Word through a contract with the government. The clinics serve the military beneficiary population at no cost to patients. The PRIMUS clinics in Salinas and the Presidio of Monterey serve an average of 102 and 192 patients per day, respectively (FY 92 Primus Clinic data). Based on operating the clinics 250 days per year, the Salinas and Presidio of Monterey clinics in FY 1992 absorbed 25,489 and 47,917 visits from beneficiaries, respectively, based on the total invoices submitted by the contractor.

4.2.4 Schools

4.2.4.1 Monterey Peninsula Unified School District

The Monterey Peninsula Unified School District (MPUSD) serves Fort Ord and the Monterey Peninsula. Current districtwide enrollment is 14,152, with a capacity of 17,606. The MPUSD operates five schools at Fort Ord on land leased from the Army.

More than half of the students at two elementary schools in the City of Marina are from military families. Seaside High School's students are predominantly from military families (Fort Ord Task Force 1992).

Approximately one-third of all enrolled students are children of military personnel or civilians who work at Fort Ord. The MPUSD receives reimbursement from the federal government for each child of a Fort Ord military or civilian family that attends a MPUSD school (\$1,400 for resident child of Fort Ord, \$14 for nonresident child).

4.2.4.2 Salinas Union High School District

The Salinas Union High School District currently averages 33% above capacity enrollment. Approximately 300 students from Fort Ord families attend a Salinas Union High School District facility (RKG Associates 1992). By 2000, the district expects to more than double its enrollment. Growth plans include the addition of Alvarez High School. This facility would increase the district's capacity by 2,000 students. However, even if the district begins construction on Alvarez High School within the next 3 years, the district will still need another high school (Jones & Stokes Associates 1991).

4.2.4.3 Salinas Elementary School Districts

The City of Salinas has four elementary school districts: Salinas City, Alisal, Santa Rita, and Washington. All four districts are currently operating above capacity. There are plans to construct several facilities within the districts to increase capacity and decrease overcrowding, but funding has not been available. The City of Salinas is currently asking voters to authorize a bond measure to assist with construction costs for the proposed facilities (Salinas Elementary School District pers. comm.). Even if the bond measure passes and construction commences, the elementary school districts in Salinas would still be operating at greater-than-capacity levels because of the city's accelerated growth rate.

Through interdistrict agreements, approximately 185 students from Fort Ord families attend classes in one of the elementary school districts in Salinas.

4.2.4.4 North County Unified School District

With an enrollment of approximately 4,900 students, the North County Unified School District (NCUSD) has a capacity of approximately 200 additional students. The district consists of eight schools: four elementary schools, two middle schools, one high school, and one continuation school (Jones & Stokes Associates 1991). According to a NCUSD survey conducted in 1990, 207 students from Fort Ord families

attend a NCUSD facility (RKG Associates 1992). This number is considered high by the NCUSD's current administration. They estimate that a maximum of approximately 75 students attending NCUSD facilities are from Fort Ord families (North County Union School District pers. comm.).

4.2.4.5 Monterey Peninsula College

Monterey Peninsula College offers a comprehensive set of courses in 8-week cycles at its Fort Ord campus. At least one-third of the students enrolled are not military personnel or their families but attend that campus because of its convenient location (Fort Ord Community Task Force 1992).

4.2.4.6 Golden Gate University

Approximately 20% of Golden Gate University's student body is military personnel or their family members (Fort Ord Community Task Force 1992).

4.2.5 Recreation

This section incorporates by reference information from the Other Physical Attributes Baseline Study of Fort Ord, California, which is available at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992e).

4.2.5.1 Undeveloped Recreational Opportunities

Undeveloped recreational opportunities exist in areas that remain in their original natural state with few or no developed facilities. These opportunities include trails and paths, beaches, open space areas, and natural habitat preserves.

Many undeveloped recreational opportunities on the installation are available to the public and military or civilian Fort Ord personnel. Through the Directorate of Personnel and Community Activities, the public can receive permission to use a majority of the installation area for various recreational opportunities, including, bicycling, equestrian activities, woodcutting, and hiking. Approximately 14,500 acres of the installation is available for undeveloped recreational activities. These areas include all of the undeveloped portions of the installation except for the 8,000-acre inland range area, which is used for live ordnance exercises and is considered very hazardous at present.

Additionally, hunting and fishing are popular recreational opportunities on the installation. These two activities draw the highest visitation of any of the undeveloped recreational activities. Fishing for rainbow trout, bluegill, channel catfish, and bass occurs at the East Garrison Pond and surf fishing occurs on the coastline of the installation. Hunting for California blacktail deer, cottontail rabbit, California valley quail, and mourning dove is permitted in the oak woodland areas in the central portion of the installation. Persons hunting and fishing on the installation must possess state and installation permits to participate in these activities.

4.2.5.2 Developed Recreational Activities

Developed recreational opportunities exist in or on developed recreational facilities. These may be indoor or outdoor facilities, depending on the activity. These opportunities include gymnasiums, indoor and outdoor playing fields and courts, parks, campgrounds, visitor service facilities, and community centers offering recreational activities.

Fort Ord has several developed recreational areas for numerous activities. These recreational opportunities are primarily available to on-installation personnel, but some are available to the public with appropriate permits from the Directorate of Personnel and Community Affairs. The developed recreational facilities include a youth center with gymnasium, three additional gymnasiums, a bowling center, two championship 18-hole golf courses, a 17-acre campground ("travel camp") and 8-acre pistol range, an outdoor football and track and field stadium, an indoor olympic-size pool, four theaters, the Stilwell Hall community center, an auto hobby shop, and an equestrian center. These facilities are located in the Main Garrison area (approximately 440 of the total 470 acres of developed recreation area) except for the "travel camp" and pistol range, located in the East Garrison area; Stilwell Hall, which is located on the coast; and the equestrian center, located north of the Main Garrison area.

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4.3 SOILS, GEOLOGY, TOPOGRAPHY, AND SEISMICITY

This section incorporates by reference information from the Flora and Fauna Baseline Study of Fort Ord, California; the Soils Baseline Study of Fort Ord, California; and the Other Physical Attributes Baseline Study of Fort Ord, California, which are available at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992a, 1992d, and 1992e).

4.3.1 Soil and Geologic Ecosystem Relationships

Three of the soil types or geologic features underlying Fort Ord are of limited extent and support unique botanical relationships. Recent and relic sand dunes, which cover roughly two-thirds of the facility (Figure 4.3-1), occur in only limited areas of the California coast. Oceano, Baywood, and Arnold soil series developed on the dunes (Figure 4.3-2). The sand dune soils show a generally increasing elevation, age, and soil profile development gradient from the coast to the inland areas. The low fertility and low water-holding capacity of the soils, together with the foggy coastal climate, provide the unusual conditions that restrict habitat to plant communities of limited range and support special-status plant species (U.S. Army Corps of Engineers, Sacramento District 1992a).

Interspersed in depressions between some of the dunes are small, localized vernal pool wetlands (refer to Section 4.11, "Vegetation, Wildlife, and Wetland Resources", for a further discussion of wetlands). The wetland substrate may be relict lagoon deposits. These areas are mapped by the Monterey County soil survey as the Antioch series or Santa Ynez series Inclusion within the Arnold mapping unit (Figure 4.3-2) (U.S. Soil Conservation Service 1978a). Based on a preliminary reconnaissance survey of the area, this mapping is incomplete and does not fully describe the actual pedologic (soil) and botanic diversity.

The third soil and geologic feature of limited extent is the Arnold series and Xerorthent soil type formed on the Aromas formation. The distinctive red color of the oxidized iron in the sandstone formation is the result of a pedogenic (soil-forming) process and may be a relict paleosol (i.e., reexposed fossil soil). Such soil types are very rare and important for research in soil formation processes that exist under various climatic conditions and landscape ages. In addition, the Aromas formation soils support a rare maritime chaparral community (U.S. Army Corps of Engineers, Sacramento District 1992a).

In general, the soil/geologic landscape and correlation with vegetation communities are more complex than existing mapping indicates.

4.3.2 Erosion

4.3.2.1 Coastal Erosion

The severe coastal erosion at Fort Ord, which has been occurring for at least several thousand years, is a natural process resulting from the postglacial sea level rise, wave patterns and geomorphic structure of Monterey Bay. The erosion rate has accelerated in this century from about 1.5 feet per year up to 7.0 feet per year in 1983 because of reduced sediment supply (from sand mining along the coast and sediment trapping in reservoirs in the Salinas River watershed) and loss of vegetation on shoreline dunes. A rubble revetment to preserve Stilwell Hall was repaired in 1983 but has since continued to erode on the south side and slip into the ocean. Engineering works proposed in the 1983 U.S. Army Coastal Engineering Research Center Report (Smith 1983) have not been implemented because of the high cost. Pillars supporting storm drainage pipes opening to the ocean are exposed and are likely to collapse. Although the erosion rate has slowed in the last 6 years from a lack of large winter storms, erosion is likely to resume at the previous accelerated rate with suitable storm conditions.

Figure 4.3-1
 Surficial Geology and Fault Lines of Fort Ord

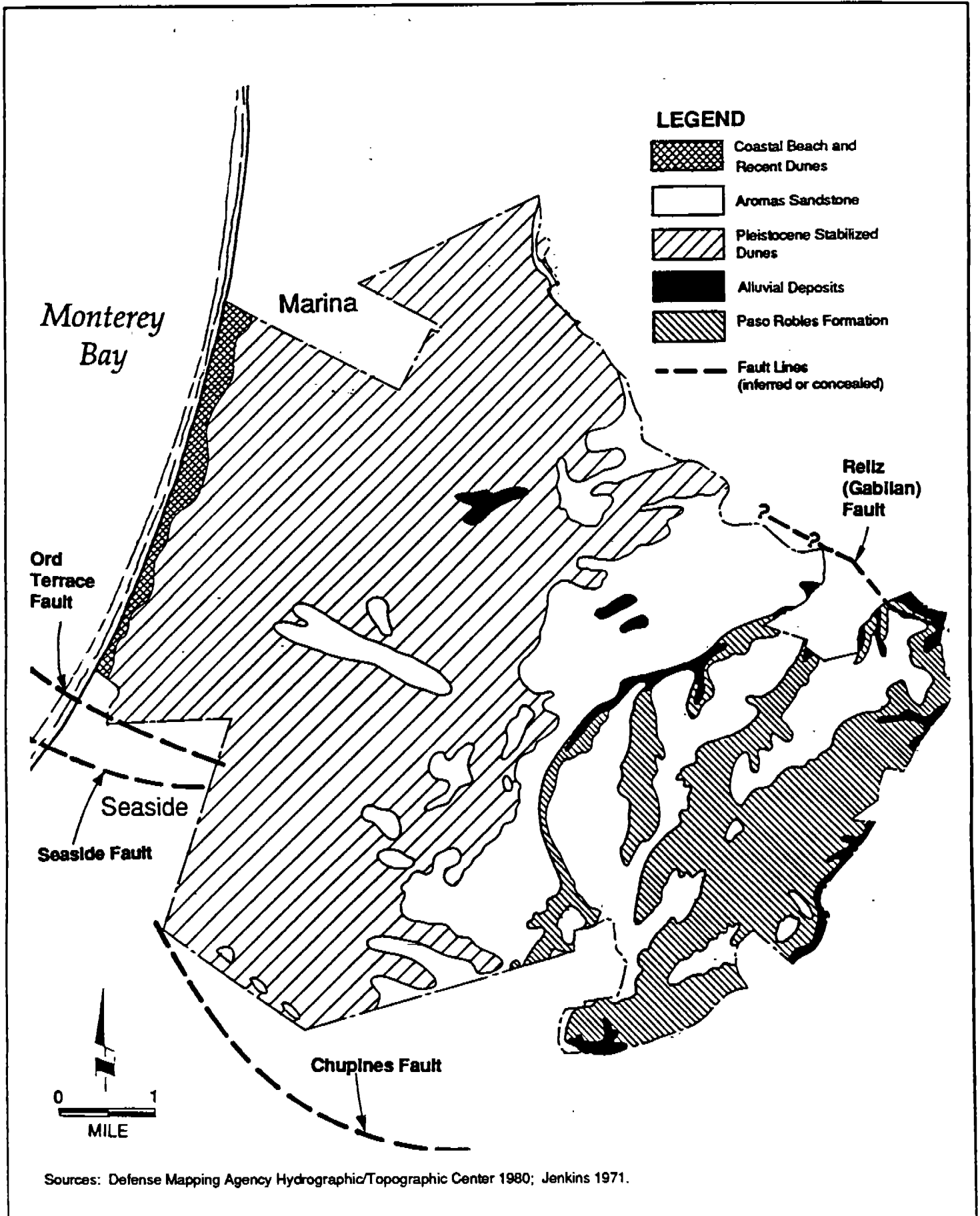
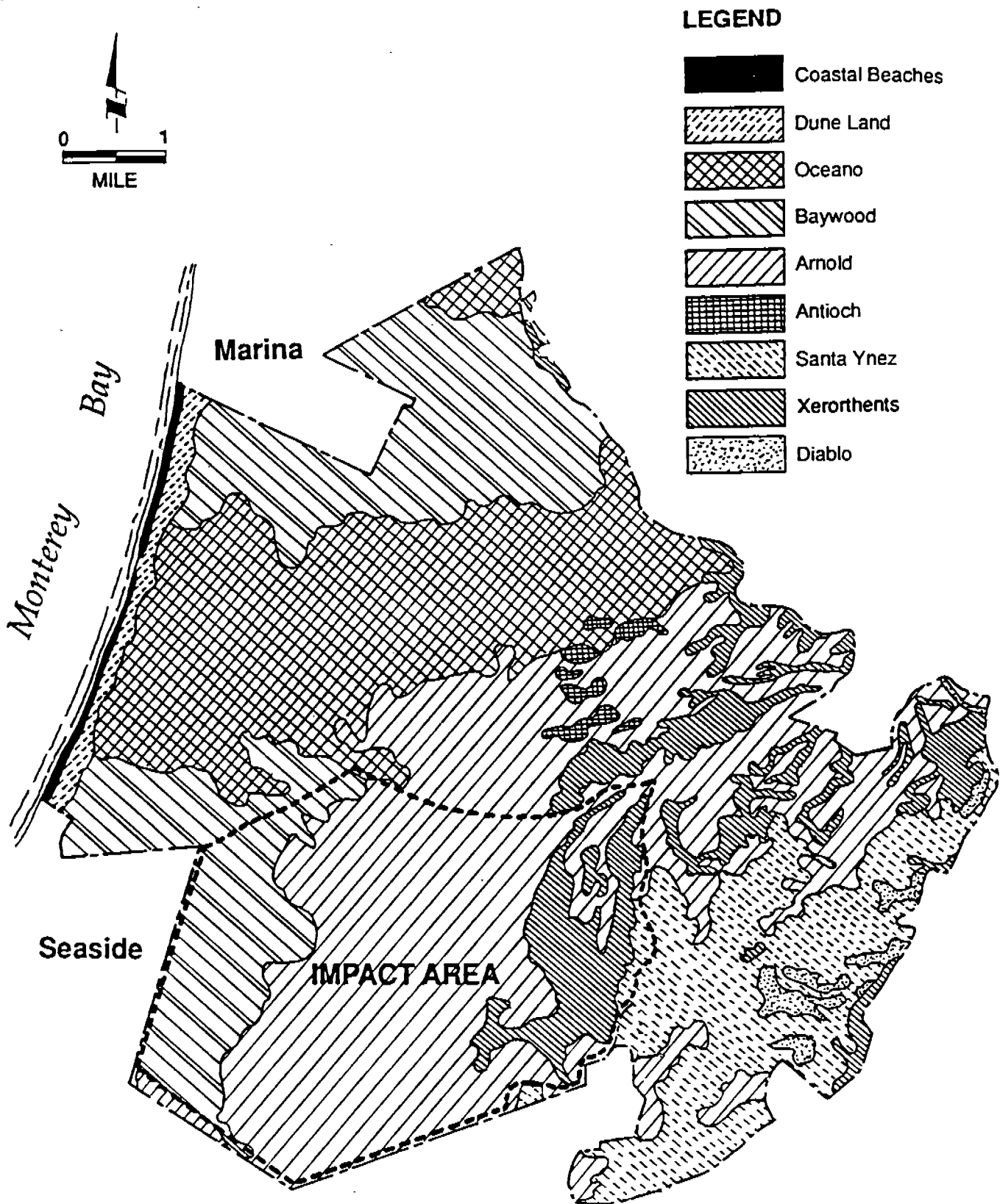


Figure 4.3-2
Major Soil Series and Types at Fort Ord



Sources: Defense Mapping Agency 1980; U.S. Soil Conservation Service 1978.

4.3.2.2 Wind Erosion

The portion of Fort Ord comprised of Dune Land and the Oceano, Baywood, and Arnold soil series (Figure 4.3-2) is susceptible to wind erosion if vegetation is removed and the surface is disturbed. Organic matter accumulation or development of soil structure in the surface horizons of the Oceano, Baywood, and Arnold soils retards wind erosion and lowers the erosion hazard unless the topsoil is disturbed or removed. Loose sand, such as in the Oceano, Baywood, and Arnold subsoils, has a wind erosion potential of up to 310 tons per acre per year in open, unvegetated areas, the highest wind erosion potential of any soil type in the Wind Erosion Equation rating system.

Wind erosion is a continuing problem at Fort Ord particularly in areas under development, such as during the construction of Fritzsche Army Airfield. Sand blows from the exposed soil surface, damaging existing and replanted vegetation and accumulating in areas from which it must be removed. Wind erosion continues until the source areas are stabilized and revegetated. Removing trees that act as windbreaks increases the wind erosion potential.

4.3.2.3 Water Erosion

Two regions of Fort Ord are highly susceptible to water erosion: the Arnold and Xerorthent soils on the Aromas formation and the Santa Ynez and Diablo soils on the Paso Robles formation (Figures 4.3-1, 4.3-2, and 4.3-3). The red sandstone layer distinguishing the Aromas formation is 3-15 feet thick and 0-15 feet deep below the soil surface. The sandstone layer is especially evident in ridgetop edge outcrops, which although somewhat resistant, are slowly eroding. Rill and gully erosion sufficient to produce palisade or badland-like features is a naturally occurring process. Although the sandstone layer is weakly consolidated, it is relatively impervious to water compared with the unconsolidated soil; water drains rapidly through the soil profile until it is impeded by the oxidized iron-cemented sandstone layer. Excavations or cuts in this profile produce immediate springs above the sandstone layer where it is exposed. Such induced surface runoff accelerates the natural erosion process. Slopes where eroded material collects are additionally subject to landslides (Dupre 1990).

Erosion on the Aromas formation is exacerbated by disturbance, such as roadcuts. Figure 4.3-4 shows eroded areas on the cutbank and downslope of a roadway. Problems in drainage were also encountered in the construction of the new ammunition supply point. A ditch for an electric line pipe conduit formed a gully breakout where it was excavated below the sandstone layer, and a drainage structure conveying runoff partly downslope from the ridgetop facility induced erosion in spite of riprapping.

The Paso Robles formation also has a high potential erosion hazard. The Santa Ynez soil series mapping unit may include an infiltration-impeding layer of clay accumulation as described in the existing Monterey County soil survey or may be underlain by unconsolidated alluvial deposits and weakly calcium carbonate-cemented sandstone. The Diablo soil series has a clay particle-size class throughout the profile with a consequent low infiltration and high runoff rate. This readily erodible landscape actually formed a more stable, rounded topography under natural conditions, held in place by a nearly continuous grass cover. In contrast, the soils of the Aromas formation are more susceptible to erosion under natural conditions because the native chaparral vegetation cover is noncontinuous.

Under disturbed conditions on the Paso Robles formation, such as road or toeslope cuts and grazing pressures, especially when concentrated in stream channels, induced erosion is even more extensive and dramatic than on the Aromas formation. Figure 4.3-5 shows the typical pattern of extensive stream channel gulying that characterizes nearly every stream channel on the Paso Robles formation on Fort Ord. Figure 4.3-6 shows the result of stream channel gulying in conjunction with a road placement (the original roadway is now virtually obliterated). This area of severest erosion has additional complications. The hillside above, although seemingly intact, is laced with piping or internal, subsurface erosion tunnels that open to the surface, indicating widespread slope instability. The Paso Robles formation is highly susceptible to landslides, as indicated by both recent (Figure 4.3-7) and geomorphically identifiable past landslides (Dupre 1990).

Figure 4.3-3
Water and Coastal Erosion Potential at Fort Ord

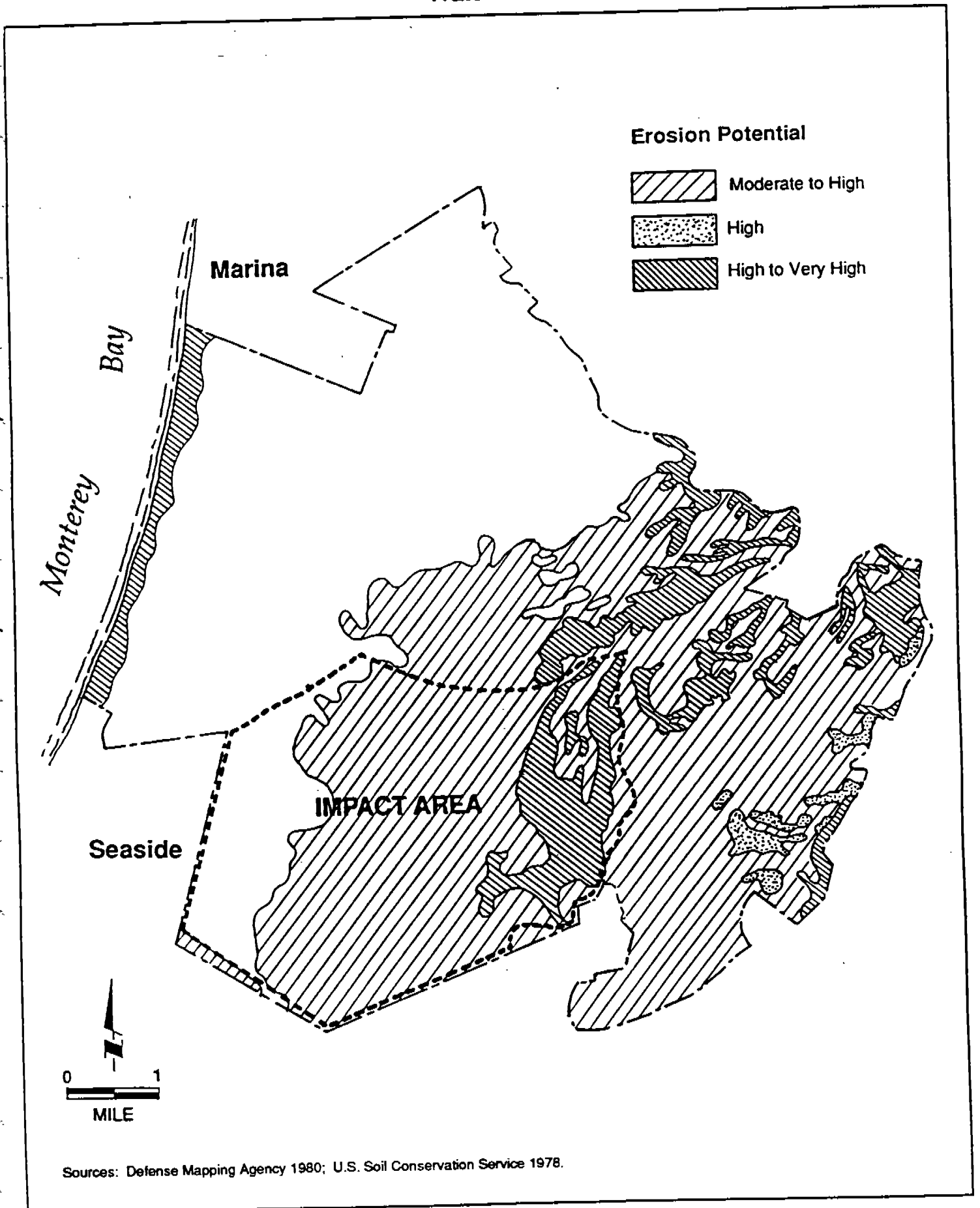
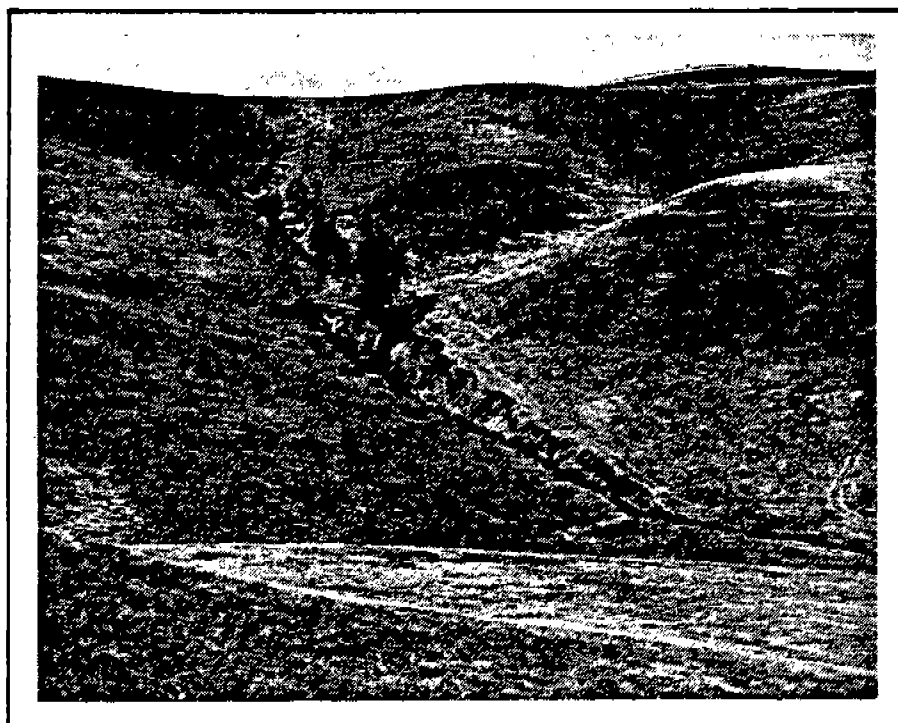


Figure 4.3-4



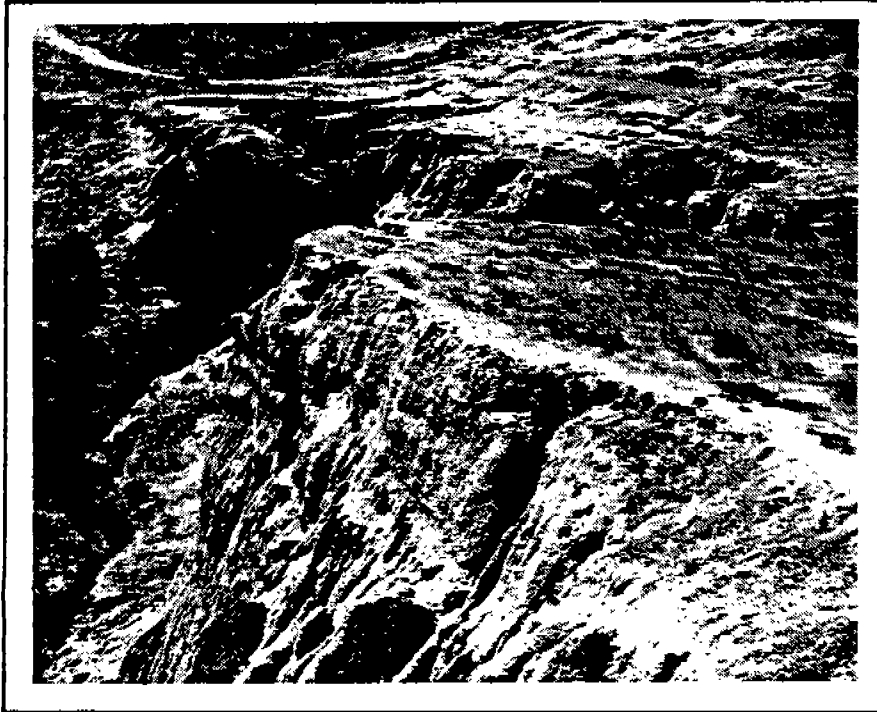
Erosion on cutbank and downslope of a roadway,
Aromas formation on Fort Ord.

Figure 4.3-5



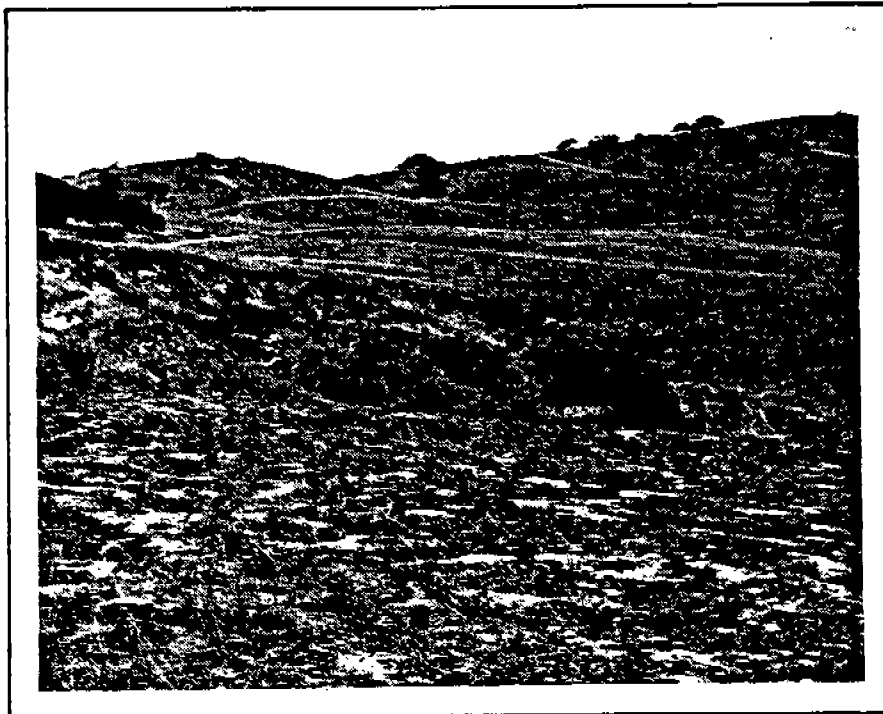
Extensive stream channel gullying, Paso Robles
formation on Fort Ord.

Figure 4.3-6



Result of stream channel gulying in conjunction with a road, Paso Robles formation on Fort Ord.

Figure 4.3-7



Existing landslide, Paso Robles formation on Fort Ord.

Erosion on the Paso Robles formation is causing considerable downstream sedimentation, particularly in Toro Creek, which runs partially on Fort Ord or adjacent to the southeast boundary. The upstream erosion contributes to a potential flooding hazard for existing residences along Toro Creek.

Historically, beginning when Monterey was the capital of California in the Spanish and Mexican periods, heavy cattle grazing may have caused rangeland deterioration and initiated the severe erosion now evident on the grasslands in the southeast quadrant of Fort Ord. In addition, cattle grazing in the old dunes area after the establishment of Fort Ord caused severe wind erosion problems until the grazing was discontinued. An ongoing sheep grazing program may be contributing to the erosion problem because of areas of overgrazing from sheep preferential grazing habits. A new grazing environmental assessment is being prepared. Efforts have been made to control, or at least retard, the active areas of erosion. The installation of drop inlets and planting of willow trees has slowed the deepening of the lower channel gully, but the headward, upslope gully advance continues.

Water erosion is not as much of a problem on the sandy soil types identified above as the soil's susceptibility to wind erosion, with three exceptions: the high infiltration rate of the sandy soils may be exceeded if runoff or drainage from developed areas is sufficiently concentrated, in which case erosion is rapid; areas of the Arnold soil series on the Aromas formation are susceptible; and the coastal dune cliffs are subject to wave erosion, as well as concentrated runoff or drainage erosion.

4.3.3 Topography

Extensive areas of Fort Ord have slopes in excess of 15-30% (Figure 4.3-8). Limited areas have slopes approaching vertical. At present, very little development has occurred in these areas. A slope greater than 15% is considered a severe limitation on almost all development (U.S. Soil Conservation Service 1978a) due to the hazard of erosion and landslides.

4.3.4 Agriculture/Horticulture

Before Fort Ord was established, only limited agriculture was practiced on the property. Tomatoes and other vegetables were grown on the alluvial flats along Toro Creek; dryland spring peas were grown on the dunes at the north end of Fort Ord; and hay may have been grown on the grassy flats amidst the sand dunes. Most of the soils on Fort Ord are generally unsuitable and severely limited for agriculture (U.S. Soil Conservation Service 1978a).

A small portion of Fort Ord, less than 50 acres in the segment along the northeast boundary that extends out to and encompasses the Salinas River, consists of soils suitable for prime farmland. Extensive areas of Oceano soils, and very limited areas of Antioch and Arnold soils, as mapped on Fort Ord are suitable as soils of statewide (farmland) importance (California Department of Conservation 1993). The areas mapped as Antioch soil have a high value as wetlands and rare plant and wildlife habitat. Extensive acreage in the southeast quadrant of Fort Ord has value as grazing land and is presently used for that purpose. No agriculture is currently practiced on Fort Ord.

The sandy, drought-affected soils of Fort Ord limit landscaping and make lawns difficult and expensive to maintain.

4.3.5 Engineering Uses

Different soil types may have various limitations as substrates for engineering or construction purposes. In addition to limitations caused by erosion, slope, landslides, and sedimentation, some soils on Fort Ord have limitations of low strength, shrink-swell potential, excavation caving, and piping (Figures 4.3-9, 4.3-10, and 4.3-11).

Figure 4.3-8
Slope Map at Fort Ord

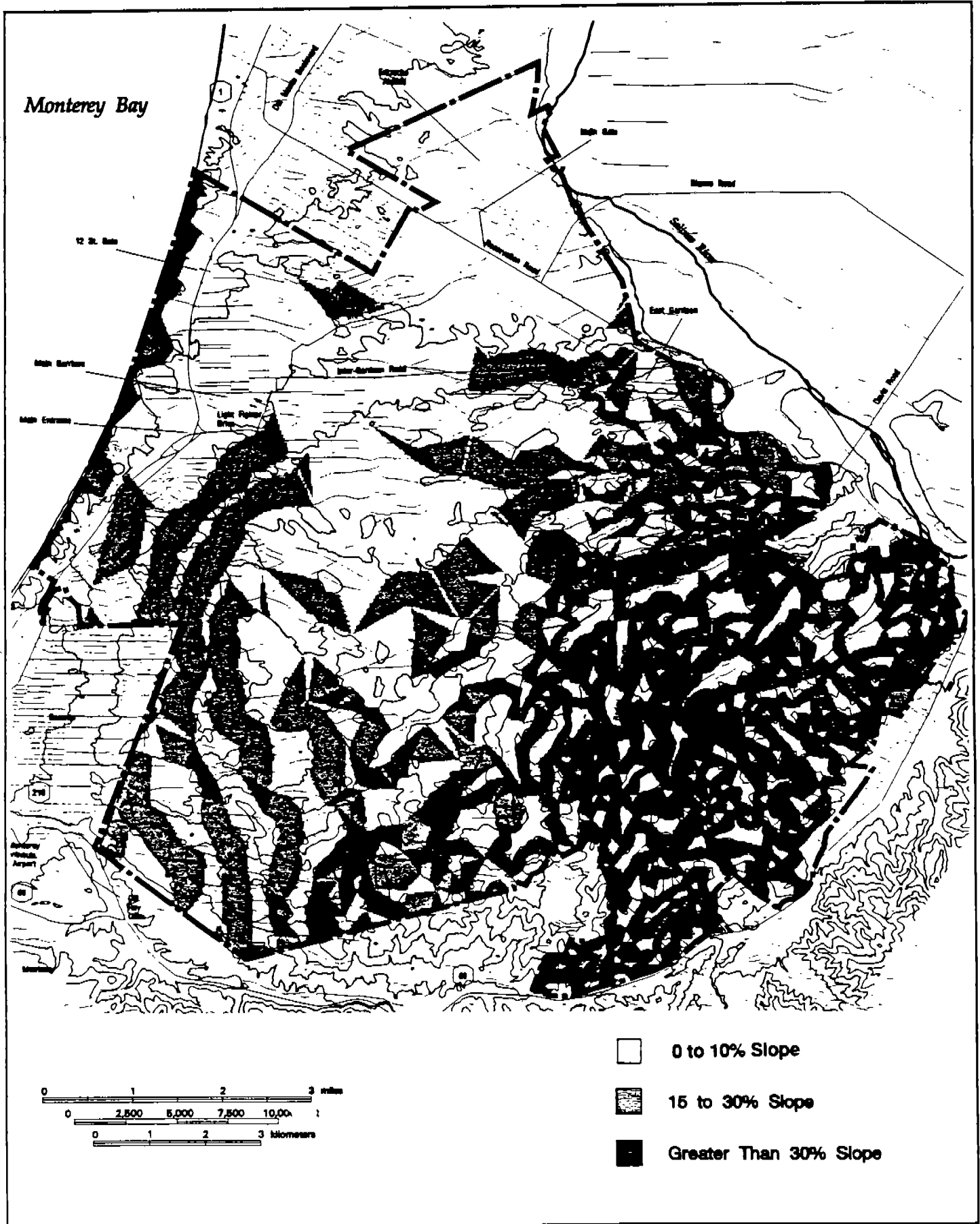
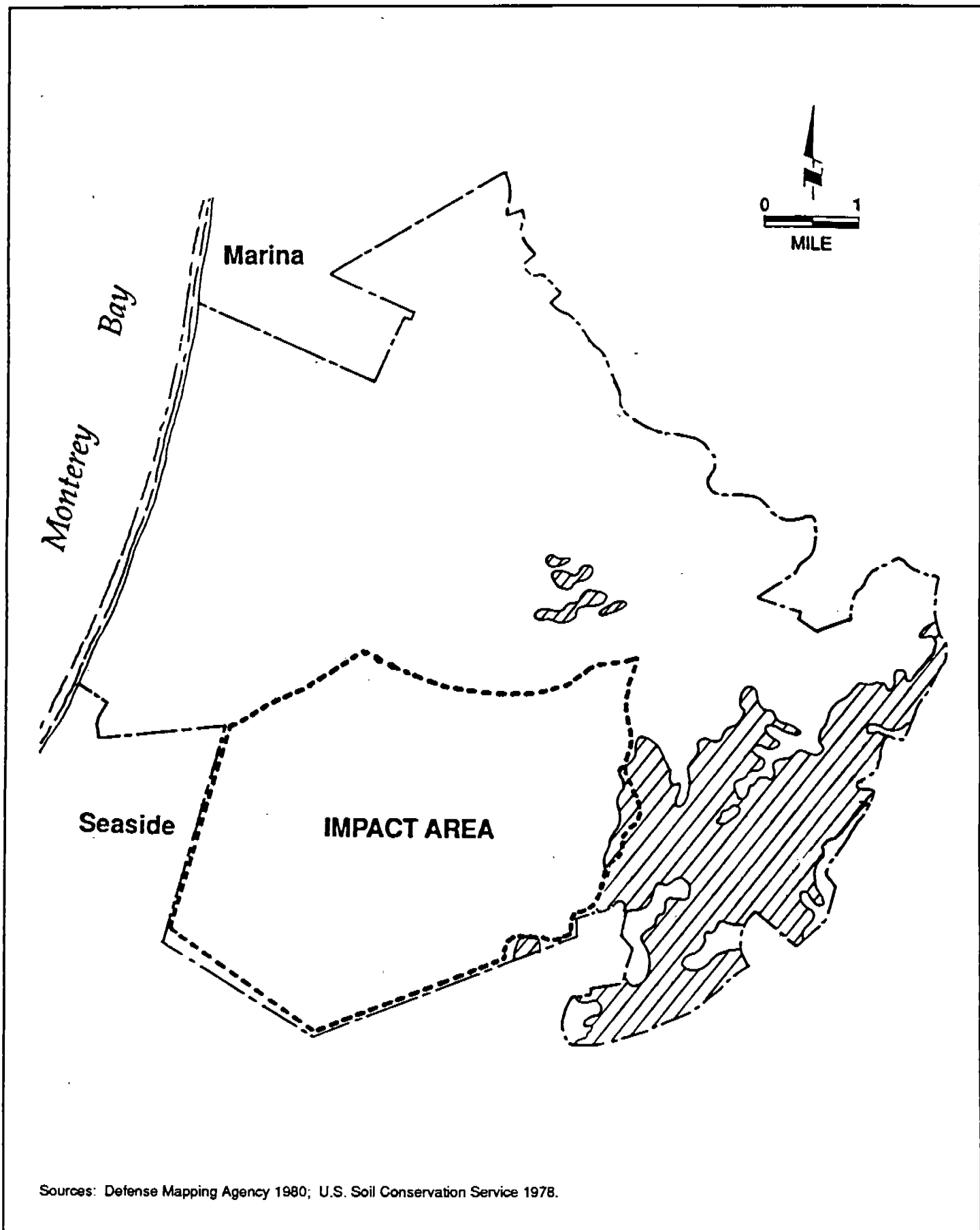


Figure 4.3-9
Soils with Low Strength at Fort Ord



Sources: Defense Mapping Agency 1980; U.S. Soil Conservation Service 1978.

Figure 4.3-10
Soils with High Shrink-Swell Potential at Fort Ord

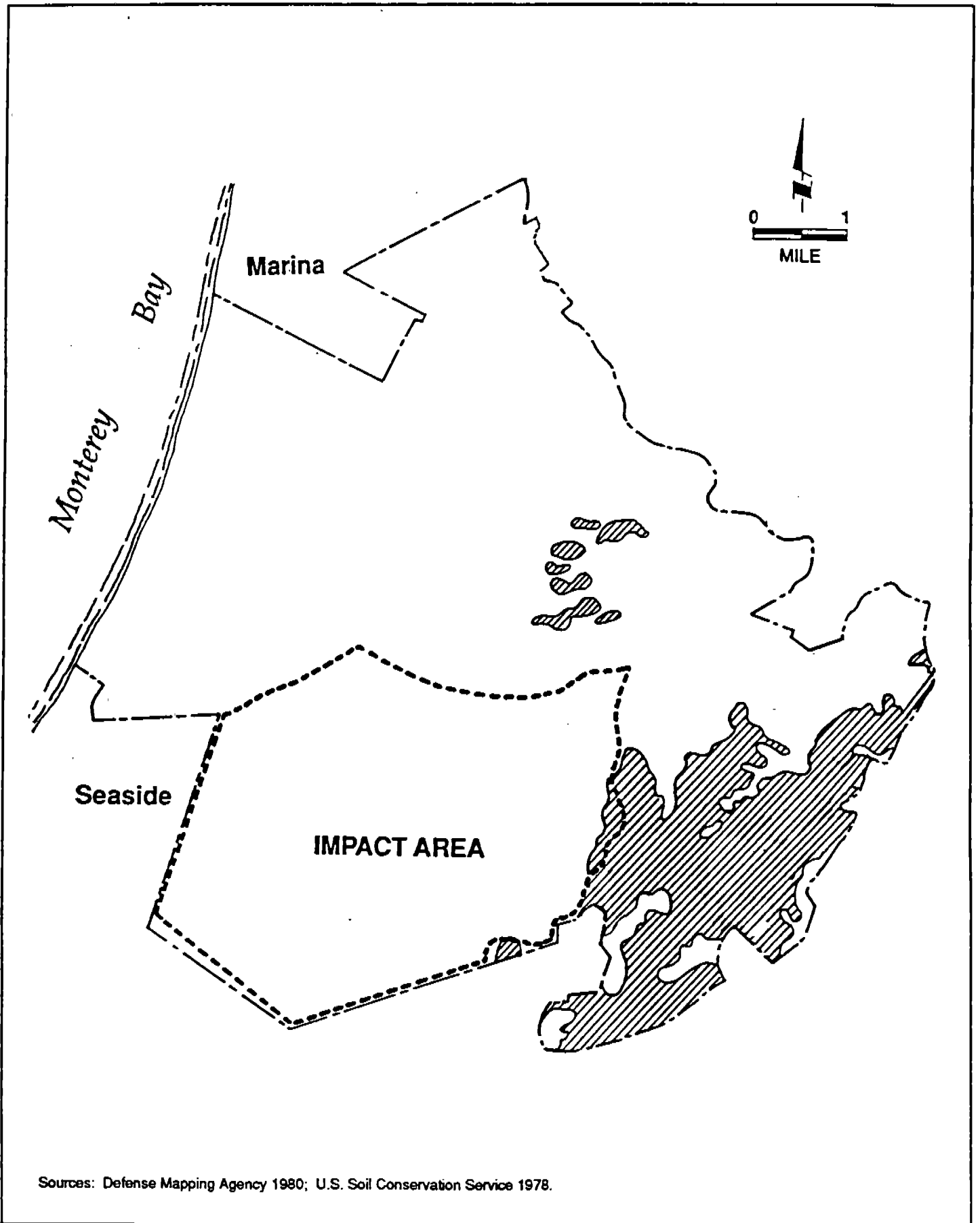
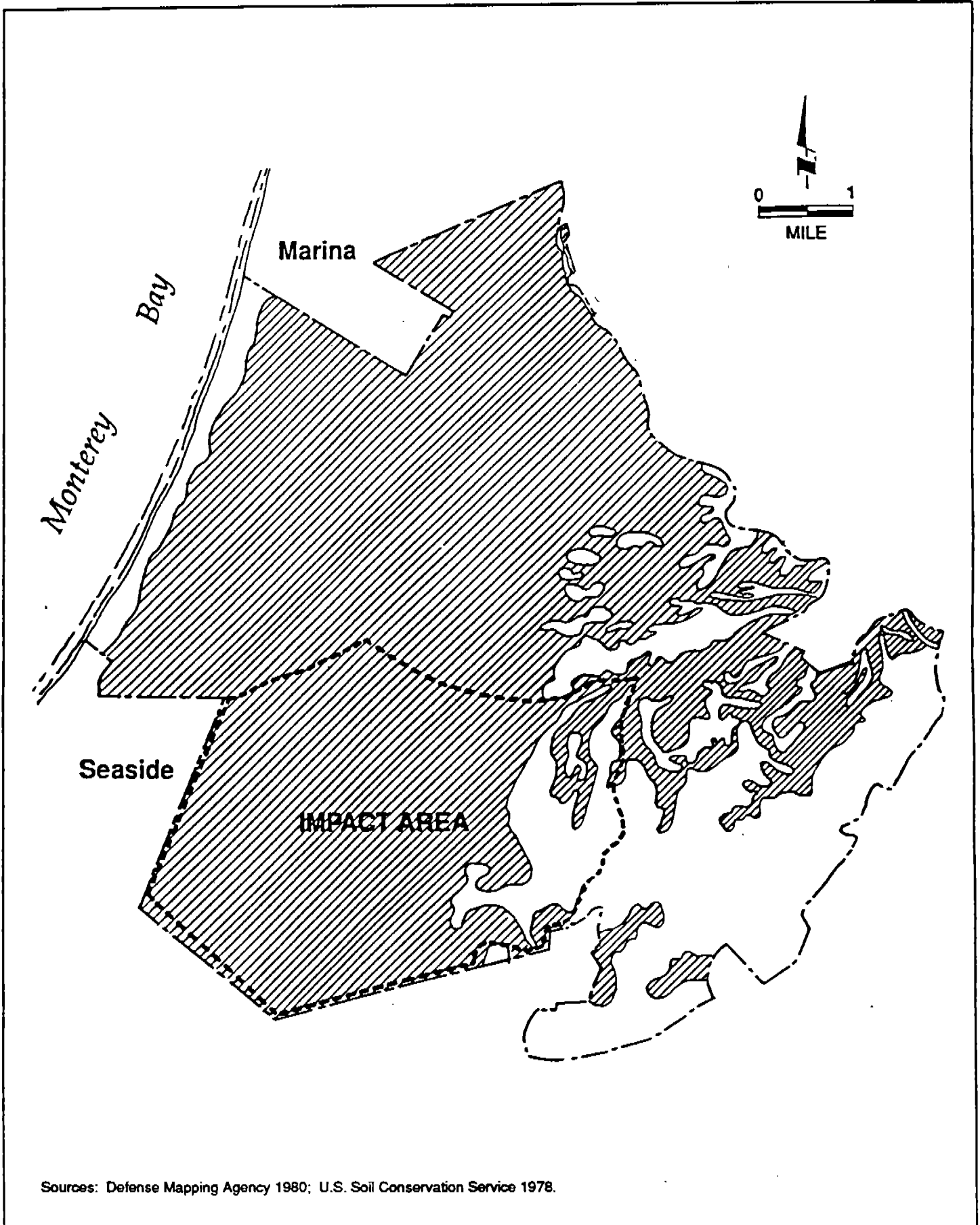


Figure 4.3-11
Soils with Excavation Caving and Piping Potential at Fort Ord



Sources: Defense Mapping Agency 1980; U.S. Soil Conservation Service 1978.

Two soil series with high clay contents are rated as having severe limitations for low strength: Diablo for buildings, and both Diablo and Santa Ynez for roads, streets, and embankments. The same two soil series have a severe limitation of shrink-swell potential for buildings and roads and streets. Three poorly aggregated sandy soil series, Baywood, Oceano, and Arnold, have severe limitations for shallow excavation caving and for piping in embankments. Severe piping was observed in areas mapped as the Santa Ynez soil series.

A severe limitation exists for reservoir construction on Oceano, Baywood, and non-Aromas formation Arnold soil series because of very high permeability and seepage and piping potential in earthen dam embankments.

4.3.6 Seismic Hazards

Several inferred or concealed earthquake faults (i.e., the Reliz or Gabilan, Chupines, Ord Terrace, and Seaside faults) either cross or are adjacent to Fort Ord (Figure 4.3-1). The first has possibly been active in the last 0.7 million years, and the latter three have possibly been active in the last 1.6 million years. None show activity in the last 10,000 years, but the potential cannot be ruled out (California Division of Mines and Geology 1992). The San Andreas fault, historically active in the last 200 years, is within 25 miles of Fort Ord.

The Palo Colorado-San Gregorio fault, 14 miles southwest of Fort Ord, and the Monterey Bay fault zone, directly offshore of Fort Ord, both show evidence of Holocene movement and recent earthquake activity (Greene 1989). The Monterey Bay fault zone extends seaward of the Ord Terrace, Seaside, and Chupines faults (Figure 4.3-1). The maximum credible earthquake magnitude is greater than 6 for the Monterey Bay fault zone, greater than 7 for the Palo Colorado-San Gregorio fault, and greater than 8 for the San Andreas fault (Greene 1973, California Department of Conservation 1980).

The potential of earthquake damage from ground shaking is moderate to very high, with the highest potential in the coastal dune zone. Only minor earthquake damage was sustained at Fort Ord in the Loma Prieta earthquake of 1989. Cracks appeared in the concrete between Stilwell Hall and the dune cliffs because of the unstable condition of the cliffs, and a few cracks occurred in the Silas B. Hays Army Community Hospital because of ground shaking.

Approximately 8,000 buildings exist on Fort Ord. Most buildings on Fort Ord were not constructed to comply with current local building codes relating to seismic safety because most were built before modern seismic safety provisions were incorporated into California building codes and Department of the Army technical manuals.

Seismic safety provisions of California building codes focus on buildings that receive concentrated public use or house sensitive uses, such as schools and hospitals. Schools on Fort Ord are owned and operated by the Monterey Peninsula Unified School District on land leased from the federal government, and are required to be in compliance with current building codes relating to seismic safety. The Silas B. Hays Army Community Hospital, which was completed in 1971, would require extensive modifications to comply with local and state seismic safety building codes required of in-patient healthcare facilities. The Army has conducted extensive studies of the modifications that would be required to bring this building into compliance with current regulations and has estimated the cost of such modifications to be greater than \$50 million. Other buildings, such as theaters, recreational facilities, and community centers, were generally constructed before 1973 and may also require substantial modifications to comply with current seismic regulations.

Other earthquake hazards of concern include liquefaction and landslides. High to very high liquefaction potential exists on recent alluvial sediments along Toro Creek. The same potential may exist in other small, localized areas along creeks; near existing ponds and reservoirs; and in isolated, water-retaining basins amidst the sand dunes. Landslide potential as an earthquake effect is present in the landslide-prone areas described above, including the Aromas formation and the shoreline dune cliffs.

Past studies have indicated that tsunamis and seiches (California Division of Mines and Geology 1980), large seismically induced and potentially destructive open ocean and bay waves, are of relatively minor concern in Monterey Bay (U.S. Army Corps of Engineers, Sacramento District 1992e) and would add only a somewhat increased hazard of coastal erosion at Fort Ord.

4.3.7 Toxic Contaminants and Live Ordnance

The known sites of toxic contamination and live ordnance are found on the sandy soils of the Dune Lands and the Oceano, Baywood, and Arnold soil series. These soils are characterized by their high permeability and infiltration rates, low fertility and water-holding capacity, and high susceptibility to wind erosion if vegetation is removed or the surface is otherwise disturbed. Areas of Xerorthents and Arnold series underlain by sandstone are also highly susceptible to water erosion. (Refer to Section 4.10, "Hazardous and Toxic Waste Site Remediation", for further discussion.)

4.4 PUBLIC SERVICES AND UTILITIES

This section incorporates by reference information from the Other Physical Attributes Baseline Study of Fort Ord, California, which is available at the public repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992e).

4.4.1 Wastewater

Wastewater is collected on Fort Ord by a system of mains and pump stations owned and operated by the Army and is treated by the Monterey Regional Water Pollution Control Agency's (MRWPCA's) regional treatment plant and the East Garrison sewage treatment plant. Much of the Main Garrison and East Garrison collection system facilities were installed in the 1940s and 1950s when the installation was being expanded. Some renovations were conducted in the 1960s and again in the 1970s, but many of the facilities remain in their originally constructed condition, especially pump stations. The Fritzsche Army Airfield collection system is separate from the Main Garrison and East Garrison systems and mainly collects wastewater generated from aircraft maintenance. Maintenance of all wastewater collection facilities has been hampered by a lack of telemetry equipment to monitor pump station operation and pipe condition and by insufficient maintenance staff.

Fort Ord is within the service boundary of MRWPCA and transports nearly all of its wastewater to the MRWPCA's regional treatment plant, which is located north of Marina. This plant has a design capacity of 29.6 million gallons per day (mgd), is permitted to treat 27 mgd, and receives average flows of 20 mgd. Fort Ord has purchased 3.3 mgd of capacity at this plant, of which it consumes an average of approximately 2.4 mgd. The East Garrison sewage treatment plant treats up to 0.03 mgd; treating more than these low flows may not allow the plant to comply with Central Coastal Regional Water Quality Control Board standards. Past treatment plants on the installation have included the Ord Village (only a pump station remains), Main Garrison (in a state of disrepair), and Fritzsche Army Airfield wastewater treatment (no longer in existence).

4.4.2 Solid Waste

Solid waste generated on Fort Ord is collected by Monterey Disposal Company and is deposited in the Monterey Regional Waste Management District's (MRWMD's) Marina Landfill. In June 1992, the Army's contract with Monterey Disposal Company was scheduled to expire and the Army requested bidders. After receiving no adequate bids, the Army extended its agreement with Monterey Disposal Company for 6 months. (Monterey Regional Waste Management District pers. comm.) The Army will contract with a solid waste hauling company for future solid waste collection service. A transfer station is operated on the installation by the Directorate of Engineering and Housing with a permitted capacity to store approximately 100 cubic yards of material.

The Marina landfill has a capacity of approximately 32 million tons and accepts 1,000 tons of refuse per day. Approximately 94 tons per day of this amount originates at Fort Ord. Incorporating anticipated growth and waste reduction measures, the landfill life is estimated at 100 years (Monterey Regional Waste Management District pers. comm.). Recyclable materials are also collected and stored at the landfill.

Some unauthorized dumping of solid wastes occurs at Fort Ord. Unauthorized disposal of waste concrete and asphalt occurs on the installation, and tree trimmings from Toro Park, a subdivision located adjacent to the eastern boundary of Fort Ord, have been dumped onto adjacent Fort Ord property. There have been no known incidences of any hazardous waste dumping.

4.4.3 Telephone Service

Fort Ord maintains its own telephone system, which is networked into the Pacific Bell telephone system. The Army's switching center on North-South Road (Building 4250) is served by underground copper cables delivered from the Pacific Bell Seaside station. Installation infrastructure consists of approximately 405 miles of overhead, buried, and ducted cables. The lines and poles servicing the wooden barracks, weapon ranges, and training areas are substandard (Beach-Philpot Associates 1984).

Pacific Bell also provides substantial support to portions of the installation through a lease signed in 1976, which allows for the reciprocal use of telephone infrastructure. Service is provided under a modified version and extension of this lease (Pacific Bell pers. comm.). Pacific Bell is awaiting disposal before renegotiating this contract. Pacific Bell provides direct telephone service to the following areas from two switching centers: the Seaside switching center serves Hayes Park, Stilwell Park, Fitch Park, Thorson Village, Brostrom Mobile Home Park, Marshall Park, two child development centers, and the Fort Ord Credit Union. The Marina switching center serves Patton Park, Abrams Park, Frederick Park, Schoonover Park, and a mini-mart post exchange. Pacific Bell leases poles and conduit to serve portions of the residential areas and the Army switching center. No Pacific Bell facilities are in the East Garrison area or at Fritzsche Army Airfield. (Fort Ord Community Task Force 1992.)

4.4.4 Gas and Electric Service

Pacific Gas and Electric Company (PG&E) provides gas and electric service to Fort Ord under a general services agreement that expires December 1995. In addition, two modifications to the general services agreement cover gas service to the Army's commercial-type uses (noncore uses) at Fort Ord. These two modifications extend until August 1993 and cover the Presidio of Monterey (POM) annex and Fort Ord. The facilities serving Fort Ord are divided into three categories: transmission, regulation/substation, and distribution. (Pacific Gas and Electric Company pers. comm.)

4.4.4.1 Transmission Lines

Transmission of gas occurs through two PG&E lines that traverse the installation and serve Fort Ord and city areas within the Monterey Bay area. The current rate of consumption of gas on the installation is 146 thousand cubic feet per hour (146 MCFH).

Two electric transmission line systems traverse Fort Ord. A two-line 60-kilovolt (kV) system, known as the Salinas/Del Monte 60-kV 1 and 2, serves Fort Ord and city and county areas within the greater Monterey Bay area. A two-line 115-kV system, known as the Moss Landing/Del Monte 115 kV 1 and 2, serves the city and county areas within the greater Monterey Bay area but does not serve Fort Ord. Service to a majority of the base is from the 60-kV line that is stepped down to a 12-kV line. An easement for a future "Neponset" tower line exists adjacent to the easement for the 60-kV line. Actual annual electricity consumption on the installation in 1991 was approximately 105,000 megawatts (MW) (1,000 kW = 1 MW). The electric and gas transmission lines in the study area are identified in Figure 4.4-1. The gas and electric transmission systems in the Main Garrison area are shown in Figures 4.4-2 and 4.4-3, respectively.

4.4.4.2 Regulation/Substations

Gas to the installation is regulated at metering stations located at Engineer Road, 2nd Avenue and 8th Street, Gigling Road at SR 1, Coe Avenue at SR 1, and at the gas transmission regulator located at 1st and 8th Streets. The distribution lines are Army owned (except for the lines to Bayview Park, North Bayview Park, Thorson Village, and the schools), and condition of the lines varies depending on the age and composition of gas mains. Some of the lines do not meet California Public Utility Commission standards.

Figure 4.4-1
 PG&E Gas and Electricity Transmission Lines
 and Storm Drain Outfalls through Fort Ord

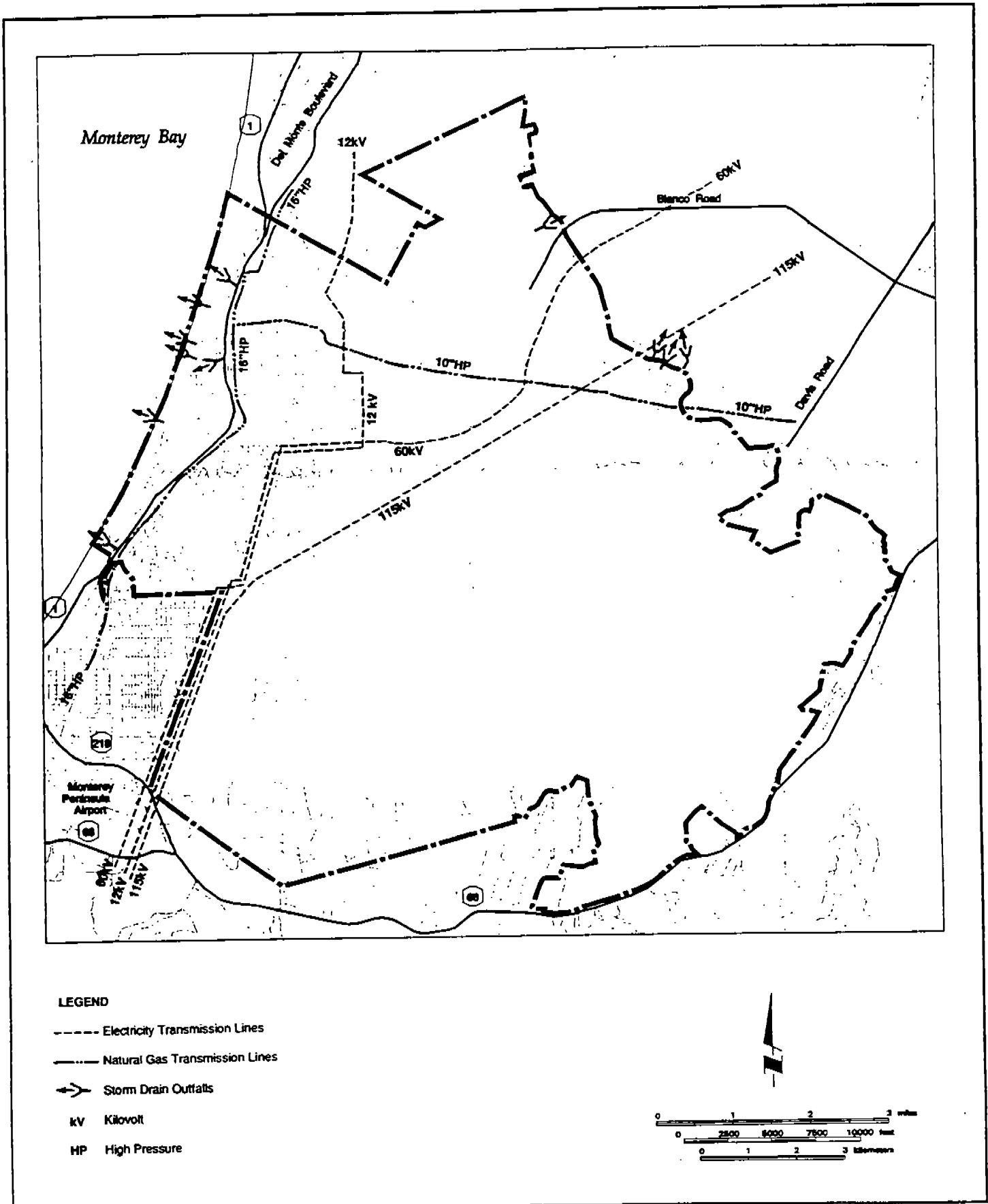


Figure 4.4-2

Primary Gas Transmission Lines and Metering Stations / PG&E Service Areas at Fort Ord

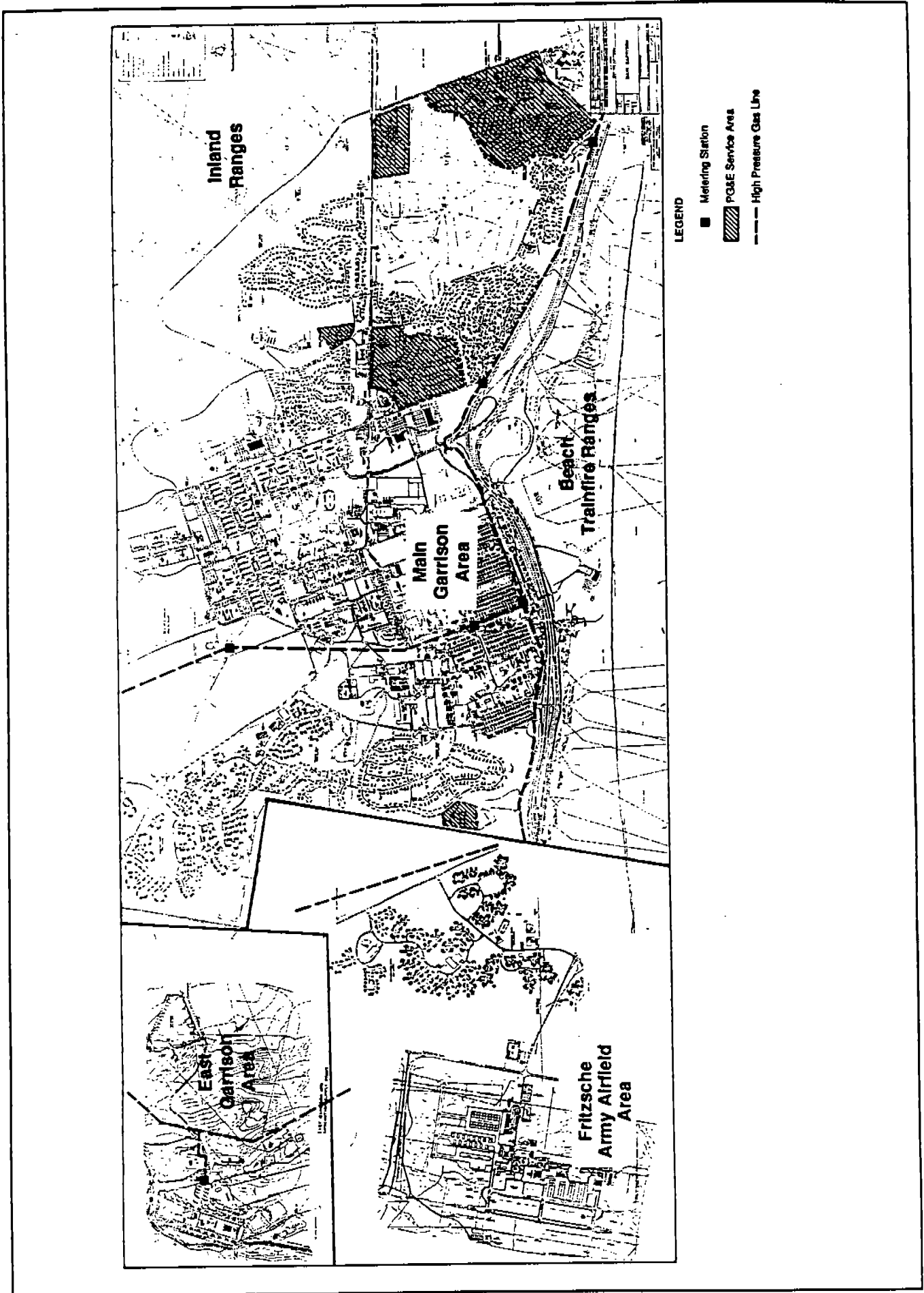
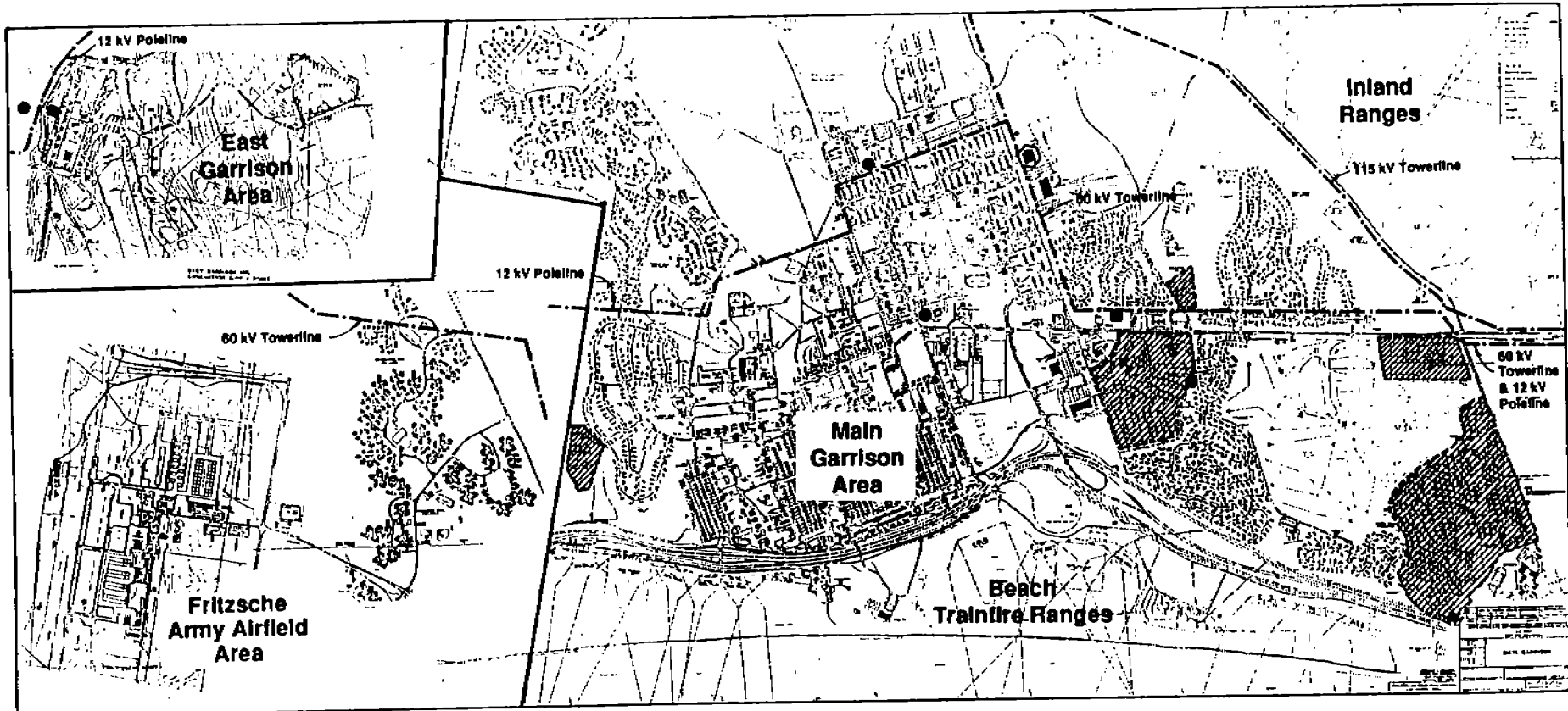


Figure 4.4-3

Primary Electric Transmission Lines and Metering Stations / PG&E Service Areas at Fort Ord

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Regulation of electricity occurs through a 60-kV tap serving the installation; the tap is located east of Silas B. Hays Army Community Hospital. The substation equipment, belonging to PG&E, is on Army property but is secured by an easement. This substation reduces voltage from 60 kv to 12 kV and provides two 12-kV circuits; one serves the Fort Ord switching station and the other serves the City of Marina. Adjacent to the PG&E substation is a metal-clad switching station owned and operated by the Army. All seven Army-owned and -operated distribution feeders begin from this station.

4.4.4.3 Distribution

The Army's distribution and metering systems provide gas and electric service to the entire installation, except for Bayview Park (part of Hayes Park), North Bayview Park (part of Stilwell Park), Brostrom Mobile Home Park, Thorson Village, and the schools, which are served by PG&E-owned and -operated distribution facilities. Gas and electric service to Bayview Park and North Bayview Park is master metered, whereas Thorson Village and the schools are individually metered. Schoonover Park is also designed for individual metering. (Fort Ord Community Task Force 1992.)

4.4.5 Cable Television

Cable television service to Fort Ord is provided and maintained primarily by Coastside Cable TV, doing business as WestStar Cable TV. Ninety-five miles of infrastructure serves Fort Ord; approximately 60% is overhead (on the electricity and telephone poles) and serves the Garrison and older housing areas, and the remaining 40% is underground and serves Abrams Park, Schoonover Park, Preston Park, and 5100/5200 Coe Avenue. Two-way cable television wiring exists within the Garrison, the hospital, and the barracks surrounding the hospital, which allows for use of the wide-area network data communication system.

Cable infrastructure exists throughout the installation but is primarily at two facilities. The first facility, the Fourth Avenue office, has a double-wide television trailer attached to a single-wide trailer, five storage sheds, a carport, an underground gas tank, an emergency generator, one large satellite dish on a 15- by 15- by 4-foot cement footing, and a hard cable line to the second facility. The Headend facility is located on a hill next to the main water tower off the Parker Flats Cutoff. This facility has a 30- by 15-foot building, a 70-foot receiving station with antennas, a standby generator, and six receiving dishes on 15- by 15- by 4-foot cement footings. (Coastside Cable TV pers. comm.)

A 15-year nonexclusive franchise use contract composed of two leases was initiated with the Army on October 1, 1989, which allows Coastside Cable TV to operate cable television and wide-area network services on Fort Ord and the Presidio of Monterey. One lease, serving Fort Ord, expires in November 1993. The other lease, serving the Presidio of Monterey, expires December 1995. This contract allows Coastside Cable TV to serve 6,500 customers. (Coastside Cable TV pers. comm.)

4.4.6 Storm Drainage System

The storm drain system designed for the urban areas at Fort Ord was built in the 1940s as a separate system from the sanitary sewer lines. The storm drain system consists of an extensive system of storm sewer branches that feed into major lines running either to Monterey Bay or inland to the Salinas River basin. Surface runoff is directed to catch basins or pipe inlets from housing and recreational areas, motor pools, maintenance yards, and industrial facilities. About 50% of the original storm drain system has been replaced as needed.

The primary storm drain lines for the Main Garrison discharge at three outfalls in the dune and beach areas and four lines discharge into Monterey Bay. The three major outfalls draining the East Garrison discharge into agricultural land south of the Salinas River. The Fritzsche Army Airfield is drained by a storm drain line that also discharges into agricultural land south of the Salinas River. The remainder of the

installation is drained by minor outfalls discharging into depressions or open fields. Figure 4.4-1 shows the major storm drain outfalls from Fort Ord.

The existing Fort Ord storm drainage system functions without any major problems. Army maintenance consists of periodic clearing of sediment and debris from culverts and drain site areas. The condition of some portions of the existing storm drain system is unknown.

4.4.7 Water Distribution System

Wells provide the sole source of water supply for Fort Ord. A total of 29 wells have been used at various times for water supply, but only five (two active potable, one inactive potable, one standby potable, and one nonpotable) have recently been in regular use. Only four are in use presently since one collapsed in August 1992. This well will soon be replaced, however.

In addition to wells, the water supply system for Fort Ord includes 13 reservoirs/tanks, with a combined capacity of 10.3 mg, and a distribution system, including six pump stations and distribution mains, covering an area about 5 miles long by 4 miles wide in the western part of the installation. Most of the Fort Ord water mains were installed before 1941 and have been inconsistently maintained. The water system is assumed to deliver approximately 90% of the water pumped at the wells to the customers (the remaining 10% is assumed lost because of leaks in the system).

The California-American Water Company, the Marina County Water Agency, and the City of Seaside Municipal Water System all provide water service to the areas adjacent to the installation.

4.5 WATER RESOURCES

4.5.1 Hydrology and Water Quality

4.5.1.1 Surface Water

Fort Ord is located between the Salinas and Carmel River watersheds and covers an area of about 44 square miles. Because of the proximity of Fort Ord to the Pacific Ocean, the area has a moderate Mediterranean climate, with 90% of the annual precipitation occurring from November through April. The average annual precipitation of the area is about 14.2 inches (Defense Mapping Agency 1980).

The topography of Fort Ord is characterized by stabilized sand dunes in the western half of the installation, transitioning to rolling hills and canyons in the eastern half. Well-defined natural drainage channels are largely absent in the western half of the installation because the sandy soils in this area are highly permeable and absorb much of the rainfall and runoff.

The streams in the canyons in the eastern part of the installation are small and intermittent. Impossible, Wildcat, Barloy, and Pilarcitos Canyons and Toro Creek drain to the northeast and into the Salinas River. Canyon Del Rey drains the southern portion of the installation and empties into Monterey Bay, a designated national marine sanctuary.

4.5.1.2 Groundwater

For purposes of discussion, geologic conditions on Fort Ord can be divided into three general areas (Figure 4.5-1). Each area has distinct geologic and hydrologic characteristics.

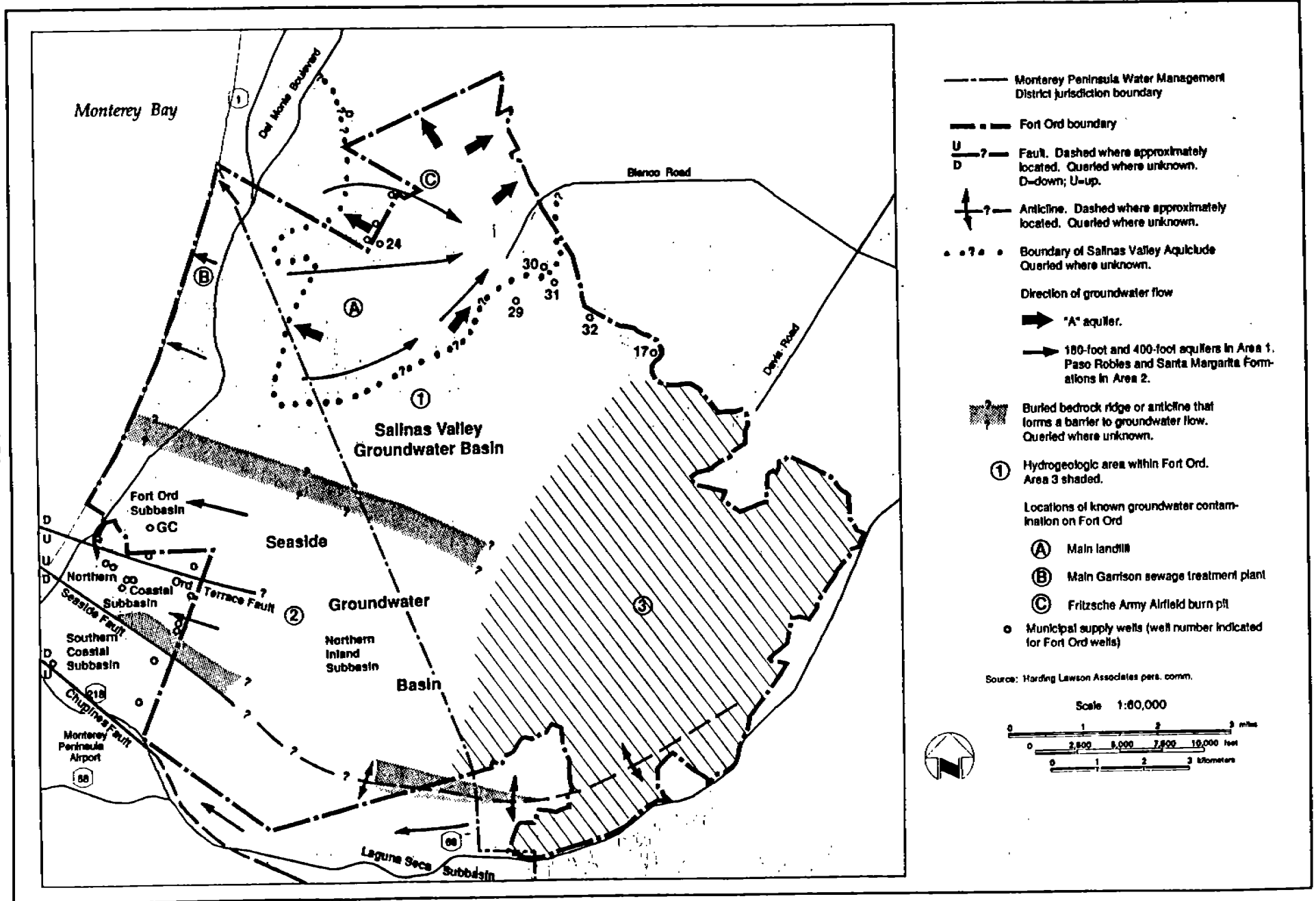
The northwest part of Fort Ord (Area 1 in Figure 4.5-1) overlies a small part of the Salinas Valley groundwater basin, which contains several aquifers separated by aquicludes. Area 1 is covered with dune sand deposits that are largely unsaturated. The depth of the water table is typically about 100 feet. An extensive clay layer, known as the Salinas Valley Aquiclude, underlies the dune sand deposits in the Main Garrison area. Beneath the aquiclude is the 180-foot aquifer, which is the shallowest aquifer with substantial pumpage. The aquiclude is absent along a strip near the coast and in an area extending south from East Garrison. In these areas, recharge from the surface can percolate down to the 180-foot aquifer. Beneath the 180-foot aquifer are two deeper aquifer zones referred to as the 400-foot and 900-foot aquifers.

Historically, most pumpage for Fort Ord and Marina was from the 180-foot aquifer. Seawater began intruding into this aquifer as a result of the pumping, and early wells were replaced with wells that were deeper or farther inland. By the early 1980s, seawater had intruded about 2.5 miles into the 180-foot aquifer and 1.2 miles into the 400-foot aquifer in the vicinity of Marina. Around that time, Fort Ord drilled new wells into the 180-foot and 400-foot aquifers near East Garrison and Marina drilled three wells into the 900-foot aquifer.

A few recent water quality measurements indicate that the rate of intrusion in the Marina-Fort Ord area might have slowed since the mid-1980s, presumably as a result of the change in pumping locations and drought-related decreases in total pumpage. However, intrusion is definitely continuing in the Castroville-Salinas area.

The southwest part of Fort Ord (Area 2 in Figure 4.5-1) overlies the Seaside groundwater basin. This basin is structurally complex and divided into several subbasins by faults and folds in the underlying Monterey Shale formation. Fort Ord overlies most of the northern part of the basin and supplies a substantial amount of total recharge to the basin. The only pumpage from this basin by Fort Ord is for

Figure 4.5-1.
Hydrogeologic Conditions in the Fort Ord Vicinity



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irrigation at the golf course. Most of the remaining pumpage is by municipal wells in Seaside and Sand City. Although water levels near these wells were slightly below sea level in spring 1990, water levels are generally above sea level. Except at one shallow well near the shoreline, seawater intrusion has not affected wells in this basin. The existing amount of pumpage appears to be close to the safe yield of the basin.

The eastern part of Fort Ord (Area 3 in Figure 4.5-1) is hilly and lacks the surficial dune deposits that cover Areas 1 and 2. Because of relatively low infiltration rates and subsurface permeability, this area is not promising for groundwater development and probably does not contribute substantial amounts of groundwater inflow to the western part of Fort Ord.

4.5.1.3 Water Rights

Water supplies under which Fort Ord currently operates are from groundwater sources, which could continue to be used or could be passed to the new property owner. Each owner has the right to drill and pump on their property; however, the locations, timing, and amounts to be pumped could be limited or controlled by state and local regulatory agencies. There are no transferrable water rights to groundwater in California. The groundwater overdrafts and seawater intrusion make the value of the rights to these groundwater sources questionable.

4.5.1.4 Water Quality

Surface Water. Surface water quality data within Fort Ord are minimal because surface waters are not used for domestic supply but are used to a limited extent for stock watering. In general, surface water quality of drainage channels within the installation varies with the seasons. During the first strong rains of the season, ditches and storm drainage systems draining the urban areas of the installation receive the highest concentration of urban pollutants. Urban pollutants are variable but generally consist of oils, grease, heavy metals (lead, copper, cadmium), pesticide residues, and coliform bacteria. Surface soils sampled at onshore storm drain discharges to swales indicated a presence of urban pollutants. Pesticides and organics, hydrocarbon products and their breakdown components, and metals were found. It is not yet known whether a human or environmental health risk exists because of the pesticides or organics or whether the concentration of metals exceeds background levels. Gas samples were also analyzed and no volatile organic compounds were detected.

Winter storms contribute to erosion and gulying in some areas, particularly the drainages of the eastern half of the installation. Surface erosion can cause high concentrations of suspended sediment loading in streams causing increased siltation, turbidity, and accompanying high total dissolved solids. In general, the surface waters of this region are hard and high in total dissolved solids. Streams may contain elevated levels of sulfates, bicarbonates, calcium, magnesium, and sodium depending on localized conditions (Defense Mapping Agency 1980).

Urban stormwater runoff discharging into the ocean may also locally impair coastal water quality. Results of water quality monitoring by the California State Water Resources Control Board (SWRCB) through its State Mussel Watch Program indicate that resident mussels from parts of Monterey Bay contain high levels of lead, pesticides, and petroleum hydrocarbon concentrations (National Oceanic and Atmospheric Administration 1990).

Groundwater. Groundwater quality within Fort Ord is variable depending on the location and depth of the well. Saltwater intrusion from groundwater pumping has reduced water quality in most wells in the Main Garrison area so that these waters are unacceptable for drinking because of high chloride content. Recent water quality data for the three active potable supply wells (wells 29, 30, and 31), the standby potable supply wells (wells 17 and 24), and the golf course well are shown in Table 4.5-1.

Water from standby well 24 and the golf course well have occasionally had concentrations of dissolved solids greater than 500 milligrams per liter, which is the recommended limit for drinking water. Concentrations probably have not exceeded 1,000 milligrams per liter, which is the maximum concentration allowed under secondary drinking water standards. During periods of high salinity, water from these wells could be blended with water from the other wells to meet drinking water standards. Use of water from either of these two wells for potable purposes may require approval from the California Department of Health Services.

Regulatory Issues. Permits have not been required in the past to discharge urban runoff within the installation. However, Section 6217 of the Federal Coastal Zone Management Act of 1972 (CZMA) Reauthorization Amendments of 1990 requires local entities that discharge any stormwaters into the ocean to participate in the future in a non-point-pollution control plan developed by the California Coastal Commission and the State Water Resources Control Board (SWRCB). The plan must then be submitted to U.S. Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration for approval. The SWRCB must then have an enforceable plan through the local governments no later than 3 years after the plan is approved.

The EPA also has mandated states to develop a statewide National Pollution Discharge Elimination System (NPDES) general stormwater discharge permitting system for industrial activities required by federal regulation to obtain a permit. Construction activities disturbing 5 or more acres of soil will be regulated as an industrial activity under this permitting system; soil disturbances of less than 5 acres that is part of a larger common plan of development is also subject to regulation. The goal of the general stormwater discharge permit is to reduce surface water pollution from industrial and construction activities.

The SWRCB adopted the general stormwater permitting system in November 1991, which requires the above facilities to obtain a permit for stormwater discharge. Under this permitting system, a stormwater pollution prevention plan is required to be developed, which provides an organized means of controlling hazardous and nonhazardous runoff and sediment transport by implementing stormwater best management practices (BMPs). The stormwater discharge permit also requires a stormwater sampling and monitoring program to ensure stormwater management implementation. It is unclear how the CZMA amendments for non-point-source pollution control plans will be implemented in relation to general stormwater discharge permits, but the California Coastal Commission and the SWRCB will likely work together to eliminate stormwater management plan duplication.

On September 21, 1992, Monterey Bay was officially designated a national marine sanctuary. Under this designation, resource protection is assigned the highest priority among research and education programs and visitor use. The Marine Protection, Research, and Sanctuaries Act of 1972, as amended, and its implementing regulations (15 CFR 922) requires a management plan to protect the sanctuary's resources. Regulations established for this purpose have adopted best management plans to control non-point-source runoff; they do not, however, alter or change existing SWRCB non-point-source runoff regulations discussed above. However, the Marine and Estuarine Management Division of the National Oceanic and Atmospheric Administration reserves the right to regulate any substance that enters the sanctuary from outside sources and injures sanctuary resources.

4.5.2 Water Supply and Demand

Wells provide the sole source of water supply for Fort Ord. More than 29 wells have historically been used at various times for water supply, and approximately 10 wells are presently available for use. These include three active potable supply wells near East Garrison (wells 29, 30, and 31); two small wells providing water to two inland training camps (Jacks and Pilarcitos wells); five inactive standby wells (wells EG-17, 24, 25, 27, and 28); and the golf course well; which is used only for irrigation. In August 1992,

mechanical problems within the turbine in well 32 caused it to pump excessive amounts of sand. The well has been shut down indefinitely while the Army decides whether to abandon, repair, or replace the well. Excessive sand production and the advance of seawater intrusion into the 180-foot and 400-foot aquifers forced older wells in the Main Garrison area to be abandoned in favor of deeper wells farther inland. The main potable supply wells are all located in the Salinas Valley groundwater basin, and the golf course well is located in the Seaside basin.

The Cities of Marina and Seaside have active water supply wells near the northwest and southwest corners of Fort Ord, respectively. Because of seawater intrusion in the 180-foot aquifer, the City of Marina presently obtains all of its water from one well completed in the 400-foot aquifer and three wells perforated in the 900-foot aquifer. The City of Seaside uses a combination of local groundwater and surface water from the Carmel River system distributed by the Cal-Am Water Company.

Groundwater pumpage by Fort Ord and other nearby users is shown in Table 4.5-2. Monthly average consumption rates for the Fort Ord potable supply system have ranged from 3.49 million gallons per day (mgd) to 9.41 mgd, or 77%-207% of the average annual consumption rate (Ace Pacific Company 1988).

Per capita consumption for the Fort Ord potable supply system averaged 143 gallons per capita per day during 1986-1989, when the effective population (including the effects of visitors and employees who live off the installation) was 31,986 people. This consumption rate was substantially lower than the rate in the early 1980s (209 gallons per capita per day) because of water conservation measures implemented during the current drought, which began in 1987. Annual water consumption decreased from a high of 6,600 acre-feet in 1984 to an average of 5,100 acre-feet during 1986-1989.

Safe yield is the amount of groundwater that can be pumped annually on a long-term basis without causing undesirable effects, the greatest of which in the Fort Ord area are excessive drawdown and seawater intrusion. The concept of safe yield is meaningful only when applied to an entire groundwater basin. The amount of yield available to individual users within the basin depends on the amounts and locations of pumping by other users. In the Salinas Valley groundwater basin, present pumpage in and near Fort Ord exceeds safe yield in the 180-foot and 400-foot aquifers, as indicated by continuing seawater intrusion and water levels below sea level in those aquifers. This indicates that the yield from the 180-foot and 400-foot aquifers for Fort Ord is less than its present pumpage, assuming that pumping by other users remains unchanged. Conditions in the 900-foot aquifer are uncertain, but the Marina wells currently producing from this zone have not experienced seawater intrusion. Seawater intrusion has not affected wells in the Seaside basin (except for one shallow well near the shoreline) although water levels near the coast are sometimes slightly below sea level. This indicates that yield available to Fort Ord and other Seaside basin users may be less than the present total pumpage of 4,700 acre-feet per year.

Fort Ord's contribution to groundwater supply (recharge) and demand (pumpage) is very different for the two groundwater basins, as shown in Table 4.5-2. Contributions by Marina, Seaside, and other users in the basins are also shown for comparison. These itemizations are not complete groundwater budgets. The budgets are balanced by other items, including seawater intrusion, possibly recharge from Area 3 (Figure 4.5-1), and groundwater inflow from adjacent areas in the Salinas Valley and the El Toro Creek Valley. The amounts of recharge to the Salinas Valley groundwater basin shown for Fort Ord and Marina are the amounts that occur within the boundaries of these two jurisdictions. For the Seaside basin, all recharge and pumpage for the entire basin is included in the table.

Table 4.5-1 Water Quality of Fort Ord Wells

Constituents	Source Name and Date Sampled							Public Health Standard (maximum)
	Well 17EG 4/90	Well 24 6/11/92	Well 29 6/11/92	Well 30 6/11/92	Well 31 6/11/92	Well 32 11/85	Golf Course Well 6/11/92	
Constituents in mg/L								
Dissolved solids	650 ^a	410	390	320	410	431	320	500 ^b
Hardness	430	200	240	260	240	142	130	None
Calcium	90	33	37	32	45	64	26	None
Magnesium	28	13	13	9.1	15	22	6.9	None
Sodium	50	45	33	24	36	47	45	None
Chloride	63	74	67	33	66	43	86	250 ^b
Sulfate	170	29	77	68	92	101	25	250 ^b
Fluoride	0.45	<0.10	<0.1	<0.1	<0.1	0.27	<.10	1.4 to 2.4 ^c
Nitrate	<1	35	3.3	11	1.6	0.4	10	45 ^c
Constituents in um/L								
Iron	<10	510	<100	<100	<100	<110	<100	300 ^b
Manganese	520	<30	<30	<30	40	95	<30	50 ^b
Arsenic	<10	<10	<10	<10	<10	<5	<10	50 ^c
Barium	<100	<100	<100	<100	<100	58	<100	1,000 ^c
Cadmium	<1	1.7	<1.0	<1	<1	<0.5	<1.0	10 ^c
Chromium	<5	<10	<10	<10	<10	<25	<10	50 ^c
Lead	16	7.4	<5	<5	<5	<1	<5	50 ^c
Mercury	<0.2	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	2 ^c
Selenium	<10	<5	<5	<5	<5	<1	<5.0	10 ^c
Silver	<10	<10	<10	<10	<10	<25	<10	50 ^c

Note: Allowable fluoride varies with temperature between 0.8 and 2.4 mg/L. Optimum is about 1.0 mg/L.

^a Exceeds recommended standard.

^b Secondary (recommended) drinking water regulation.

^c Primary (mandatory) drinking water regulation.

Source: Well water quality from annual reports to the California State Health Department and standards from Driscoll 1986.

Table 4.5-2 Local Contributions to Groundwater Recharge and Pumpage in the Vicinity of Fort Ord

Groundwater Flow Item	Salinas Valley Groundwater Basin		Seaside Groundwater Basin	
	Fort Ord (acre-feet)	Marina (acre-feet)	Fort Ord (acre-feet)	All others (acre-feet)
Recharge				
Rainfall	2,500	1,200	1,800	880
Pipe leaks	760	320	60	430
Irrigation return flow	<u>760</u>	<u>320</u>	<u>200</u>	<u>650</u>
Total	4,020	1,840	2,060	1,960
Pumpage				
Total	5,100	2,100	400	4,300

Notes: Recharge from rainfall assumed to equal 2.75 inches per year (Staal, Gardner, & Dunne, Inc. 1987) over areas 1 and 2 in Figure 4.5-1.

Irrigation return flow assumed to equal 15% of total water use, except equals 50% of golf course irrigation.

Pipe leaks assumed to equal 15% of total water use.

Fort Ord pumpage equals measured average for 1986-1989.

Golf course pumpage equals 400 acre-feet per year (Hurst 1992).

Marina pumpage equals 1989 measured pumpage (similar to 1990 and 1991).

Other pumpage and recharge in Seaside basin from Staal, Gardner, & Dunne, Inc. (1988, 1990).

One acre-foot equals 325,800 gallons.

Fort Ord's contribution to pumpage in the Salinas Valley groundwater basin is greater than its contribution to recharge. The opposite is true in the Seaside basin, where Fort Ord recharge is five times greater than its pumpage. However, much of the existing groundwater use in Seaside depends on recharge from Fort Ord. Any increase in pumpage in the southern part of Fort Ord could cause total pumpage to exceed the basin's safe yield.

These comparisons of pumpage and recharge ignore the fact that most recharge accrues to shallow aquifers and may not be readily available to wells pumping from deeper aquifers.

The occurrence or threat of seawater intrusion has prompted local agencies to pursue water conservation measures and development of new supplies. Supply options currently receiving the most active consideration include Monterey Peninsula Water Management District's New Los Padres Reservoir in the Carmel River basin, Monterey County Water Resources Agency's Salinas Valley Water Transfer Project and a 3-mgd desalination plant in Sand City. The Salinas Valley Water Transfer Project could mitigate for increased water demand resulting from reuse of Fort Ord. It is described in greater detail in Volume II, Section II.5, "Water Resources".

4.6 PUBLIC HEALTH AND SAFETY

This section incorporates by reference information from the Other Physical Attributes Baseline Study of Fort Ord, California, which is available for review at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992e).

4.6.1 Law Enforcement

Law enforcement service on Fort Ord is provided by the Army's Law Enforcement Command. Law Enforcement Command employs 144 federal civilian and 10 military patrol personnel who respond to crimes on the installation. The Law Enforcement Command uses 34 vehicles to patrol Fort Ord.

Other law enforcement agencies in the vicinity of Fort Ord include the Monterey County Sheriff's Department, the Marina Public Safety Department, and the Seaside Police Department.

4.6.2 Fire Protection

Fire protection service to Fort Ord is mainly provided by the Fort Ord Fire Prevention and Protection Division, Directorate of Engineering and Housing, which operates two fire stations and a total of 12 fire vehicles. These fire vehicles include four Class A pumpers, four brush/grass fire trucks, one ladder truck, two crash/rescue trucks, and one rescue vehicle. The two fire stations are staffed by 40 firefighters. The fire department responds to an average of 2,243 calls per year. Incidence of wildfires on the installation has increased since 1986, when 98 wildfires occurred, to 155 in 1991 and 178 as of July 31, 1992. Approximately 70% of these fires have occurred in the 8,000-acre inland range area, while the other 30% occurred elsewhere on the installation. The size of the fires has averaged 30 acres, ranging from 0.25 acre to several hundred acres.

A portion of eastern Fort Ord lies within the Salinas Rural Fire Protection District, which maintains an automatic aid agreement with Fort Ord for fire response. The Salinas Rural Fire Protection District operates three fire stations; the closest to Fort Ord is located in the Toro area. Other fire protection agencies in the vicinity of Fort Ord include the Marina Public Safety Department and the Seaside Fire Department.

4.6.3 Medical Services

The following is a brief summary of medical services provided in the study area. (Refer to 4.2.3, "Social Services", above for a detailed discussion of medical services provided at Fort Ord and its vicinity and of military retiree benefits.)

4.6.3.1 Fort Ord

Fort Ord has 10 medical clinics without beds; four dental clinics; and a full-service hospital, the Silas B. Hays Army Community Hospital. The hospital has 125 beds but is licensed to provide up to 440 beds. Silas B. Hays Army Community Hospital is the only military hospital in the Monterey area. In 1990, Silas B. Hays Army Community Hospital had 57.9% occupancy. Occupancy is the average percentage of beds that is expected to be occupied at any time. (American Hospital Association 1990.)

If active duty personnel need medical services that can not be provided at Silas B. Hays Army Community Hospital, they are transported to the nearest military facility: either David Grant U.S. Air Force Medical Center at Travis Air Force Base in Fairfield or Naval Hospital Oakland.

4.6.3.2 Fort Ord Vicinity

The Monterey Peninsula and western Monterey County are served by three nonmilitary hospitals; all are CHAMPUS providers. These are Natividad Medical Center and Salinas Valley Memorial Hospital in Salinas, and the Community Hospital of the Monterey Peninsula in Monterey.

4.6.3.3 Natividad Medical Center

Natividad Medical Center has 166 beds, of which 52 are part of the hospital's nursing home facility. The hospital provides all types of medical care, including emergency room, general medicine, surgery, intensive care, and obstetrics. The number of births at Natividad has substantially increased in recent years (Jones & Stokes Associates 1991). In 1990, there were 6,025 admissions and an occupancy of 63.3% (American Hospital Association 1990).

4.6.3.4 Community Hospital of the Monterey Peninsula

The Community Hospital of the Monterey Peninsula offers general medical and surgical facilities and has 170 beds. In 1990, there were 11,144 admissions and 84.7% occupancy (American Hospital Association 1990).

The Community Hospital of the Monterey Peninsula is unique in its high occupancy rate and its proximity to the retirees living on the Monterey Peninsula.

Until September 1992, the Community Hospital of the Monterey Peninsula was the first referral from Silas B. Hays Army Community Hospital in its capacity as a CHAMPUS provider. As of September 1, 1992, Natividad Medical Center is the first referral for CHAMPUS/PRIME and CHAMPUS/EXTRA subscribers. The Community Hospital of the Monterey Peninsula still provides CHAMPUS services for CHAMPUS/STANDARD subscribers.

4.6.3.5 Salinas Valley Memorial Hospital

Salinas Valley Memorial Hospital offers a wide variety of medical services, including open heart surgery and neurosurgery. The existing structure has 223 beds with 10,226 admissions in 1990 and an occupancy of 65% (American Hospital Association 1990). The hospital obtains funding from patient fees and the Salinas Valley Memorial Hospital District, which obtains a portion of property tax revenues collected from residents living in Salinas, Gonzales, Castroville, and surrounding unincorporated areas (Monterey County Local Agency Formation Commission 1991). Salinas Valley Memorial Hospital is a CHAMPUS/Standard provider similar to the Community Hospital of the Monterey Peninsula.

The Natividad Medical Center is the CHAMPUS/PRIME and CHAMPUS/EXTRA provider for the area, effective September 1, 1992, and is the first referral for overflow from Silas B. Hays Army Community Hospital. According to Foundation Healthcare projections, Natividad Medical Center is expecting an average of five inpatients per day. Natividad Medical Center has indicated that they have ample capacity to treat existing inpatients and outpatients following closure of Hays Hospital. (Natividad Medical Center, Patient Financial Services pers. comm.)

The Community Hospital of the Monterey Peninsula, Salinas Valley Memorial Hospital, and Natividad Medical Center served an estimated population of 270,000 and had admissions totaling approximately 27,400 during 1990. Based on population served, number of admissions, and occupancy rate, it is estimated that the three hospitals have a reserve capacity of approximately 11,000 admissions. Using the 1990 proportion of admissions to population served, it is estimated that at 100% occupancy the hospitals have an ability to serve an additional maximum population of approximately 110,000. Some constraints in services provided may occur before reaching 100% occupancy.

4.6.4 Emergency Medical Services

Emergency medical services are provided by ambulance coverage, 911 emergency services, and air transport and rescue services.

4.6.4.1 Ambulance and 911 Emergency Services

Fort Ord currently provides its own ambulance coverage and its own emergency telephone service. Hays Hospital has three ambulances that serve the installation; no off-installation emergency responses are made, although patients are transferred occasionally. In 1990, Silas B. Hays Army Community Hospital had 994 ambulance responses on the installation. The average response time was 8 minutes. Emergency room services at Silas B. Hays Army Community Hospital currently serve approximately 30,000 persons a year; approximately 1,500 of these patients have life- or limb-threatening emergencies.

Monterey County Communication Center coordinates off- installation 911 calls in the study area, which includes police, fire, and emergency medical services (first responder services). Second response is hospital services. Peninsula Paramedics, a private ambulance firm, operates both emergency and transfer services in the surrounding communities. Peninsula Paramedics makes approximately 1,200 ambulance responses per year.

4.6.4.2 Air Transport and Rescue Services

Monterey County uses a private company, Calstar, for air transport services in the north Monterey County area. Calstar has two helicopters stationed in Gilroy, which do not have winch-lift capability and are limited to one or two patients. In the south county area and for rescue operations, the county uses Military Assistance to Safety and Traffic (MAST) emergency services. (Monterey County Communication Center pers. comm.)

This MAST program has provided the central coast area with search, rescue, and air ambulance service since the 1970s and responds to more than 100 emergencies a year. These services are used by several public service providers, including sheriff, fire, and county agencies, under a letter of agreement. MAST missions are flown out of Fort Hunter Liggett and Fort Ord; each have a Medical Evacuation (MEDIVAC) operation that includes a helicopter that can transport four ambulatory patients. The MEDIVAC helicopters also have winch-lift capability that allows rescues in remote areas and water rescues.

Total MAST missions are approximately five to seven per month from Fort Hunter Liggett and once a month from Fort Ord. Hours of operation at Fort Ord are 7:30 a.m. to 4:30 a.m., with a response time of 20 minutes maximum from notification to takeoff. On weekends and holidays, Fort Ord personnel are on standby, which increases response time to 40 minutes from notification to takeoff. Fort Hunter Liggett personnel are usually called on during weekends and holidays, even though they are a backup, because of their quicker response time.

For most coastal rescues the U.S. Coast Guard from the San Francisco Air Station is used. They have winch-lift capability and on-board medics.

4.6.5 Seismic Safety

Affected environment information for seismic safety can be found under 4.3, "Soils, Geology, Topography, and Seismicity", discussed above.

4.7 TRAFFIC AND CIRCULATION

This section incorporates by reference information from the Other Physical Attributes Baseline Study of Fort Ord, California, which is available for review at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992e).

This section describes existing conditions in the traffic study area. The study area, which includes Fort Ord and the surrounding communities, is shown in Figure 4.7-1. This section begins by providing definitions for the traffic terms used both in this section and in Section II.7, "Traffic and Circulation". This is followed by a brief discussion of the approach used to describe traffic conditions, a discussion of service standards for roadway operations, and finally an analysis of current traffic conditions and problems in the traffic study area.

4.7.1 Definition of Terms

Several technical terms are used in this traffic analysis that may be unfamiliar to most readers or that may have specific meanings in the context of this analysis. A definition of each of these terms is provided below to assist the reader in understanding the analyses in this section, in Section 5.7, and in Section II.7 in Volume II.

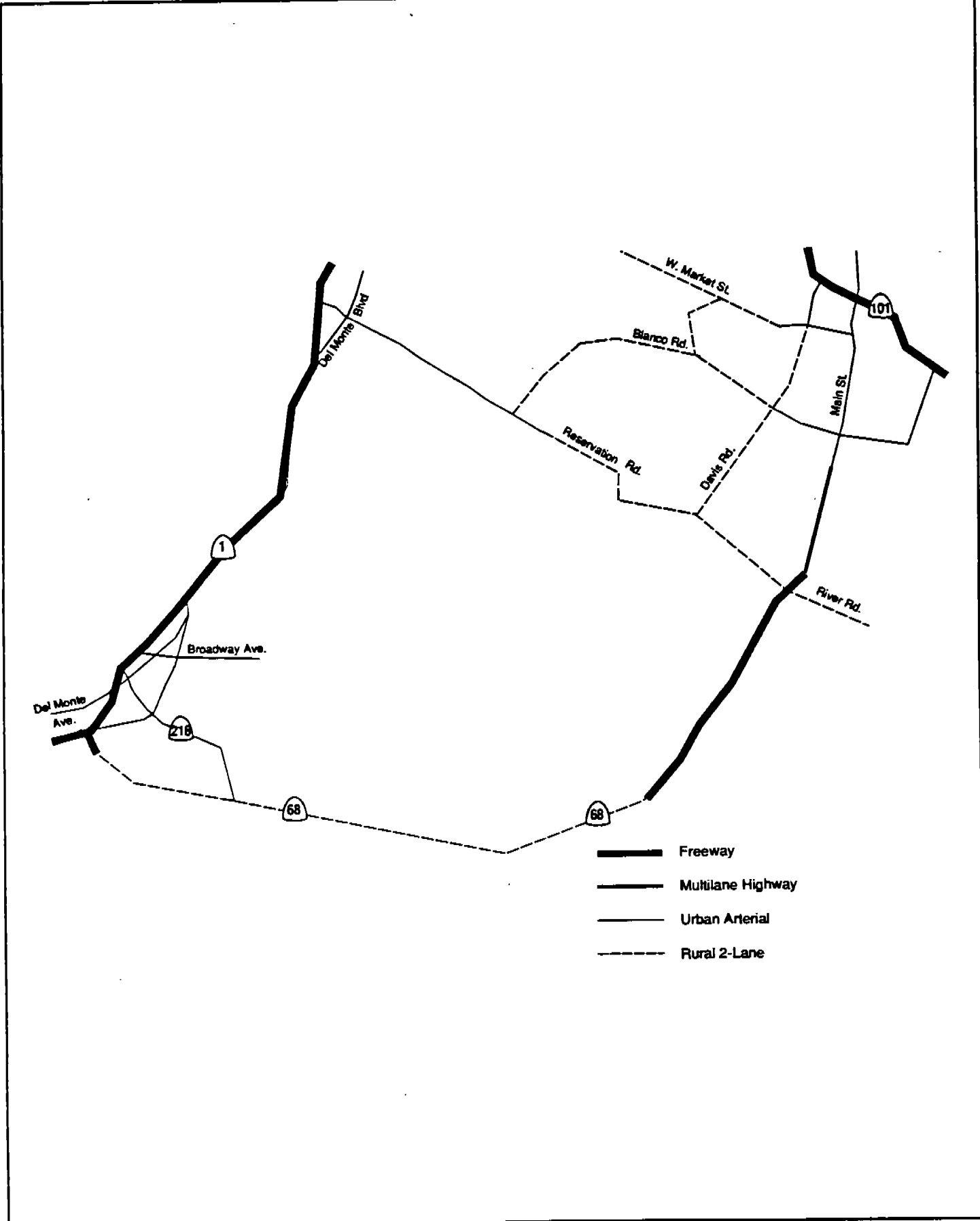
- **Level of Service** - the operation of a roadway or intersection in terms of the level of congestion or delay that would be experienced by a person using the facility. Level of service (LOS) is stated as a letter between A and F, with A representing the least congestion and F the worst. Table 4.7-1 describes the driving conditions that would be experienced while driving on a roadway operating at each LOS.

Table 4.7-1 Level of Service Descriptions for Roadway Segments at Fort Ord

Level of Service	Definition
A	Represents unrestricted operation
B	Generally may be described as smooth and stable
C	Although still stable, approaches range where instability can occur because of small changes in flow
D	Vehicles must frequently adjust their speed to avoid conflicts
E	Represents capacity operation; considerable delay is experienced and speeds are greatly reduced
F	Represents overcapacity flows with heavy congestion and considerable reductions in speed

- **Capacity** - the maximum number of vehicles that can use a facility under normal operating conditions. Capacity can be expressed either as a daily capacity or a peak-hour capacity. The analyses in this report are based on daily capacities.

Figure 4.7-1
Fort Ord Traffic Study Area



- **Volume-to-Capacity Ratio** - a number representing the proportion of a facility's total capacity occupied by existing or projected traffic volumes. A volume-to-capacity (V/C) ratio of 1.00 indicates that a facility is or would operate at its capacity. Ratios less than 1.00 indicate facilities operating below their capacity (LOS A, B, C, D, or E). Ratios greater than 1.00 indicate facilities operating above their capacity (LOS F). These facilities could be subject to severe congestion and delays.
- **Critical Roadway Segments** - those facilities included in the traffic analysis. Inclusion of segments in the analysis was based on proximity to the installation, existence of current congestion problems on the facility, or likelihood that the facility would be affected by the proposed action and alternatives.
- **Freeway** - a high-speed multilane facility providing travel between communities with access restricted to grade-separated interchanges. The capacity of a freeway is approximately 20,000 vehicles per lane per day.
- **Multilane Highway** - a moderately high-speed facility with a limited number of cross streets. Traffic on the cross streets is typically controlled by stop signs to allow high volumes of traffic to travel along the highway with infrequent stops. The capacity of a multilane, access-controlled highway is approximately 16,000 vehicles per day per lane.
- **Urban Arterial** - a moderate-speed facility typically with more than one lane of travel in each direction. Travel along the facility requires stops at traffic lights at intervals of approximately 1 mile or less. The capacity of an urban arterial is approximately 7,500 vehicles per lane per day.
- **Rural Two-Lane Highway** - a moderately high-speed facility with few cross streets. Speeds and capacities are often determined by the extent to which trucks and other heavy vehicles restrict the speeds of other vehicles unable to pass them. Typically, the capacity of a two-lane rural highway is 14,000 vehicles per lane per day.
- **Screenline** - a method for measuring large-scale changes in travel demand. Using this method, a line that crosses all facilities serving travel in a particular direction is drawn on a map. By counting the volume of travel or projected travel on all of these facilities, the total demand for travel in a particular direction can be measured. For instance, a circular screenline surrounding Fort Ord would measure the total travel between Fort Ord and the surrounding communities, as well as travel through Fort Ord between communities.

4.7.2 Analysis Approach

Four principal methods are used to determine the LOS on roadway facilities. In order of decreasing precision they are operational-level analyses of critical intersections, planning-level analyses of critical intersections, V/C ratio analyses of critical roadway segments, and screenline analysis of major movements.

Operational level analyses are most appropriately used in refining intersection operations and in measuring the impacts of small changes in travel demand under existing conditions. Planning level analyses are most appropriately used where moderate changes in traffic are expected and where future scenarios are being analyzed. Roadway segment analyses are most appropriately used where traffic changes are expected to be quite large and where impacts are likely to occur many years in the future but where the proposed project and future improvements to the roadway network are well defined. Screenline analyses are typically conducted where details concerning individual roadways are not important or where the relative differences between alternative projects are more important than absolute impacts.

Given the factors discussed above, the use of the screenline analysis was determined to be the most appropriate tool for this analysis. Because the reuse alternatives and future roadway improvements are speculative and conceptual in nature, impacts are most appropriately measured by gross changes in travel demand as reflected in the screenline analysis. A further consideration in this decision was the focus of this analysis, which is to identify the impacts of each alternative relative to the others rather than to identify the precise impacts of each alternative.

4.7.3 Level of Service Standards

The traffic study area includes facilities under the jurisdiction of five different governmental bodies: the Cities of Seaside and Marina, Monterey County, DOD, and California Department of Transportation. In addition, standards for some roadways have been established by the Transportation Agency for Monterey County, which is responsible for congestion management planning in Monterey County under state Assembly Bills 1791 and 471.

Each of the agencies has established its own standards for LOS. In some cases, standards have been established for individual roadway segments. Applying all of these standards would be confusing because it would be difficult to determine which portions of new roads in the proposed reuse areas were under the jurisdiction of which agency, especially because it has not been determined which entities would receive lands since the screening process, as described in Section 2.0, "Proposed Action", has not been completed. Therefore, a single standard was established against which all roadways would be measured. That standard is LOS C. The analysis in the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992e) was based on the individual standards of local agencies, so the analysis in this report is not directly comparable to the one in the baseline study.

4.7.4 Existing Volumes and Level of Service

Table 4.7-2 shows the existing number of lanes and LOS on each critical roadway segment in the traffic study area. The sources of these data are provided in the table. The data in this table indicate that 10 of the critical roadway segments currently operate below LOS C (i.e., D, E, or F).

Another useful measure of travel demand is the screenline count. In January 1992, traffic counts were taken at all five active gates to Fort Ord. The total of those counts represents a screenline that measures the daily travel on and off the installation. This measure is compared to estimates of travel across this screenline for each of the reuse alternatives analyzed in Section 5.7 and in Volume II, Section II.7. The 1992 counts indicate that approximately 58,000 trips are made to and from Fort Ord each day.

The LOS for roadways on Fort Ord could not be determined. This information was not believed to be important, however, because each reuse alternative would require the construction of a new roadway system to serve its land uses. A general description of the deficiencies of the Fort Ord traffic system is provided in a 1986 traffic engineering study conducted by the Military Traffic Management Command - Transportation Engineering Agency. This study examined the transportation system at Fort Ord, identified deficiencies, and recommended improvements to the system.

The report indicated that two factors, insufficient capacity on several major roads and an overall street pattern that is too circuitous, have led to excessive safety and delay problems on the installation. None of the recommendations made in that report have been implemented to date. A description of these deficiencies is provided in the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992e). A more detailed discussion of these problems is provided in the 1986 study.

Table 4.7-2 Summary of Existing Roadway Segment Levels of Service

Segment	Number of Lanes	Facility	Level of Service
State Routes			
SR 1 - SR 68 interchange to Del Monte Avenue interchange	4	Freeway	C
SR 1 - Del Monte Avenue interchange to SR 218 interchange	4	Freeway	C
SR 1 - SR 218 interchange to Fremont Boulevard interchange	4	Freeway	D
SR 1 - Fremont Boulevard interchange to .5 mile north	4	Freeway	E
SR 1 - .5 mile north of Fremont Boulevard to Main Gate	6	Freeway	C
SR 1 - Main Gate to south Marina interchange	6	Freeway	C
SR 1 - south Marina interchange to Reservation Road	4	Freeway	B
SR 218 - SR 1 to Fremont Boulevard	4	UA	F
SR 218 - Fremont Boulevard to SR 68	2	UA	E
SR 68 - SR 1 interchange to SR 218 interchange	2	Rural	E
SR 68 - SR 218 to Toro Park	2	Rural	E
SR 68 - Toro Park to Spreckels Boulevard	4	Freeway	B
SR 68 - Spreckels Boulevard to Blanco Road	4	MLH	B
County Roads			
Reservation Road - Salinas Street to Blanco Road	4	UA	C
Reservation Road - Blanco Road to East Garrison Gate	4	UA	A
Reservation Road - East Garrison Gate to SR 68	2	Rural	C
Davis Road - Reservation Road to Blanco Road	2	Rural	F
Davis Road - Blanco Road to Market Street	2	UA	F
Blanco Road - Reservation Road to Davis Road	2	Rural	E
City of Marina Roads			
Del Monte Avenue - SR 1 to Reservation Road	4	UA	C
Reservation Road - Del Monte Avenue to Salinas Street	4	UA	C
City of Seaside Roads			
Fremont Boulevard - SR 218 to Broadway Avenue	4	UA	D
Fremont Boulevard - Broadway Avenue to SR 1	4	UA	B
Broadway Avenue - Del Monte Boulevard to Fremont Boulevard	4	UA	A
Broadway Avenue - Fremont Boulevard to North-South Road	4	UA	A
Del Monte Boulevard - SR 218 to Broadway Avenue	4	UA	B
Del Monte Boulevard - Broadway Avenue to Fremont Boulevard	4	UA	A

Notes:

- Freeway = controlled-access, grade-separated interchange.
- MLH = divided multilane highway, controlled access at grade.
- UA = urban arterial roadway with signalized intersections.
- Rural = rural two-lane highway.

4.8 AIR QUALITY

This section incorporates by reference information from the Air Quality Baseline Study of Fort Ord, California, which is available for review at the public information repository established at the City of Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992c). That report describes the existing climate in and around Fort Ord, existing air quality in the Fort Ord area, air quality management in the Monterey Bay area, emissions associated with Fort Ord, and potential emission credits that would result from closure of Fort Ord. The following discussion summarizes the most salient aspects of the baseline study.

Fort Ord is located in the North Central Coast Air Basin, which is contiguous with the Monterey Bay Unified Air Pollution Control District (MBUAPCD). The North Central Coast Air Basin consists of Monterey, Santa Cruz, and San Benito Counties. The MBUAPCD is responsible for air quality management throughout the North Central Coast Air Basin.

The North Central Coast Air Basin currently is in attainment for the federal PM₁₀ (particulate matter less than 10 microns in diameter) standards and state and federal nitrogen dioxide, sulfur dioxide, and carbon monoxide standards. The North Central Coast Air Basin is classified as a nonattainment area for the state and federal ozone standards and the state PM₁₀ standards. The nonattainment designation means that the MBUAPCD does not meet ambient air quality standards and therefore must prepare air quality plans. Those plans must show the steps that will be taken to come into attainment with the state and federal standards.

The MBUAPCD prepared the 1991 Air Quality Management Plan, which is designed to bring the North Central Coast Air Basin into attainment with state ozone standards. That plan, required by the California Clean Air Act of 1988, describes the steps needed to achieve the state ozone standards by 1997. Although the 1991 Air Quality Management Plan includes measures for reducing PM₁₀ emissions, a plan designed to achieve the PM₁₀ standard will not be prepared until 1994. The federal Clean Air Act Amendments of 1990 require that the MBUAPCD prepare a revised state implementation plan by 1993 showing the steps that would be taken to attain the federal ozone standards.

Revisions to the California Air Act (Assembly Bill 2783) were signed into law in September 1992. Those revisions require the MBUAPCD to submit more frequent reports to the California Air Resources Board on progress in attaining the state ozone standards. These revisions also change the MBUAPCD's ozone nonattainment status to nonattainment-transitional, and require the MBUAPCD to evaluate the need for the stationary-source control measures included in the MBUAPCD's 1991 Air Quality Management Plan.

Table 4.8-1 summarizes the total existing (1992) criteria pollutant emissions from all sources at Fort Ord. It contains several revisions to Table 13 included in the Air Quality Environmental Baseline Study, including corrections to range burning emissions, new motor vehicle emissions based on the most recent California Air Resources Board emissions model (EMFACSCF), and changes that account for Phase I vapor recovery emission controls on underground storage tanks.

Table 4.8-2 summarizes emissions from Fort Ord's permitted sources (i.e., sources for which the Department of the Army holds a permit to operate from the MBUAPCD). Total pollutant emissions and total permitted emissions are compared in Table 4.8-3. For each criteria pollutant, permitted emissions are a small percentage of total pollutant emissions.

During closure, the Army will be eligible to obtain emission reduction credits as Fort Ord's emission sources are shut down. Emission reduction credits are surplus emission reductions that represent a permanent, enforceable, and quantifiable decrease in emissions. Emission reduction credits are important to the reuse of Fort Ord lands because credits may be needed to offset emissions associated with future economic growth.

Table 4.8-1 Total Criteria Pollutant Emissions - All Sources

Pollutant Sources	Emissions (pounds per year)				
	NO _x	SO _x	CO	PM ₁₀	ROG
Stationary Combustion Sources					
Boilers - distillate	21,177	7,517	5,294	910	360
Boilers - natural gas	44,869	259	9,259	865	2,190
Boilers - propane	0	0	0	0	0
I.C. engine	243	15	1,356	17	83
Steam cleaner	418	27	90	30	33
Ceramic kiln	0	0	0	0	0
Incinerator	<u>1</u>	<u>0</u>	<u>0</u>	<u>3</u>	<u>0</u>
Total stationary combustion emissions	66,708	7,821	15,999	1,825	2,666
Solvent Sources					
Surface coating/offset printing/ miscellaneous	0	0	0	0	12,105
Pesticides	0	0	0	0	3
Laboratories	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2,492</u>
Total solvent emissions	0	0	0	0	14,600
Fuel Storage Emission Sources					
Fuel storage tanks	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>16,778</u>
Total fuel storage emissions	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>16,778</u>
Subtotal - Stationary Source Emissions					
Pounds per year	66,708	7,821	15,999	1,825	34,044
Tons per year	33	4	8	1	17
Area Sources					
Nonindustrial natural gas combustion	72,814	484	14,277	2,727	0
Range burning	31,105	0	414,100	45,100	51,250
Range munitions	0	0	25,970	0	0
Residential stationary sources	<u>39,327</u>	<u>6,272</u>	<u>309,986</u>	<u>33,753</u>	<u>569,300</u>
Subtotal - Area Source Emissions					
Pounds per year	143,246	6,756	764,333	81,580	620,550
Tons per year	72	3	382	41	310
Mobile Sources					
Mobile source combustion	<u>1,923,915</u>	<u>40,369</u>	<u>22,761,583</u>	<u>275,544</u>	<u>2,001,660</u>

Table 4.8-1 Continued

Pollutant Sources	Emissions (pounds per year)				
	NO _x	SO _x	CO	PM ₁₀	ROG
Subtotal - Mobile Source Emissions					
Pounds per year	1,923,915	40,369	22,761,583	275,544	2,001,660
Tons per year	962	20	11,381	138	1,001
Total Pollutant Emissions					
Pounds per day	5,846	151	64,498	983	7,277
Pounds per year	2,133,869	54,945	23,541,915	358,949	2,656,254
Tons per year	1,067	27	11,771	179	1,328

Notes:

- NO_x = oxides of nitrogen.
 SO_x = oxides of sulfur.
 CO = carbon monoxide.
 PM₁₀ = particulate matter less than 10 microns in diameter.
 ROG = reactive organic gases.

This table is identical to Table 13 of the Air Quality Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992c) except for the following revisions: range burning emissions have been modified to correct an error in estimation method; mobile source emissions of NO_x and ROG have been modified to reflect the new motor vehicle emissions model, EMFACSCF, issued by the California Air Resources Board; and fuel storage tank emissions have been modified to include a 93% control efficiency associated with Phase I vapor controls (U.S. Environmental Protection Agency 1985).

Range burning emissions have been modified to include the fuel loading factor of 5 tons per acre recommended by the MBUAPCD. The emission factors used to estimate range burning emissions are based on EPA's Compilation of Air Pollutant Emission Factors (AP-42). Range burning emissions for ROG, CO, and PM₁₀ are based on emission factors for chaparral shrub communities found in Table 11.1-3 of AP-42 (U.S. Environmental Protection Agency 1985). Emission factors for NO_x are based on Table 11.1-2 of AP-42 (U.S. Environmental Protection Agency 1985).

Sources:

- U.S. Army Corps of Engineers 1991a.
 U.S. Army Corps of Engineers 1991b.
 U.S. Army Corps of Engineers 1992c.
 Institute of Traffic Engineers 1991.
 Institute of Traffic Engineers 1987.
 Monterey Bay Unified Air Pollution Control District 1991.
 Bay Area Air Quality Management District 1985.
 U.S. Environmental Protection Agency 1985.

Table 4.8-2 Total Criteria Pollutant Emissions - Permitted Sources

Pollutant Sources	Emissions (pounds per day)				
	NO _x	SO _x	CO	PM ₁₀	ROG
Stationary Combustion Sources					
Boilers - distillate	17,699	6,283	4,425	761	301
Boilers - natural gas	26,216	149	5,480	497	1,233
Boilers - propane	0	0	0	0	0
I.C. engine	0	0	0	0	0
Steam cleaner	0	0	0	0	0
Ceramic kiln	0	0	0	0	0
Incinerator	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total stationary combustion emissions	43,916	6,432	9,905	1,258	1,534
Solvent Sources					
Surface coating/offset printing/miscellaneous	0	0	0	0	4,297
Pesticides	0	0	0	0	0
Laboratories	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1,151</u>
Total solvent emissions	0	0	0	0	5,447
Fuel Storage Emission Sources					
Fuel storage tanks	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>11,187</u>
Total fuel storage emissions	0	0	0	0	11,187
Total Permitted Pollutant Emissions					
Pounds per year	43,916	6,432	9,905	1,258	18,168
Tons per year	22	3	5	1	9

Notes:

- NO_x = oxides of nitrogen.
- SO_x = oxides of sulfur.
- CO = carbon monoxide.
- PM₁₀ = particulate matter less than 10 microns in diameter.
- ROG = reactive organic gases.

Sources: U.S. Army Corps of Engineers 1991a, 1991b.

Table 4.8-3 Permitted versus Total Existing Fort Ord Emissions

	Emissions (tons per year)				
	NO _x	SO _x	CO	PM ₁₀	ROG
Before Credit Devaluation					
Permitted	22	3	5	1	9
Total	1,067	27	11,978	158	1,354
After Credit Devaluation					
Permitted	11	2	1	1	6
Total	533	16	2,635	152	866

Notes:

- NO_x = oxides of nitrogen.
- SO_x = oxides of sulfur.
- CO = carbon monoxide.
- PM₁₀ = particulate matter less than 10 microns in diameter.
- ROG = reactive organic gases.

Permitted emissions based on Table 4.8-2.
 Total emissions based on Table 4.8-1.

Emission reduction credits are based on the following devaluation percentages contained in MBUAPCD Rule 215: NO_x (50%), SO_x (42%), CO (78%), PM₁₀ (4%), and ROG (36%).

Source: U.S. Army Corps of Engineers, Sacramento District 1992c.

MBUAPCD Rule 215 establishes procedures for the creation, banking (storage), and use of emission reduction credits and allows credits to apply only to stationary sources that have been applying best available control technology as defined in MBUAPCD Rule 207.

The MBUAPCD is evaluating proposed changes to Rule 215. One of the proposed changes would allow nonpermitted sources to be eligible for emission reduction credits (Monterey Bay Air Pollution Control District pers. comm.). Changes to Rule 215 are scheduled to be presented to the MBUAPCD's board on December 12, 1992 (Monterey Bay Air Pollution Control District pers. comm.).

Rule 215 requires that when calculating emission reduction credits for a source, an average of the previous 3 years of emissions or operating activity be used. Because of limited data, however, only 1 year of operating activity has been used in this report to estimate potential emission reduction credits. If activity

levels and associated emissions at Fort Ord decrease between now and closure, the amount of emission reduction credits available at closure also will decrease.

If the emission reduction credits are transferred to someone other than the original owner, the credits must be devalued by the amounts shown in the footnote to Table 4.8-3. Also, 3% of the devalued emission reduction credits must be deposited into a community account accessible only by public agencies. Applying the devaluation to the most current estimates of Fort Ord emissions shown in Tables 4.8-1 and 4.8-2 results in the range of potential emission reductions shown in Table 4.8-3.

The amount of potential emission reduction credits that will be available to the Army for the Fort Ord closure depends on whether the MBUAPCD allows only permitted emissions to be counted as emission reduction credits or whether some or all of the nonpermitted emissions also will be counted eligible for credits. Under the current interpretation of MBUAPCD's Rule 215, the amount of emission reduction credits available to the Army for each pollutant would be closer to the total permitted emissions after devaluation. If proposed changes to Rule 215 allow nonpermitted emission sources to be included as emission reduction credits, then the amount of credits available would be closer to the total permitted and non-permitted emission credits after devaluation.

Fort Ord recently completed an Assembly Bill 2588 toxic air emissions study that evaluated the impact of toxic air pollutants on human health (U.S. Army Corps of Engineers, Sacramento District 1992c). That study concluded that air emissions of toxic pollutants from Fort Ord's existing operations pose no risk to human health.

4.9 NOISE

This section incorporates by reference information from the Other Physical Attributes Baseline Study of Fort Ord, California which is available at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992e). This study includes existing noise-sensitive locations, sources of noise, Department of the Army noise standards, and local agency planning noise standards. Elements of the baseline study relevant to the discussion of noise impacts in Volume II, Section II.9, "Noise", are summarized here.

Sound level meters measure pressure fluctuations caused by sound waves. These measurements are reported in a logarithmic decibel (dB) scale. Most sounds consist of a broad range of sound frequencies. Because the human ear is not equally sensitive to all frequencies, several different frequency-weighting schemes have been used to develop composite dB scales that approximate the way the human ear responds to noise levels. The A-weighted dB scale (dBA) is the most widely used for this purpose. Typical A-weighted noise levels for various types of sound sources are summarized in Table 4.9-1.

Equivalent noise levels (L_{eq}) are used to develop single-value descriptions of average noise exposure over various periods. Such average noise exposure ratings often include additional weighting factors for annoyance potential attributable to time of day or other considerations. The L_{eq} data used for these average noise exposure descriptors are generally based on A-weighted sound level measurements.

Average noise exposure over a 24-hour period is often presented as a day-night average sound level (L_{dn}). The L_{dn} values are calculated from hourly L_{eq} values, with the L_{eq} values for the nighttime period (10 p.m.-7 a.m.) increased by 10 dB to reflect the greater disturbance potential from nighttime noises. The community noise equivalent level (CNEL) is also used to characterize average noise levels over a 24-hour period, with weighting factors for evening and nighttime noise levels. The L_{eq} values for the evening period (7 p.m.-10 p.m.) are increased by 5 dB, while L_{eq} values for the nighttime period (10 p.m.-7 a.m.) are increased by 10 dB. Except in unusual situations, the CNEL descriptor will be within 1.5 dB of the L_{dn} descriptor for the same set of noise measurements.

The nature of dB scales is such that individual dB ratings for different noise sources cannot be added directly to give the dB rating of the combination of these sources. Two noise sources producing equal dB ratings at a given location will produce a composite noise level 3 dB greater than either sound alone. When two noise sources differ by 10 dB, the composite noise level will be only 0.4 dB greater than the louder source alone. A 10-dB increase in noise level is generally perceived as a doubling in loudness.

Most people have difficulty distinguishing the louder of two noise sources that differ by less than 1.5-2 dB. Except in controlled laboratory conditions, an increase of less than 1 dB cannot be perceived. Outside of laboratory conditions, an increase in noise of 3 dB is typically considered to be the threshold of perceptibility. An increase of at least 5 dBA can be described as being a distinctly noticeable increase and is typically required before a noticeable change in community response to noise can be expected. For this reason, an increase in noise of 5 dB is often used as the threshold for a substantial noise increase.

When distance is the only factor considered, sound levels from an isolated noise source will typically decrease by about 6 dB for every doubling of distance away from the noise source. When the noise source is essentially a continuous line (e.g., vehicle traffic on a highway), noise levels decrease by about 3 dB for every doubling of distance. An attenuation rate of 4.5 dB per doubling of distance is often used for traffic noise when the intervening ground between the roadway and the receptor is acoustically "soft" (i.e., the ground is covered with grass or vegetation).

Table 4.9-1 Weighted Sound Levels and Human Response

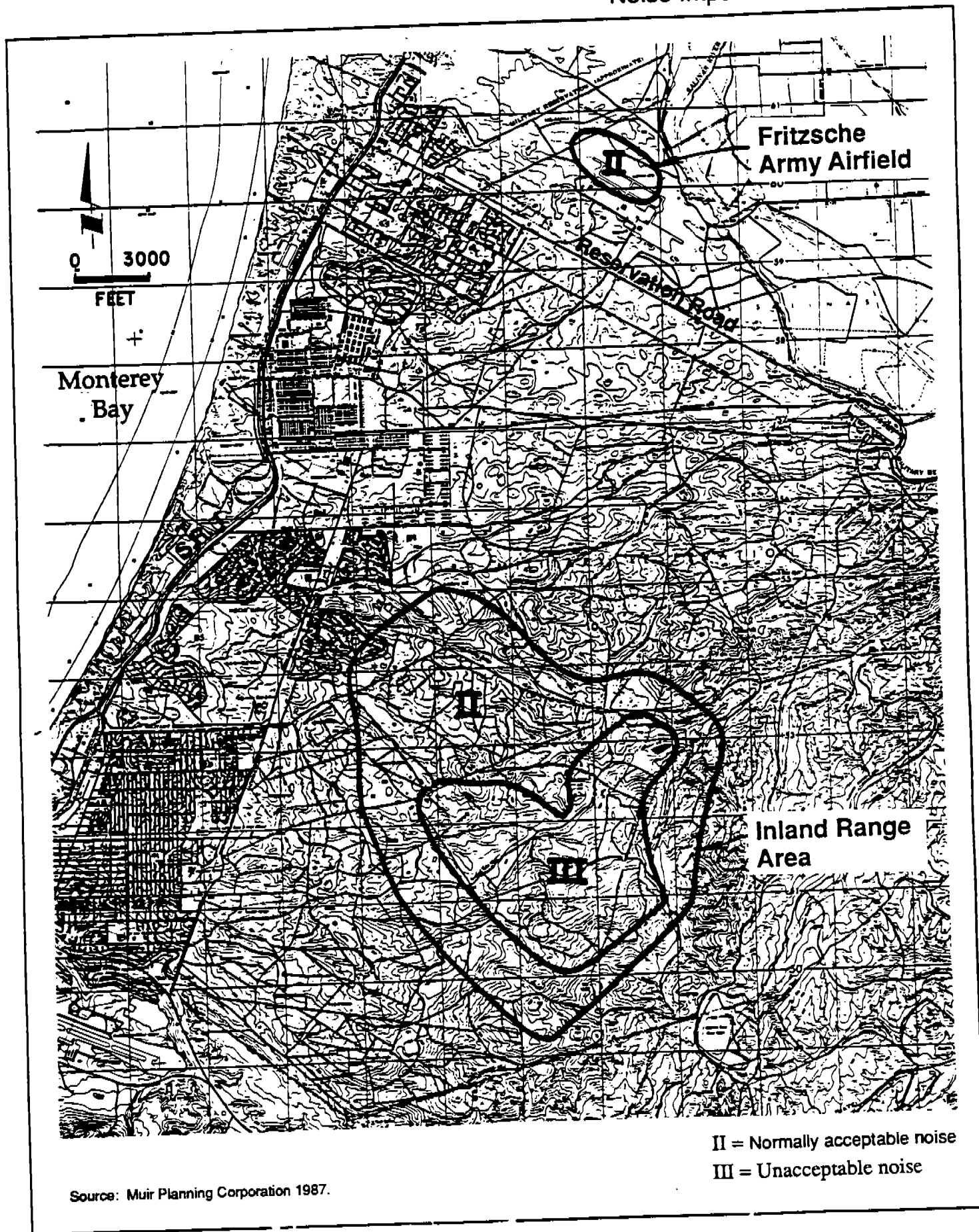
Noise Source	dB(A)*	Human Response
Carrier Deck Jet Operation	140	
Limit of Amplified Speech	130	Painfully loud
Jet Takeoff (200 feet)	120	Threshold of feeling and pain
Automobile Horn (3 feet)		
Riveting Machine	110	
Jet Takeoff (2,000 feet)		
Shout (6 inches)	100	Very annoying
New York Subway		
Heavy Truck (50 feet)	90	Hearing damage (8-hour exposure)
Pneumatic Drill (50 feet)		
Freight Train (50 feet)	80	Annoying
Garbage Disposal in Home		
Freeway Traffic (50 feet)	70	Telephone use difficult
Air-conditioning Unit (20 feet)	60	
Light Automobile Traffic		
Speech in Normal Voice (15 feet)	50	Quiet
In-house Movement of People, No Television or Radio	40	
Soft Whisper (15 feet)	30	Very quiet
Recording Studio	20	
	10	Very faint
	0	Threshold of hearing

* Typical A-weighted sound levels. The A-weighted decibel scale approximates the frequency response of the human ear.

Source: U.S. Council on Environmental Quality 1970.

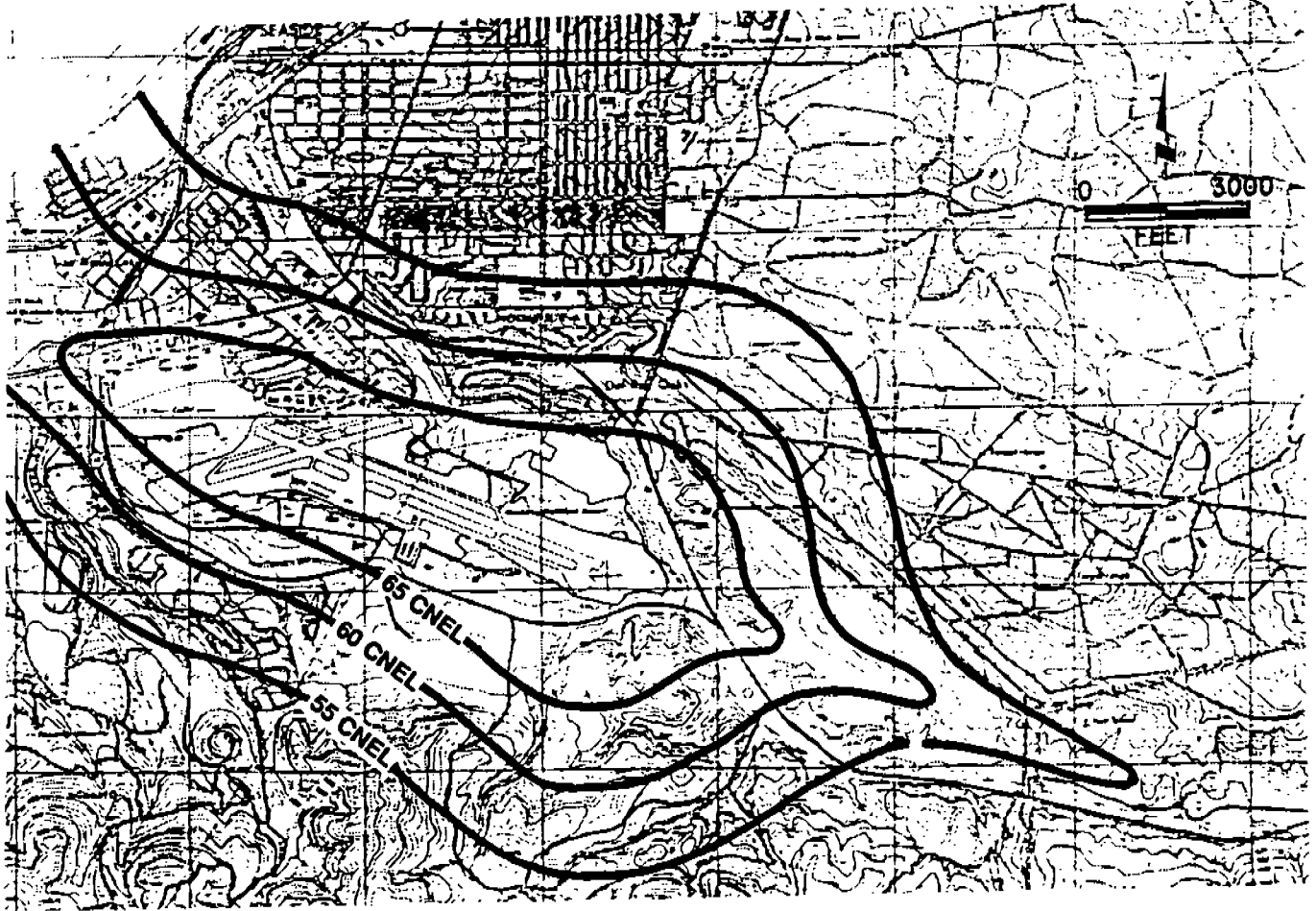
Noise-sensitive land uses in the vicinity of Fort Ord include residences, schools, healthcare facilities, religious facilities, libraries, open space/park areas, and habitat areas of noise-sensitive species. Figure 4.1-1, presented in Section 4.1, "Land Use", delineates existing noise-sensitive land uses around Fort Ord. Existing sources of noise include surface traffic, aircraft, and Army training activities. Figures 4.9-1 and 4.9-2 depict existing noise contours for Army training activity and aircraft activity at Monterey Peninsula

Figure 4.9-1
Noise Impact Zones at Fort Ord



Source: Muir Planning Corporation 1987.

Figure 4.9-2
Monterey Peninsula Airport Noise Contours



Source: City of Seaside 1991.

Airport. In Figure 4.9-1, the contour line around noise zone III corresponds to 75-dBA L_{dn} and the contour around noise zone II corresponds to 65-dBA L_{dn} .

Army noise standards and local agency planning noise standards are described in the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992e). These standards are based on information developed by EPA on the levels of environmental noise considered to protect the public health and welfare with an adequate margin.

The local agency planning standards are from guidelines for the noise elements of local general plans published by the California Department of Health Services. For studies prepared under the Installation Compatible Use Zone program, the Army uses the L_{dn} noise descriptor to define three noise zones. The zones are used to describe the acceptability of noise generated by Army activity. The local agencies use the CNEL and L_{dn} descriptors interchangeably. For consistency, the L_{dn} descriptors are used in this report.

4.10 HAZARDOUS AND TOXIC WASTE SITE REMEDIATION

4.10.1 Regulation of Hazardous Materials and Waste

This section incorporates by reference information from the Other Physical Attributes Baseline Study of Fort Ord, California available for review at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992e).

Fort Ord was added to the National Priorities List of Hazardous Waste Sites on February 21, 1990. A federal facilities agreement, negotiated under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and signed by EPA, the California Department of Health Services, and the Central Coast Regional Water Quality Control Board, became effective on November 19, 1990. Although the federal facilities agreement was signed by the Department of Health Services, the agency now responsible for oversight is the California Environmental Protection Agency, Department of Substances Control (DTSC). The federal facilities agreement requires the Army to perform the Superfund cleanup process that is described in the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992e).

The identification, remediation, and disposal of hazardous waste associated with the Superfund cleanup process at Fort Ord is regulated by the Resource Conservation and Recovery Act; Comprehensive Environmental Response, Compensation, and Liability Act; the Superfund Amendments and Reauthorization Act; California Code of Regulations, Titles 22 and 23; the California Water Code; and all applicable, relevant, and appropriate requirements. Under the federal facilities agreement, the Army is responsible for conducting the Superfund cleanup process, and EPA is the lead agency for regulatory enforcement and oversight of Superfund activities; however, the Army also must submit findings to the DTSC and the Central Coast Regional Water Quality Control Board, both of the California EPA. The Central Coast Regional Water Quality Control Board also regulates nonhazardous wastes that have affected groundwater. The federal facilities agreement, as well as the record of decision, to be signed after remedial investigation/feasibility study (RI/FS) activities are approved by the regulatory agency signatories to the federal facilities agreement, certifying the lands as clean or protective of human health and environment, identify the Army's responsibility for long-term monitoring and cleanup.

Pursuant to DOD standard 6055.9-STD, the Army is responsible for characterizing and removing unexploded ordnance. This cleanup process involves historical record reviews, site characterization, surface clearance, and possible subsurface clearance of unexploded ordnance. Surface and subsurface clearance activities are described in Section 5.1.2, "Contaminated Sites".

4.10.2 Historic Storage and Disposal of Hazardous Waste

Fort Ord has been used for small-scale industrial activities since it was established in 1917. Reviews of chemical use, storage, and disposal practices indicate that fuel, oil, and other automotive chemicals are used and stored extensively throughout the installation. Small quantities of other chemicals are used in localized areas (U.S. Army Corps of Engineers 1991a).

Domestic and industrial wastes generated on the installation have been handled primarily through the sewage treatment system, disposed of at one of several landfills, or burned in firefighter training areas. Some buildings have french drain systems and gravel-lined dry wells that may have been used for waste disposal (U.S. Army Corps of Engineers 1991a). Materials released to those drainage systems would come in direct contact with the subsurface environment. Although most waste disposal occurs in designated areas, unauthorized releases have been reported or are suspected. The Army established a toll-free telephone number to solicit information on unauthorized chemical releases.

10.3 Source Areas of Hazardous and Toxic Waste

As part of the Superfund cleanup program, the Army is conducting site characterization and remedial investigation studies at Fort Ord to evaluate soil and/or groundwater contamination resulting from storage, disposal, or unauthorized releases of hazardous wastes.

The RI/FS work plan prepared by the Army (U.S. Army Corps of Engineers 1991a) describes known or suspected source areas of soil or groundwater contamination at Fort Ord, which were identified after consultation with the Army, EPA, California Department of Health Services, and regional water quality control board. These sites are summarized below. Figure 4.10-1 illustrates general types of operational areas associated with hazardous waste and unexploded ordnance at Fort Ord.

4.10.3.1 Source Areas of Concern

The RI/FS identified the following hazardous waste sources as areas of special concern because of their potential impacts on regional environmental quality (U.S. Army Corps of Engineers 1991a).

Inland Trainfire Ranges. Most of this area consists of the 8,000-acre inland range area with unexploded ordnance, where there is little risk of direct human exposure to hazards under current conditions. However, nitrogen compounds, phthalates, metals, and petroleum from ordnance explosive waste, vehicles, and training activities may have been released to the subsurface environment and could leach into groundwater. These wastes are being evaluated as part of the installation-wide RI/FS. Figure 4.10-2 illustrates the present inland trainfire ranges, historic firing ranges, and other known source or potential source areas of unexploded ordnance.

The highest density of unexploded ordnance and spent ammunition is expected in the central portion of the inland range area. Lower densities of unexploded ordnance are expected in the outer portions of the inland range area and in the training areas to the north and east of the inland range area (Figure 4.10-2).

Grenades and armor-piercing ammunition likely are located throughout the western portion of the range area, cannon rounds may be present throughout the southern half of the range area, mines may be concentrated in the eastern ranges, and howitzer and mortar rounds are expected to be located throughout the entire inland ranges. Mortars and howitzers fired high-explosive, white phosphorous, and illumination rounds; other heavy weapons primarily fired high-explosive or inert rounds.

Naval gun rounds may be present throughout a 6-kilometer area in the eastern trainfire ranges, extending east of the ranges to Lookout Ridge and Pilarcitos Canyon (Figure 4.10-2). Firing of mortar rounds is reported to have occurred from State Route 68 (Oil Well Road) into the inland range area (Figure 4.10-2). Training areas J-2 and K-3 contain evidence of rockets, rifle grenades, and 60-mm mortar shells.

Underground Storage Tanks. During 1991-1992, approximately 130 underground storage tanks (USTs) were removed from Fort Ord. Of these, 8 are currently under investigation for contamination. At this time, 119 USTs are used at Fort Ord and Fritzsche Army Airfield. Of these, 31 are associated with heating plants; 11 provide fuel for generators that operate sewage lifts, water wells, transmitters, or other facilities; 34 store fuel at motor pools or post exchange gas stations; eight store aircraft fuel; four store solvent for dry cleaning or parts cleaning; and 31 store waste oil. Of the 119 USTs in use, 10 are double walled and meet current regulatory standards; the remaining 109 USTs are constructed as single-walled tanks, which are susceptible to leaks. Some leaking USTs and petroleum-affected soils surrounding USTs were detected during site characterization studies. Those petroleum releases also could have affected groundwater.

Figure 4.10-1
 General Types of Operations Associated with Hazardous Waste
 and Unexploded Ordnance

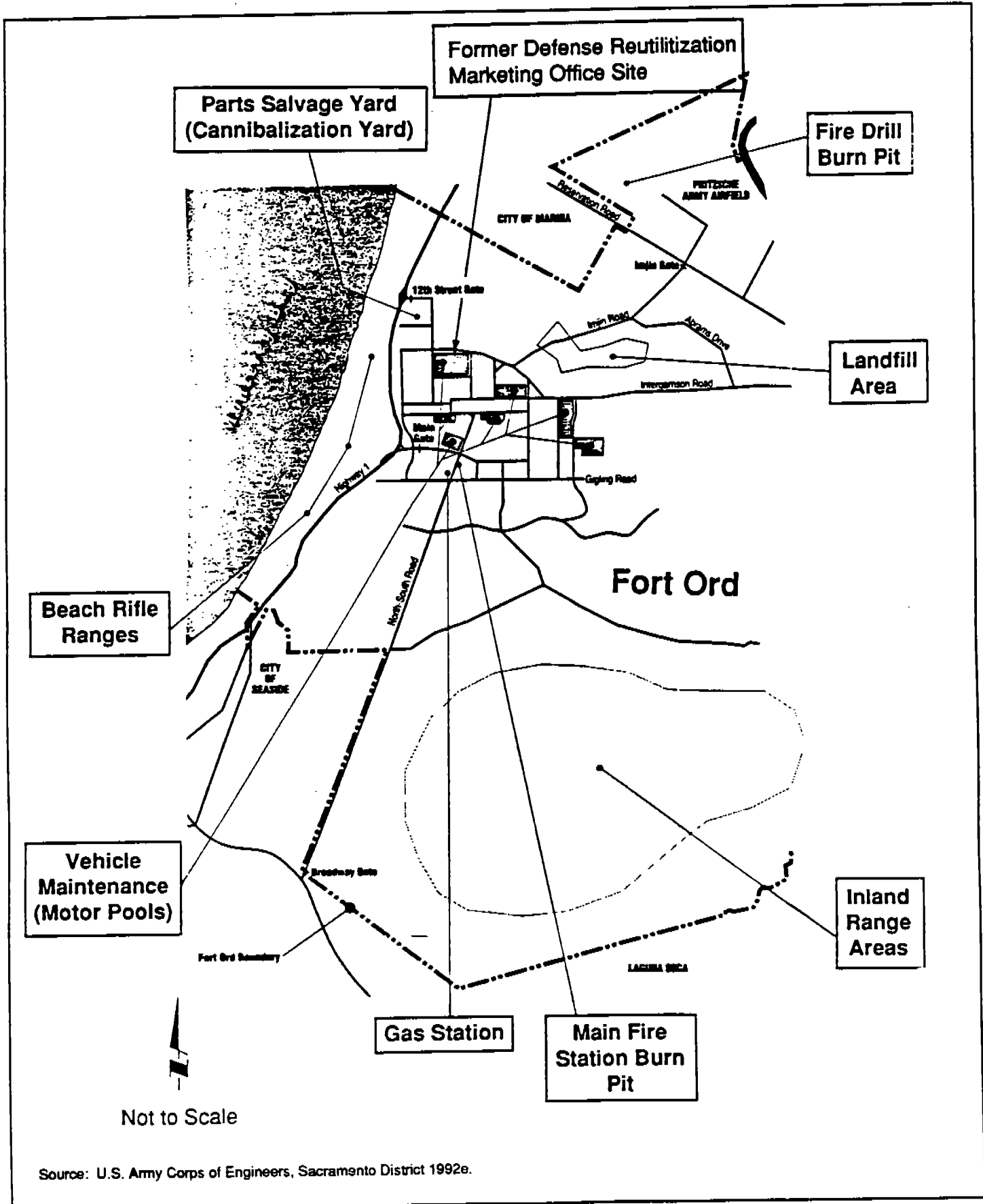
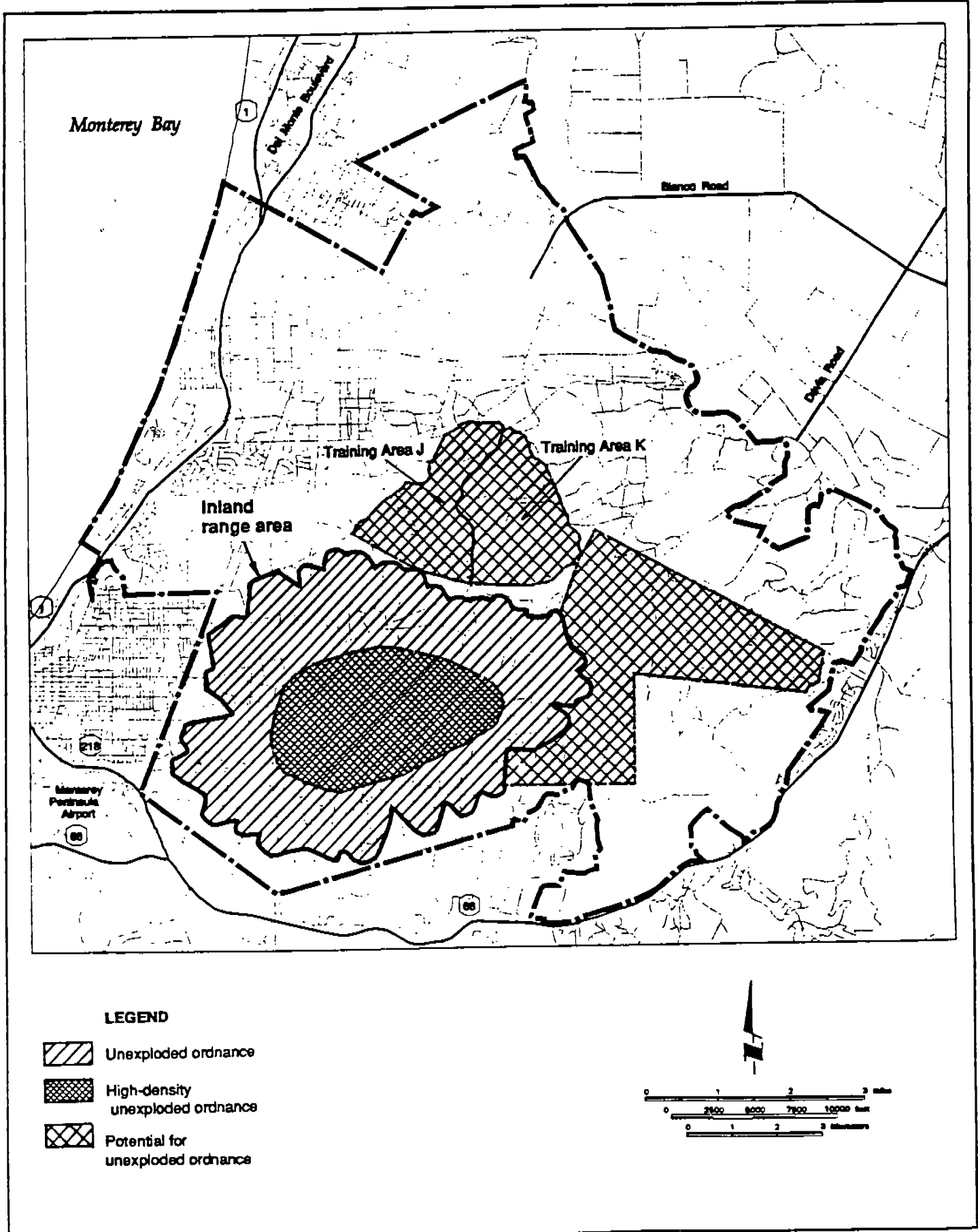


Figure 4.10-2
 Expected Locations of Unexploded Ordnance at Fort Ord



Underground storage tanks at Fort Ord are regulated by the Monterey County Health Department. An UST management plan was prepared for Fort Ord to facilitate the removal, replacement, or upgrading of USTs as necessary to ensure regulatory compliance and protection of the environment. This ongoing program involves assessing the condition and regulatory status of each UST at Fort Ord and removing all unnecessary tanks. To date, approximately 140 USTs have been removed. Vapor recovery systems have been installed in 15 USTs to raise them to regulatory standards (U.S. Army Corps of Engineers 1991b).

Landfills. The Main Garrison landfill is a known source of volatile chlorinated compounds (solvents) detected in groundwater. Four smaller areas in the Main Garrison and one area in the East Garrison also have been used as landfills and could represent sources for soil or groundwater contamination, unexploded ordnance, and ordnance explosive waste. All landfills at Fort Ord are no longer active and are being evaluated as part of the RI/FS process.

Storm Drainage System. The storm drainage system at Fort Ord is considered a potential transport mechanism for urban pollutants. The outfalls of much of the storm drainage system are also considered potential areas of soil contamination. Oil and water separators located in motor pools and maintenance yards are connected to the sewer drainage system, and could overflow into the storm drainage system if operated improperly, representing a potential source of soil or groundwater contamination. The Other Physical Attributes Environmental Baseline Study (U.S. Army Corps of Engineers, Sacramento District 1992e) describes permitting requirements for wastewater discharge into storm drains.

Localized Source Areas. Other known or potential sources of hazardous and toxic waste at Fort Ord include volatile chlorinated compounds released from the Fort Ord industrial warehouse district and Fort Ord barracks; polychlorinated biphenyls from transformers historically stored in areas surrounding the East Garrison Defense Reutilization and Marketing Office; petroleum hydrocarbons, nitrates, and metals from the Ord Village sewage treatment plant; pesticides and fungicides in and around the Fort Ord Golf Course; and metals released in discharge of firearms and spent ammunition in Beach Trainfire Ranges (U.S. Army Corps of Engineers 1991a). Most of these sources are smaller and more localized than those described above under "Source Areas of Regional Concern".

Because Fort Ord was established in 1917, and a substantial amount of construction occurred from the 1940s to the 1960s, the majority of buildings on the installation likely contain some type of asbestos. The Army's policy is to remove and encapsulate friable asbestos, which is hazardous to human health; asbestos that is encapsulated or in good condition is not considered hazardous and will be left in place and its presence identified for the new owners or building managers.

The Army is conducting an asbestos study of approximately 4,500 buildings at Fort Ord. The survey report will include bulk sampling asbestos results, the location and condition of all material containing asbestos in each building, and recommendations for remediation or maintenance requirements.

Several buildings at Fort Ord also may contain lead-based paint or other lead contaminants. The Army will conduct onsite investigations, physical monitoring, and risk assessments to identify lead sources and recommend abatement measures. Lead abatement and disposal activities are regulated by Section 408 of the Toxic Substances Control Act Title IV, as amended by the Housing and Community Development Act in 1992.

4.10.4 Site Characterization and Remedial Investigations

The Superfund investigation activities being conducted by the Army are divided into installation-wide studies and site-specific source area evaluations. Installation-wide studies evaluate potential contaminant transport mechanisms; site-specific source area evaluations determine whether contamination is present in

potential source areas. Where contaminants are detected, further investigations determine their horizontal and vertical extent.

Installation-wide studies include hydrogeologic investigations to evaluate the direction and hydrodynamics of groundwater flow and identify groundwater contamination plumes, a surface water study to determine areas of surface water runoff and potential for runoff of contaminants from source areas to major surface water bodies, a sewer system study to evaluate the potential for contaminants to leak into the subsurface through storm drainage or sanitary sewer system piping, and a biological study to identify endangered species that potentially could be impacted by investigation or cleanup activities.

Figure 4.10-3 illustrates individual sites at Fort Ord identified by the Army as known or suspected hazardous waste sites after consultation with EPA, DTSC, and regional water quality control board representatives. Each site was placed into one of three categories by the Army RI/FS team: no further action, site characterization, or remedial investigation. Table 4.10-1 lists the status and proposed activity for each site.

4.10.4.1 Current Status of Remedial Investigation/Feasibility Studies

Ongoing Superfund investigations at Fort Ord are intended to supplement data collected from 15 individual sites and provide data for other newly identified areas of potential soil or groundwater contamination. During previous studies of the 15 sites and Operable Units 1 and 2, several hundred soil borings were drilled, over 100 monitoring wells were installed, and several hundred soil and groundwater samples were collected and analyzed. These data are summarized in the RI/FS work plan (U.S. Army Corps of Engineers 1991a).

The current status of RI/FS investigations is summarized below, and represents work activities conducted since fall 1991.

Installation-Wide Studies. Work completed to date in installation-wide investigations includes drilling pilot soil borings, collecting more than 100 soil samples from several surface and trenching locations, collecting more than 50 soil gas samples, installing groundwater monitoring well clusters, sampling several hundred monitoring wells, analyzing the groundwater chemistry, measuring water levels, conducting geophysical studies, and preparing reports summarizing the investigations. Further installation-wide activities will include preparing final reports, possibly installing additional monitoring wells, and conducting periodic sampling of new and existing monitoring wells.

Operable Units 1 and 2. Remediation activities at the former Fritzsche Army Airfield burn pit (Operable Unit 1 in Figure 4.10-3) have been in progress since 1988. Bioremediation activities to treat approximately 4000 cubic yards of excavated soil are complete. To date, approximately 23 million gallons of water have been pumped from groundwater extraction wells and treated in the Fritzsche Army Airfield soil and groundwater treatment system. Continued remediation and cleanup verification is required for Operable Unit 1.

Field investigations conducted at the Fort Ord landfill (Operable Unit 2 in Figure 4.10-3) include installing and sampling more than 40 groundwater monitoring wells, soil sampling in more than 40 locations, soil gas sampling in more than 130 locations, and conducting geophysical studies. Future activities include additional field investigations, preparing a feasibility study for remediation as part of the Superfund process, performing health risk assessments, and sampling new and existing groundwater monitoring wells.

Characterization Sites. Site characterizations are being conducted at 34 sites listed in Table 4.10-1. Fieldwork completed to date for these sites includes drilling five pilot soil borings; drilling 250 soil borings and collecting soil samples; collecting 200 soil gas samples; installing seven new groundwater

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monitoring wells; sampling 30 new and existing monitoring wells; and performing geophysical, trenching, and soil gas investigations at four suspected landfills.

Table 4.10-1 Identified Investigation Sites for Hazardous Materials at Fort Ord, California

Site Number	Site Name	Status	Fiscal Year 93 Activity
1	Ord Village sewage treatment plant	Site characterization ongoing	Groundwater monitoring and site risk assessment
2	Main Garrison sewage treatment plant	Site characterization complete, remedial investigation ongoing	Proposed for operable unit 3 status
3	Beach trainfire ranges	No data	Site characterization ongoing
4	Beach stormwater outfalls	Investigation as part of basewide storm sewer study	Site deleted
5	Range 36A	Site characterization complete	Proposed for inclusion into site 39
6	Range 39 (abandoned car dump)	Site characterization complete	SEA ^a proposed
7	Range 40 and 41 (fire demonstration area)	No data	History review ongoing
8	Range 49 (Molotov cocktail range)	Limited soil data collected	SEA proposed
9	Range 39 (FFE training area)	Site characterization ongoing	Additional characterization, site proposed for inclusion in site 39
10	Burn pit	Site characterization complete	Soil SEA soil, additional groundwater characterization
11	Army and Air Force Exchange Service fueling station	Site characterization complete	SEA proposed
12	Lower meadow, Directorate of Logistics automotive yard, and parts salvage yard	Site characterization complete, remedial investigation ongoing	Proposed for operable unit 3 status
13	Railroad right-of-way	Site characterization complete	No further action
14	707th maintenance facility	Site characterization complete	Groundwater monitoring with a soil SEA
15	Directorate of Engineering and Housing yard	Site characterization complete	Additional pesticide characterization

Table 4.10-1 Continued

Site Number	Site Name	Status	Fiscal Year 93 Activity
16	Directorate of Logistics maintenance yard, Pete's Pond	Initial site characterization complete	Additional characterization of Pete's Pond required
17	1400 block motor pool	Site characterization ongoing	Additional landfill characterization required
18	1600 block motor pool	Site characterization complete	Soil SEA with groundwater monitoring
19	2200 block facility	Site characterization complete	Additional pesticide characterization
20	South parade grounds 3800 motor pool, and 519th motor pool	Site characterization complete at all three sites	Soil SEA with groundwater monitoring
21	4400/4500 motor pool, east block	Initial site characterization complete	Additional soil characterization
22	4400/4500 motor pool, west block	Site characterization complete	Soil SEA
23	3700 motor pool	Site characterization complete	Soil SEA
24	Old Directorate of Engineering and Housing yard	Site characterization complete	Additional pesticide characterization
25	Former Defense Reutilization and Marketing Office site	Site characterization complete	SEA ongoing
26	Sewage pump stations - Buildings 5871 and 6143	Site eliminated	No further action
27	Army Reserve motor pool	Site characterization complete, SEA complete	No further action
28	Barracks and main garrison area	Site characterization complete	SEA ongoing
29	Defense Reutilization and Marketing Office	Initial site characterization complete	Additional characterization with soil SEA
30	Driver training area	Site characterization complete	SEA ongoing
31	Former dump site	Initial characterization complete	Additional characterization
32	East Garrison sewage treatment plant	Site characterization complete	Groundwater monitoring with a SEA

Table 4.10-1 Continued

Site Number	Site Name	Status	Fiscal Year 93 Activity
33	Golf course	No data	Site characterization ongoing
34	Fritzsche Army Airfield fueling facility	Site characterization complete	SEA ^a proposed
35	Aircraft cannibalization yard	Initial site characterization complete	SEA ongoing
36	Fritzsche Army Airfield sewage treatment plant	Site characterization complete	SEA proposed
37	Trailer park maintenance shop	Site characterization complete, SEA complete	No further action
38	Army and Air Force Exchange Service dry cleaners	Site characterization and SEA complete	No further action
39	Impact area	Research ongoing	Additional characterization
40	RCRA/CERCLA integration	Research ongoing	Site identification and characterization
OU1	Operable Unit 1 Fritzsche Army Airfield Burn pit	Research ongoing	Remediation with cleanup verification
OU2	Operable Unit 2 Main landfill	RI/FS complete	FS review and finalization Proposed plan preparation

Notes:

^a SEA = site elimination action, as proposed by the Fort Ord Action Plan for Environmental Restoration Acceleration. Final action on all sites is subject to agency review and approval.

Installation-wide programs include background soil and groundwater investigation, installation-wide hydrogeologic characterization, installation-wide surface water investigation, installation-wide storm drainage and sanitary sewer system investigation, and installation-wide biological inventory.

Site characterization activities are conducted in accordance with the RI/FS work plan (U.S. Army Corps of Engineers 1991a).

Future activities planned for characterization sites include installing additional monitoring wells and soil borings, sampling new and existing monitoring wells, and removing contaminated soils. Interim data evaluation and recommendation reports will be prepared as necessary for these sites.

Remedial Investigation/Feasibility Study Sites. Remedial investigations are being conducted at five contaminated sites on the installation. Fieldwork completed to date for RI/FS sites includes drilling 39 soil borings; collecting 68 soil gas samples; installing 10 new groundwater monitoring wells and sampling

20 monitoring wells; drilling pilot soil borings and piezometers for measurement of groundwater levels; and conducting geophysical, trenching, and soil gas explorations at one suspected landfill.

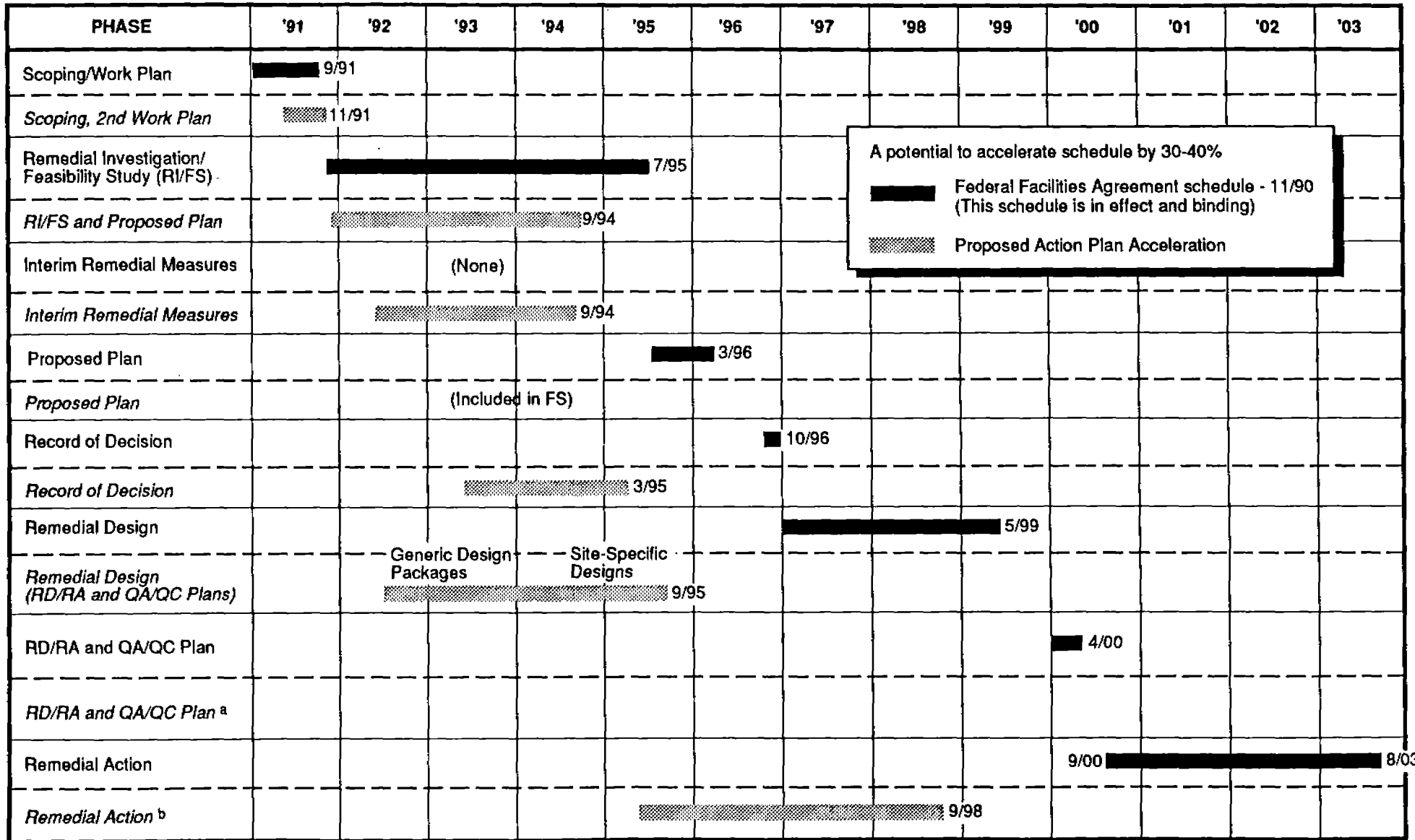
Future activities planned in conjunction with the RI/FS process include installing additional monitoring wells, pilot borings, and piezometers; sampling new and existing monitoring wells; removing contaminated soil; and conducting aquifer tests and treatability studies to perform feasibility studies. Interim data evaluation and recommendation reports and RI/FS reports will be prepared as necessary for these sites (U.S. Army Corps of Engineers pers. comm.).

Refer to Section 5.2.2, "Contaminated Sites", for a discussion of removal of unexploded ordnance.

4.10.4.2 Schedule for Completion of Remedial Action

The schedule for completing remedial actions at Fort Ord is presented in the federal facilities agreement. The installation developed an acceleration schedule in May 1991 to address base realignment and closure concerns. Figure 4.10-4 presents a comparison of the federal facilities agreement schedule and the proposed acceleration schedule. The acceleration schedule has not been formally negotiated or approved by the federal facilities agreement parties; the schedule presented in the federal facilities agreement is in effect and binding (U.S. Army Corps of Engineers, Sacramento District 1992g).

Comparison of Federal Facilities Agreement Schedule and Proposed Accelerated Schedule



4-93

Notes: RD/RA = Remedial Design/Remedial Action
QA/QC = Quality Assurance/Quality Control

^a These are incorporated in the RD/RA and QA/QC plans

^b Length of operation and monitoring of remedial actions is dependent upon types of contaminants and media type

Source: U.S. Army Corps of Engineers, Sacramento District, 1992f.

4.11 VEGETATION, WILDLIFE, AND WETLAND RESOURCES

This section incorporates by reference information from the Flora and Fauna Baseline Study of Fort Ord, California, which is available at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992a). Detailed descriptions of survey methods, the biological resources, and management programs associated with these resources (i.e., grazing, woodcutting, hunting, and fishing) are contained in the baseline study. The woodcutting, hunting, and fishing programs are discussed in 4.2.5 "Recreation".

This section contains a summary of biological resources at Fort Ord. Information was derived from published and unpublished reports, personal communications with local experts, Jones & Stokes Associates file data, and field surveys conducted in spring and summer 1992. The data were digitally entered into a computerized geographic information system.

Botanical field surveys were conducted in April, May, June, and August 1992. The objectives of the surveys were to map vegetation types, identify the locations of special-status plants and communities, and expand the existing list of plant species at Fort Ord. Wildlife surveys were conducted in January, March, April, and May 1992. Small mammals were captured in live traps, direct observation was used to identify reptiles and birds, and amphibians and invertebrates were captured with dip nets in wetlands.

Figures 4.11-1 through 4.11-14 show locations of sensitive biological resources and are located at the end of this section.

4.11.1 Overview of the Biological Resources at Fort Ord

Fort Ord is located on California's central coast, a biologically diverse and unique region. The wide range and unusual combinations of climatic, topographic, and soil conditions at Fort Ord support unique biological communities and locally endemic species (Stebbins and Major 1965).

Botanical surveys have identified over 450 plant taxa at Fort Ord. Ten species of plants known from Fort Ord are endemic to north coastal Monterey County and adjacent coastal Santa Cruz County. A total of 146 plant species reach their most southern and a total of 156 plant species reach their most northern distributional limits in Monterey County (Howitt and Howell 1964, 1973).

The diverse habitat conditions at Fort Ord support a broad array of wildlife species. Ongoing wildlife surveys have identified over 260 vertebrate species at Fort Ord, including 24 species of reptiles and amphibians, 209 species of resident and migratory birds, and 28 species of terrestrial mammals (U.S. Department of the Army, Directorate of Facilities and Engineering 1975; Natural Diversity Data Base 1992; Fort Ord Parklands Group 1992). Several of these species are adapted to specific habitat conditions on the central coast. Three terrestrial mammals and one reptile found at Fort Ord occur primarily on California's central coast and one federally listed endangered butterfly found at Fort Ord occurs almost exclusively in Monterey County.

4.11.2 Biological Communities

Plant and wildlife species associated with the biological communities at Fort Ord are described below. The distribution of general biological communities are identified in Figure 4.11-1, and acreages for specific habitat types are presented in Table 4.11-1.

4.11.2.1 Coastal Strand and Dune Communities

Coastal strand and dune communities occur adjacent to Monterey Bay and west of SR 1. Five communities are recognized on Fort Ord: beaches, bluffs and blowouts; disturbed dunes; coastal strand; dune scrub; and ice plant mats. The beaches, bluffs and blowouts adjacent to Monterey Bay and

disturbed dunes are communities generally devoid of vegetation. The coastal strand and dune scrub communities support native vegetation and wildlife but occur only as small, isolated patches. Extensive mats of African ice plant, the most widespread community, have been planted to stabilize the shifting dunes.

Table 4.11-1 Habitat Acreage at Fort Ord

Habitat	Acreage
Beaches, Bluffs, and Blowouts	199
Disturbed Dune	105
Ice Plant Mats	638
Dune Scrub	8
Native Coastal Strand	89
Coastal Scrub	572
Maritime Chaparral	12,592
Coastal Oak Woodland	2,972
Inland Oak Woodland	1,423
Oak Savanna	308
Annual Grassland	4,309
Valley Needlegrass Grassland	391
Blue Wildrye Grassland	86
Mixed Riparian Forest	201
Oak Riparian	43
Vernal Pool	34
Ponds and Freshwater Marsh	<u>28</u>
Total Area of Natural Habitats	23,998
Area of Developed Nonhabitat	<u>3,726</u>
Total	27,724

Common wading birds, such as sanderlings, plovers, and godwits, occur along the beaches; California ground squirrels, deer mice, and red foxes occur in the disturbed dune, coastal strand, and dune scrub communities. The extensive mats of African ice plant provide marginal wildlife habitat because they provide little forage for native wildlife.

4.11.2.2 Chaparral and Coastal Scrub Communities

Chaparral and coastal scrub communities cover approximately 50% of Fort Ord and are characterized by moderate to low-growing evergreen and drought-deciduous shrubs adapted to shallow soils and periodic fires. Three types of chaparral and scrub communities occur at Fort Ord: sand hill maritime chaparral, Aromas formation maritime chaparral, and coastal scrub.

The two types of maritime chaparral occur on different soils and have different characteristic plants. Toro manzanita and Hooker's manzanita are rare on sand hill maritime chaparral, but are common on Aromas formation chaparral; sandmat manzanita is common on sand hill chaparral but uncommon on

Aromas chaparral. Shaggy-barked manzanita and chamise are dominant shrubs in both maritime chaparral types. Coastal scrub occurs near the coast on sandy soils and on inland hills on shallow soils. Common plant species include coyote brush, California sagebrush, and black sage.

Common species of wildlife in the chaparral and coastal scrub communities include western fence lizard, orange-crowned warbler, California thrasher, California quail, brush rabbit, Heerman's kangaroo rat, black-tailed deer, gray fox, and coyote.

4.11.2.3 Coast Live Oak Woodland and Savanna Communities

The coast live oak is the dominant tree of woodlands and savannas at Fort Ord. The live oak woodland is an open-canopied to nearly closed canopied community with a grass or sparsely scattered shrub understory. Coastal forms of this community are characterized by short, wind-pruned trees exposed to persistent salt spray, which grow on sandy soils. Inland coast live oaks grow tall because they are protected by topographic position from the coastal weather influences.

Common wildlife species in coast live oak woodlands include black-tailed deer, California mouse, raccoon, California quail, scrub jay, and Nuttall's woodpecker. Red-tailed hawks and great-horned owls nest and roost in the inland coast live oaks, but probably make little use of the coastal oaks because the tightly spaced branches discourage them from entering the tree canopies.

Coast live oak savanna occurs in drier areas than woodlands and supports widely spaced trees and an understory of annual grasses. Common species of wildlife include western bluebird, mourning dove, and olive-sided flycatcher.

Declines in oak woodland and savanna in California have resulted from firewood harvesting, land clearing for agriculture and range, and urban development. The conservation of these resources has been identified as an important issue by state agencies and conservation groups (California Senate Resolution Chapter 100).

4.11.2.4 Grassland Communities

Grasslands occur in the southeastern portion of Fort Ord and around Fritzsche Army Airfield. Annual grasslands dominated by introduced species, such as slender wild oats, soft chess, and riggut brome, are the most common grassland community at Fort Ord. Perennial grasslands are of two types at Fort Ord: valley needlegrass grassland and blue wildrye. Valley needlegrass grassland, dominated by native purple needlegrass, is scattered throughout the southeastern portion of the installation. Small patches of blue wildrye grassland occur sporadically in the southeastern portion of the installation. Common wildlife species include California ground squirrel, Heerman's kangaroo rat, narrow-faced kangaroo rat, western meadowlark, and kestrel.

4.11.2.5 Riparian Communities

Riparian communities occur on the banks of seasonal or permanent creeks and drainages. There are approximately 130,820 linear feet of creeks and drainages total and 25,130 linear feet of creeks and drainages with riparian habitat. Riparian habitats at Fort Ord are limited to the Salinas River, Toro Creek, Pilarcitos Canyon, and Merrill Ranch Canyon. The riparian communities along the Salinas River and Toro Creek are mixed riparian forests supporting a variety of tree species. The communities in Pilarcitos and Merrill Ranch Canyons are oak riparian forests dominated by coast live oaks with a dense understory of annual grasses.

Riparian corridors are important wildlife habitat because they usually support the highest diversity of wildlife and provide movement corridors between different communities. Common wildlife species that

occur in riparian communities include Pacific tree frog, California slender salamander, Wilson's warbler, dark-eyed junco, striped skunk, coyote, and black-tailed deer.

4.11.2.6 Wetland and Open Water Communities

Four major types of wetland and open water communities are scattered throughout Fort Ord: vernal pools, freshwater marshes, stream channels, and ponds. The locations of wetlands and open water communities are identified in Figure 4.11-2 and brief descriptions of these communities are provided below.

Vernal Pools. Vernal pools are small, seasonally flooded basins in grasslands. Plant and wildlife species in these pools are specially adapted to live through winter and spring flooding and summer and fall drought. Common plant species include common spike-rush, hyssop loosestrife, and Vasey's coyote thistle. Common wildlife species include western toad, garter snake, and northern rough-winged swallow.

Freshwater Marshes. Freshwater marshes are characterized by perennial, emergent plants that thrive in areas permanently flooded or saturated by fresh water. This community is usually found around freshwater ponds and perennial stream channels. Common plants include water smartweed and broad-leaved cattail. Common wildlife species include mallard, red-winged blackbird, and marsh wren.

Stream Channels. Fort Ord supports several intermittent and perennial streams. The amount of channel vegetation varies depending on the size of the channel and the amount of time that water is present in the stream. Wildlife species found in stream channels are similar to those occurring in vernal pools and freshwater marshes.

Ponds. Most of the ponds at Fort Ord occur in the southeastern portion of the installation and are associated with the livestock grazing lease. Wildlife species found in ponds are similar to those found in vernal pools and freshwater marshes.

4.11.3 Special-Status Biological Resources

Special-status biological resources are those resources that receive various levels of protection under local, state, or federal laws, regulations, or policies. Special-status biological resources include special-status plant and wildlife species, special native biological communities, native plant and butterfly reserves, significant natural areas, and habitats of the Monterey Bay National Marine Sanctuary. Definitions and occurrences of these resources are discussed below.

4.11.3.1 Special-Status Plant Species

Special-status plants are species in the following categories:

- plants listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR 17.12 [listed plants] and various notices in the *Federal Register* [proposed species]);
- plants that are Category 1 or 2 candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (55 *Federal Register* 6184, February 21, 1990);
- plants listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 CCR 670.5);
- plants listed under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);

- plants that meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA) (State CEQA Guidelines, Section 15380);
- plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (Lists 1b and 2 in Smith and Berg 1988 as updated by California Native Plant Society pers. comm.); and
- plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 in Smith and Berg 1988, as updated by California Native Plant Society pers. comm.), which may be included as special-status species on the basis of local significance or recent biological information.

Botanical surveys during spring 1992 identified populations of 22 special-status plant species at Fort Ord (Tables 4.11-2 and 4.11-3). Four of the species are listed or proposed for listing as threatened or endangered under the federal or state endangered species acts: sand gilia, Monterey spineflower, robust spineflower, and Seaside bird's-beak.

Sand Gilia. Sand gilia occurs in scattered populations over much of Fort Ord in maritime chaparral and coastal scrub (Figures 4.11-3 and 4.11-4). The largest populations are at Fritzsche Army Airfield. Sand gilia is federally listed as endangered and state listed as threatened. Many of the sand gilia populations at Fort Ord support a mix of sand gilia; its more common relative, slender-flowered gilia; and plants of intermediate form (California Academy of Sciences, California Academy of Sciences and San Jose State University pers. comms.).

Monterey Spineflower. Populations of Monterey spineflower occur over most of the western half of Fort Ord in maritime chaparral, coastal scrub, coastal oak woodland, annual grassland, and coastal strand and dune communities (Figures 4.11-5 and 4.11-6). Monterey spineflower is proposed for federal listing as endangered (56 *Federal Register* 206, October 24, 1991). Monterey spineflower is similar in appearance to cuspidate spineflower (Zoger and Pavlik 1987). Populations of Monterey spineflower at Fort Ord may support a mix of these two species.

Robust Spineflower. One individual of robust spineflower was identified on the coastal dunes south of Stilwell Hall. A population of robust spineflower was reported from near this site previously, but only one plant of this annual species appeared in 1992 (Figure 4.11-7 and 4.11.8). Robust spineflower is proposed for federal listing as endangered (56 *Federal Register* 206, October 24, 1991).

Seaside Bird's-Beak. Scattered, localized populations of Seaside bird's-beak occur in maritime chaparral and coastal oak woodland in central portions of Fort Ord (Figure 4.11-9 and 4.11-10.) Seaside bird's-beak is state listed as endangered and is a candidate (Category 1) for federal listing as threatened or endangered.

4.11.3.2 Special-Status and Special-Interest Wildlife Species

Special-status animals are species in the following categories:

- animals listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (50 CFR 17.11 [listed animals] and various notices in the *Federal Register* [proposed species]);
- animals that are Category 1 or 2 candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (54 *Federal Register* 554, January 6, 1989);
- animals that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines, Section 15380);

- animals listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 CCR 670.5);
- animal species of special concern to the California Department of Fish and Game (DFG) (Remsen 1978 [birds] and Williams 1986 [mammals]); and
- animals fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Special-interest species are species that have been identified as rare or declining in the region but have no formal legal status. Twenty-three special-status wildlife species are known to occur or have potential to occur in terrestrial and freshwater environments at Fort Ord. Four special-interest wildlife species have been identified at Fort Ord. The names, legal status, habitat requirements, and distribution of these species are given in Table 4.11-4. Two species, Smith's blue butterfly and American peregrine falcon, are federally listed as endangered (Natural Diversity Data Base 1992, Fort Ord Parklands Group 1992), the California linderiella has been proposed for endangered status by the U.S. Fish and Wildlife Service (57 *Federal Register* 19856, May 8, 1992), and coastal populations of the western snowy plover have been listed as threatened (57 *Federal Register* 144, January 14, 1992). Known locations of special-status wildlife species are shown in Figure 4.11-11.

Table 4.11-2. Federally Listed, Proposed, and Candidate Plant Species Identified at Fort Ord during 1992 Surveys and the Relationship of Fort Ord to Known Distributions

Plant Species	Listing Status ^a		Approximate Percent of Range at Fort Ord	Habitat	Distribution	Importance of Fort Ord Population
	Federal/State/CNPS	RED Code ^b				
Federally Listed or Proposed Species						
Sand gilia <i>Gilia tenuiflora</i> ssp. <i>arenaria</i>	E/T/1b	3-3-3	50-70	Sandy openings in coastal dunes and scrub and maritime chaparral	Occurs around Monterey Bay, Salinas River Beach, Asilomar State Beach, from Point Pinos to Point Joe, and Fort Ord (1, 2, 6)	Fort Ord provides suitable habitat for sand gilia and constitutes a substantial portion of its range (at least half)
Monterey spineflower <i>Chorizanthe pungens</i> var. <i>pungens</i>	PE/-/1b	3-3-3	75-95	Colonizes recently disturbed sandy sites in coastal dune, coastal scrub, grassland, and maritime chaparral habitats	Along the coast of southern Santa Cruz and northern Monterey Counties and inland to the coastal plain of the Salinas Valley (1, 4, 8)	Fort Ord supports the largest populations of Monterey spineflower known (7, 8)
Robust spineflower <i>Chorizanthe robusta</i> var. <i>robusta</i>	PE/-/4	1-1-3	<1	Found on sandy soils in coastal dune and coastal scrub habitats	Historically from Alameda and San Mateo Counties south to Santa Cruz County and near the coast from southern Santa Cruz County to northern Monterey County, much of which is now developed (4, 5, 8)	Only several plants of robust spineflower were found at one site on Fort Ord; Fort Ord does not provide important habitat for this species (7)

Table 4.11-2. Continued

Plant Species	Listing Status ^a		Approximate Percent of Range at Fort Ord	Habitat	Distribution	Importance of Fort Ord Population
	Federal/State/CNPS	RED Code ^b				
State-Listed Species						
Seaside Bird's-Beak <i>Cordylanthus rigidus</i> var. <i>litoralis</i>	C1/E/1b	2-3-3	30-50 ^d	Inhabits sandy soils of stabilized dunes, maritime chaparral, coastal scrub, and closed-cone coniferous forests	Monterey and Santa Barbara Counties, including Fort Ord, Monterey Airport, and between Carmel and Elkhorn Slough in Monterey County, and on Burton Mesa in Santa Barbara County (1, 2)	A substantial portion of the range of Seaside bird's-beak is found at Fort Ord
Federal Candidate Species						
Toro manzanita <i>Arctostaphylos montereyensis</i>	C2/-/1b	3-2-3	70-90	Occurs on stabilized sandy soils and badlands in maritime chaparral	Restricted to several sites in Monterey County, including Fort Ord, Toro Regional Park, and Monterey Airport (1, 3)	Fort Ord supports the largest expanse of Toro manzanita in existence
Sandmat manzanita <i>Arctostaphylos pumila</i>	C2/-/1b	3-2-3	70-90	Sandhills of maritime chaparral and coast live oak woodland	Scattered locations around Monterey Peninsula and an extensive area on Fort Ord (1, 3)	A large and important part of the range of sandmat manzanita is found on Fort Ord
Hickman's onion <i>Allium hickmanii</i>	C1/-/1b	2-2-3	<5	Grassy openings in closed-cone pine forests, maritime chaparral, and valley and foothill grasslands	Monterey Peninsula, Fort Ord, Monterey Airport, and San Luis Obispo County (1)	Some suitable habitat for Hickman's onion is found on Fort Ord (e.g., Machine Gun Flats), but this species has many occurrences outside Fort Ord
Monterey ceanothus <i>Ceanothus rigidus</i>	C2/-/4	1-2-3	50-70	Sandy hills and flats of maritime chaparral, closed-cone coniferous forests, and coastal scrub	Monterey County along the coast and Fort Ord, Toro Regional Park, Monterey Airport, and near Prunedale (1, 6)	The most abundant and probably most vigorous population of Monterey ceanothus is found on Fort Ord (3)
Eastwood's ericameria <i>Ericameria fasciculata</i>	C2/-/1b	3-3-3	70-90	Inhabits coastal dune and scrub, maritime chaparral, and closed-cone coniferous forest communities	Found in Monterey County, including Del Monte Forest, Monterey Airport, Toro Regional Park, near Prunedale, and Fort Ord (1)	Fort Ord supports most of the remaining individuals of Eastwood's ericameria (3)
Coast wallflower <i>Erysimum ammophilum</i>	C2/-/1b	2-2-3	10-30	Occurs scattered on stabilized coastal dunes	Coastal dunes of Monterey Bay and Santa Rosa Island, and coastal scrub on Fort Ord (10, 11)	Fort Ord provides a moderate amount of suitable habitat for coast wallflower and may constitute an important portion of its range because of the limited extent and high degree of disturbance to its habitat in California

Table 4.11-2. Continued

Plant Species	Listing Status ^a		Approximate Percent of Range at Fort Ord	Habitat	Distribution	Importance of Fort Ord Population
	Federal/State/CNPS	RED Code ^b				
Wedge-leaved hortensia <i>Hortensia cuneata</i> ssp. <i>sericea</i>	C2/-/1b	3-3-3	<10	Sandy and gravelly places in coastal scrub, maritime chaparral, and closed-cone coniferous forest communities	Along coast from Sonoma County to Santa Barbara County (10)	Wedge-leaved hortensia is widely distributed; Fort Ord likely comprises only a small part of its range
Yadon's piperia <i>Piperia yadoni</i>	- ^c /-/1b	N/A	<1	Occurs on sandy soils in maritime chaparral, coastal scrub, and closed-cone coniferous forest	Occurs in Monterey County from the Pajaro Hills to the Monterey Peninsula	Less than 1% of the individuals of Yadon's piperia are found on Fort Ord; it is noteworthy that its habitat on Fort Ord is intermediate between that of its occurrence in chaparral and pine forest habitats (?)
Hooker's Manzanita <i>Arctostaphylos hookeri</i> ssp. <i>hookeri</i>	-/-/1b	3-2-3	15-35	Inhabits sandy soils, sandy shales, and sandstone outcrops	Del Monte Forest, Monterey Peninsula, near Prunedale, Fort Ord, and the Larkin Valley (3, 6)	Fort Ord supports large populations of Hooker's manzanita; although it is more common on the Monterey Peninsula and near Prunedale than on Fort Ord, Fort Ord provides important habitat for Hooker's manzanita
Pajaro Manzanita <i>Arctostaphylos pajaroensis</i>	-/-/4	1-2-3	<1	Occurs on sandy hills in chaparral	Monterey County south of the Pajaro River; especially important in the Prunedale Hills (6)	One Pajaro manzanita plant was found on Fort Ord (probably planted); Fort Ord does not support important habitat for Pajaro manzanita
Monterey Indian Paintbrush <i>Castilleja latifolia</i>	-/-/4	1-1-3	?	Coastal dunes and scrub	Monterey and Santa Cruz Counties (10)	Fort Ord may constitute an important part of the range of Monterey Indian paintbrush because of the limited extent and high degree of disturbance to coastal dunes in central California
Douglas' Spineflower <i>Chorizanthe douglasii</i>	-/-/4	1-1-3	<1	Gravelly or sandy slopes	Southern coast ranges from San Benito and Monterey Counties to San Luis Obispo County (10, 11)	Has a large range on California's central coast; the small number of individuals at Fort Ord indicates that the installation does not constitute a large portion of Douglas' spineflower habitat

Table 4.11-2. Continued

Plant Species	Listing Status ^a		Approximate Percent of Range at Fort Ord	Habitat	Distribution	Importance of Fort Ord Population
	Federal/State/CNPS	RED Code ^b				
Lewy's Clarkia <i>Clarkia lewisii</i>	-/-/4	1-1-3	<5	Coastal scrub, oak woodland, and chaparral communities	Monterey and San Benito Counties (12)	Few individuals were found at Fort Ord; Fort Ord probably does not constitute an important part of the species' habitat, although more investigation is needed to determine the actual range and number of individuals
Virgate Eriogonum <i>Eriogonum virgatum</i>	-/-/4	1-1-3	?	Found on sand hills and meads	Monterey, San Benito, Ventura, and Los Angeles Counties (10, 11)	Fort Ord provides a large area of suitable habitat, but this species has a relatively wide distribution
Small-leaved Lomatium <i>Lomatium parvifolium</i>	-/-/4	1-2-3	?	Occurs in chaparral and open pine forests	Monterey, Santa Cruz, and San Luis Obispo Counties (10, 11)	Fort Ord provides a large amount of suitable habitat for small-leaved lomatium, but this species appears to have a wide distribution on the central California coast
Santa Cruz Monkeyflower <i>Mimulus ruttanii</i> var. <i>decurtatus</i>	-/-/4	1-1-3	<1	Sandy, open places, especially around sandstone outcrops or on burns, and other disturbed areas in chaparral and conifer forest	Santa Cruz and Monterey Counties (10, 11)	Only one small population of Santa Cruz monkeyflower was found at Fort Ord; Fort Ord probably does not provide important habitat for this species
Curly-leaved Monardella <i>Monardella undulata</i> var. <i>undulata</i>	-/-/4	1-1-3	<5	Chaparral and coastal dunes and scrub near the coast	From Marin to northern Santa Barbara County (10, 11)	Curly-leaved monardella has a wide, scattered distribution along the central California coast; the Fort Ord occurrence is probably a small portion of its total numbers
Purple-flowered Piperia <i>Piperia elongata</i> ssp. <i>michealii</i>	-/-/4	1-2-3	<1	Coastal scrub and chaparral	Humboldt and Alameda Counties and from Marin to San Luis Obispo County (10, 11)	Purple-flowered piperia is characterized by a wide, scattered distribution; Fort Ord comprises a small part of its range but supports large areas of suitable habitat

^a Status explanations (see the "Definitions of Special-Status Species" section above for citations):

Federal

- E - listed as endangered under the federal Endangered Species Act.
- PE - proposed for federal listing as endangered under the federal Endangered Species Act.
- C1 - Category 1 candidate for federal listing. Category 1 includes species for which USFWS has on file enough substantial information on biological vulnerability and threats to support proposals to list them.

Table 4.11-2. Continued

Plant Species	Listing Status ^a		Approximate Percent of Range at Fort Ord	Habitat	Distribution	Importance of Fort Ord Population
	Federal/ State/CNPS	RED Code ^b				

C2 = Category 2 candidate for federal listing. Category 2 includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status. Category 2 species are not necessarily less rare, threatened, or endangered than Category 1 species or listed species; the distinction relates to the amount of data available and is therefore administrative, not biological.

-- = no designation.

State

E = listed as endangered under the California Endangered Species Act.

T = listed as threatened under the California Endangered Species Act.

California Native Plant Society

1b = List 1b species: rare, threatened, or endangered in California and elsewhere.

4 = List 4 species: plants of limited distribution.

^b RED Code:

Rarity (R)

- 1 = Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time.
- 2 = Occurrence confined to several populations or to one extended population.
- 3 = Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Endangerment (E)

- 1 = Not endangered.
- 2 = Endangered in a portion of its range.
- 3 = Endangered throughout its range.

Table 4.11-2. Continued

Distribution (D)

- 1 = More or less widespread outside California.
- 2 = Rare outside California.
- 3 = Endemic to California.

c Data sources:

- 1 = Natural Diversity Data Base 1992.
- 2 = Hillyard 1992.
- 3 = Griffin 1978.
- 4 = Reveal and Hardham 1989.
- 5 = Thomas 1981.
- 6 = Griffin 1978.
- 7 = Morgan 1992.
- 8 = U.S. Fish and Wildlife Service 1991.
- 9 = U.S. Fish and Wildlife Service 1992.
- 10 = Munz and Keck 1988.
- 11 = Abrams 1940.

^d This estimate incorporates locations of Seaside bird's-beak in Santa Barbara County, which may have formed as a result of hybridization; the estimate based on Monterey County above would increase the percent of range at Fort Ord to 80-80%.

^e Listing package is in preparation by USFWS (Rutherford pers. comm.).

Table 4.11-3 Acres of Habitat Occupied by Special-Status Plant Species at Fort Ord

Species	Listing Status	Density ^b			Total Acreage
	Federal/State/CNPS ^a	Low	Medium	High	
Sand Gilia	E/T/1B	3,285	309	162	3,756
Monterey Spineflower	PE/--/1B	5,948	3,546	980	10,474
Seaside Bird's-beak	C1/E/1B	1,112	16	0	1,128
Toro Manzanita	C2/--/1B	2,320	2,157	1,948	6,425
Sandmat Manzanita	C2/--/1B	2,133	3,207	3,448	8,788
Hickman's Onion	C1/--/1B	273	121	0	394
Monterey Ceanothus	C2/--/4	2,466	6,836	2,484	11,786
Eastwood's Ericameria	C2/--/1B	3,566	2,279	23	5,868
Coast Wallflower	C2/--/1B	494	226	51	771
Wedge-leaved Horkelia	C2/--/1B	2,438	1,202	0	3,640
Yadon's Piperia	--/--/1B	14	0	0	14
Hooker's Manzanita	--/--/1B	1,418	2,506	1,293	5,217

Table 4.11-3. Continued

Species	Listing Status		Density ^b			Total Acreage
	Federal/State/CNPS ^a	Low	Medium	High		
California Native Plant Society List 3 and 4 Species with No Federal or State Status	-/-/3 or 4	-	-	-	14,897	

^a See Table 4.11-2 for status definitions.

^b Occupied habitat refers to survey polygons in which plants of the given species occur. Low density is estimated at one to hundreds of plants per acre for herbaceous species and one to tens of plants per acre for shrub species. Medium density is estimated at hundreds to thousands of plants per acre for herbaceous species and tens to hundreds of plants per acre for shrub species. High density is estimated at thousands to over ten-thousands of plants per acre for herbaceous species and hundreds to over thousands of plants per acre for shrub species.

Low density could indicate that a species is either sparsely and evenly distributed throughout the survey polygon or occurs as one to a few small, dense patches in the survey polygon. High density could indicate that a species is densely populated throughout the survey polygon or densely populated over a large portion of the survey polygon.

Table 4.11-4. Federally Listed, Proposed, and Candidate Terrestrial and Freshwater Wildlife Species Known to Occur or Potentially Occurring at Fort Ord

Plant Species Population	Listing Status ^a		Approximate Percent of Range at Fort Ord	Habitat	Importance of Distribution Occurrence at Fort Ord	
	Federal/State					
Smith's blue butterfly <i>Euphilotes enoptes smithi</i>	E/-	5-10	Uses coastal dunes and hillsides that support seaciff buckwheat (<i>Eriogonum parvifolium</i>) or coast buckwheat (<i>Eriogonum latifolium</i>); these plants are used as a nectar source for adults and host plant for larvae	Restricted to localized populations along the coast of Monterey County; single populations reported in Santa Cruz and San Mateo Counties	Known to occur near the northern boundary of Fort Ord and from Giggling Sliding to the southern base boundary ^b	Fort Ord has been identified as important to the recovery of Smith's blue butterfly

Table 4.11-4. Continued

Plant Species Population	Listing Status ^a		Approximate Percent of Range at Fort Ord	Habitat	Importance of Distribution Occurrence at Fort Ord	
	Federal/State					
Peregrine falcon <i>Falco peregrinus</i> <i>anatum</i>	FE/E	<1	Nests and roosts on protected ledges on high cliffs, usually adjacent to water sources that support large bird populations	Permanent resident on the north and south Coast Ranges; winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range; occurs along both coasts of the United States and parts of Alaska, Arizona, Colorado, and the borders of Idaho	May forage on Fort Ord beaches and passes through Fort Ord during seasonal migration ³	Peregrine falcons occasionally occur at Fort Ord to forage or during migration; Fort Ord is not important to the species
California tinkerella <i>Linderella</i> <i>occidentalis</i>	PE/-	<1	Ephemeral freshwater habitats such as vernal pools, rock outcrop pools, swales, and ponds	Found in the Central Valley from Tehama to Madera Counties, and the central and south Coast Ranges from Lake to Riverside County	Known from five vernal pools at Fort Ord ²	Fort Ord composes little of the total range of California tinkerella; however, vernal pool habitat is relatively rare in the Monterey Bay region
Western snowy plover <i>Charadrius alexandrinus</i> <i>nivosus</i>	PT/SSC	5-10	Found along beach above the high tide limit; also uses shores of salt ponds and alkali or brackish inland lakes	Intermittent nesting sites along the Pacific Coast from Washington to Baja California	Nests along the beaches at Fort Ord north of Stillwell Hall ⁴	Fort Ord supports one of 20 coastal breeding populations of western snowy plovers in California; Monterey Bay as a whole is considered one of eight primary coastal nesting areas
California black legless lizard <i>Anniella pulchra nigra</i>	C2 (LP)/SS C	10-20	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover; may be found on beaches, in chaparral, pine oak woodland, or riparian areas	Restricted to small populations along the coast in Monterey and northern San Luis Obispo Counties; one population in Contra Costa County	Found in stabilized dunes and maritime chaparral with sandy soils at Fort Ord ^{2, 7}	Fort Ord supports one of less than 20 confirmed black legless lizard populations
Monterey dusky-footed woodrat <i>Neotoma fuscipes</i> <i>luciens</i>	C2/-	1-5	Uses habitats with moderate to dense cover and abundant dead wood for nest construction; maritime chaparral and coastal live oak woodland at Fort Ord	Restricted to Monterey County and northern San Luis Obispo County	Found in maritime chaparral and coastal coast live oak woodland habitats throughout Fort Ord ²	Fort Ord provides high-quality habitat for Monterey dusky-footed woodrat in the extreme northern portion of the species range

Table 4.11-4. Continued

Plant Species Population	Listing Status ^a		Approximate Percent of Range at Fort Ord	Habitat	Importance of Distribution Occurrence at Fort Ord	
	Federal/State					
Monteary ornate shrew <i>Sorex ornatus salarius</i>	C2/-	15-25	Found in a variety of riparian, woodland, and upland communities where there is thick duff or downed logs	Restricted to the Monterey Bay region; historical occurrences at the mouth of the Salinas River and Moss Landing in Monterey County	May occur at Fort Ord ^b	Fort Ord provides abundant potential habitat for Monteary ornate shrew within the species' limited range
California tiger salamander <i>Ambystoma tigrinum californiense</i>	C2 (LP)/SS C	<1	Favors open woodlands and grasslands; requires water for breeding and burrows or cracks in the soil for summer dormancy	Occurs only in California from the coastline to the Sierra Nevada crest and from Sonoma to Santa Barbara Counties	Occurs in ponds and vernal pools throughout Fort Ord ^{2, 5}	Fort Ord comprises little of the total range of California tiger salamander; however, vernal pool habitat is relatively rare in the Monterey Bay region
California red-legged frog <i>Rana aurora draytoni</i>	C1 (LP)/SS C	<1	Requires cold water ponds with emergent and submergent vegetation and riparian vegetation at the edges	Found along the coast and coastal mountain ranges from Humboldt to San Diego Counties, and in the Sierra Nevada from Butte to Fresno Counties	May occur at Fort Ord ¹	Fort Ord composes little of the species total range; however, Fort Ord provides potential habitat for California red-legged frog, which is relatively rare within the Monterey Bay region
Southwestern pond turtle <i>Clemmys marmorata pallida</i>	C1 (LP)/SS C	<1	Requires aquatic habitats such as ponds, marshes, or streams, with rocky or muddy bottoms and vegetation for cover and food	In California, occurs along the central coast east to the Sierra Nevada, and along the south coast, inland to the Mojave and Colorado Deserts; occurs in southwestern California and northwestern Baja California	Occurs at Merrill Ranch just off base, known previously at Mudhen Lake; two turtles were transplanted to East Garrison Lake ⁶ ; may occur at the Salinas River	Fort Ord composes little of the species total range; however, Fort Ord provides potential habitat for western pond turtles, which is relatively rare in the Monterey Bay region

Table 4.11-4. Continued

Plant Species Population	Listing Status ^a		Federal/State	Approximate Percent of Range at Fort Ord	Habitat	Importance of Distribution Occurrence at Fort Ord
	C2/SSC	<1				
Tricolored blackbird <i>Agelaius tricolor</i>	C2/SSC	<1	Nests in freshwater marshes with heavy growths of cattails and tules; other forms of dense vegetation may also be used for nesting; nesting areas must be large enough to support a colony of at least 50 pairs; birds forage in grasslands and fields surrounding the colony	Occurs only in California; resides permanently in the Central Valley from Butte through Kern Counties, on the south Coast and Peninsular Ranges, and in parts of San Diego, Los Angeles, Alameda, Sonoma, and Lake Counties; breeding colonies are in Siskiyou and Lassen Counties, around the San Francisco Bay from Marin to Santa Cruz Counties, and east through the Delta to Solano County;	One nesting colony is known approximately 2 miles northeast of Laguna Seca at Fort Ord ²	Fort Ord composes little of the species total range; however, one of few breeding colonies in the region occurs at Fort Ord
California horned lark <i>Eremophila alpestris actis</i>	C2/-	<1	Grasslands, rangelands, and other open habitats with low, sparse cover	Resident along the California coast range from Humboldt to San Diego County and the San Joaquin Valley	Observed at Fritzsche Army Airfield at Fort Ord ²	Fort Ord composes little of the species' total range; Fort Ord does not provide important habitat for this species
Loggerhead shrike <i>Lanius ludovicianus</i>	C2/-	<1	Prefers open woodland habitats with scattered trees, shrubs, posts, fences, or other perches	Permanent populations throughout California except in the Sierra Nevada, Cascade, and Klamath Ranges, and the north Coast Range north of Mendocino County; some individuals winter along the coast from Sonoma to Del Norte Counties; uncommon in Monterey County; occurs from southern Canada into Mexico	Uncommon at Fort Ord; occurs at Fritzsche Army Airfield and in maritime chaparral, coastal, and scrub habitat ²	Fort Ord composes a very small amount of the total range of loggerhead shrike; Fort Ord does not provide important habitat for this species

^a Status definitions:

Federal

- E = listed as endangered under the federal Endangered Species Act.
T = listed as threatened under the federal Endangered Species Act.

- PE - federally proposed for listing as endangered.
- LP - listing package being reviewed by U.S. Fish and Wildlife Service.
- C1 - Category 1 candidate for federal listing. Category 1 includes species for which USFWS has on file enough substantial information on biological vulnerability and threat to support proposals to list them.
- C2 - Category 2 candidate for federal listing. Category 2 includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status. Category 2 species are not necessarily less rare, threatened, or endangered than Category 1 species or listed species; the distinction relates to the amount of data available and is therefore administrative, not biological.

State

- E - listed as endangered under the California Endangered Species Act.
- SSC - considered a State Species of Special Concern by California Department of Fish and Game.
- - no status.

- ¹ Not found during field surveys.
- ² Encountered during field surveys.
- ³ Source: Jurek, Walton pers. comm.
- ⁴ Source: George pers. comm.
- ⁵ Source: Stanley pers. comm.
- ⁶ Source: Littlefield pers. comm.
- ⁷ Source: Bury 1985.
- ⁸ Source: Arnold 1983.

4.11.3.3 Special Native Biological Communities

Special native biological communities are habitats considered important because of their high species diversity, high productivity, unusual nature, limited distribution, declining status, or some combination of these qualities. These habitats are recognized by state and federal agencies as of high value to wildlife. The DFG's Natural Diversity Data Base (NDDDB) (1992) maintains a list of rare natural communities and this list was used to develop the list of special native biological communities at Fort Ord. Seven special native biological communities occur at Fort Ord. These communities and the reasons for their recognition by agencies are identified below:

- native coastal strand - native coastal strand communities have been reduced by dune disturbance and coastal development to remnants of what were once more extensive communities,
- dune scrub - dune scrub has been reduced by coastal development to remnants of what were once more extensive communities,
- maritime chaparral - the type on Fort Ord is known to occur only in the Monterey Peninsula area,
- valley needlegrass grassland - less than 1% of the historic range remains in California, blue wildrye grassland - this community has been greatly reduced in extent from its historic range in California,

- riparian forest - over 90% of California's riparian forests have been eliminated,
- vernal pool - vernal pools are considered wetlands and over 90% of California's wetlands have been lost, and
- freshwater marsh - freshwater marshes are considered wetlands and over 90% of California's wetlands have been lost.

4.11.3.4 Preserves and Significant Natural Areas

Specific sites at Fort Ord have been designated as biologically important by federal and state agencies and private organizations. These sites are the CNPS native plant reserves, Smith's blue butterfly reserve, and DFG significant natural areas.

Native Plant and Butterfly Reserves. Fort Ord's mosaic of biological communities creates a unique set of conditions for several special-status plants and wildlife. Recognizing that large portions of these unique and declining biological resources occur at Fort Ord, the Army, with assistance from CNPS, has identified and agreed to protect 11 native plant reserves and one butterfly reserve (Figure 4.11-12). Under the agreement with CNPS, the Army affords protection to them as long as there is no overriding military need for the sites (Griffin 1976). Plant reserves 6, 7, 11, and 12, were included as mitigation sites in a November 1990 draft mitigation and monitoring plan for construction of the ammunition supply point on Barloy Canyon Road.

Significant Natural Areas. The California Significant Natural Areas Program is administered by DFG and designed to encourage recognition of the state's most significant natural areas and seek perpetuation of these areas (California Fish and Game Code 1930-1932). Significant natural areas have no legal status, but they have been identified in response to a legislative mandate (California Assembly Bill 1039) to raise the level of awareness about California's natural diversity and to identify opportunities where cooperative efforts can conserve important biological resources. The DFG has recognized the unique biological resources at Fort Ord and identified three significant natural areas.

The DFG has used only the NDDDB to identify significant natural areas, and the exact boundaries of significant natural areas have not been established because thorough field surveys have not been completed.

The DFG has identified three significant natural areas on Fort Ord (Figure 4.11-13):

- **Marina Dunes (MNT-026).** This significant natural area includes the Marina Dunes along the northern boundary of Fort Ord. In addition to a part of Fort Ord, this area includes private lands and lands belonging to the City of Marina and the California Department of Parks and Recreation's Marina State Beach. This significant natural area is reported by NDDDB to contain eight rare elements, including the federally listed endangered Smith's blue butterfly, sand gilla, and Menzie's wallflower, coastal populations of western snowy plover which are federally listed as threatened, and Monterey spineflower and western snowy plover, which are federally proposed for listing as endangered and threatened. The other elements are Salinas harvest mouse, black legless lizard, and central dune scrub habitat.
- **West Eucalyptus Road (MNT-040).** This significant natural area encompasses a general area along Eucalyptus Road directly east of the developed area of Fort Ord. It is reported by NDDDB to contain one rare element: sandmat manzanita.

- **Central Eucalyptus Road (MNT-050).** This significant natural area encompasses a general area centered about 1.5 miles east of the West Eucalyptus Road significant natural area. The site is reported by NDDB to include the rare central maritime chaparral habitat and two rare plant species, Eastwood's ericameria and sandmat manzanita.

4.11.3.5 Marine Environment

The marine environment of Monterey Bay is widely recognized as important habitat for an array of marine wildlife and has been approved for federal protection as part of the Monterey Bay National Marine Sanctuary (U.S. National Oceanic and Atmospheric Administration 1992).

Approximately 27 species of marine mammals and 94 species of seabirds are known to occur in the Monterey Bay region, including nine special-status mammals, 17 special-status birds, and three endangered sea turtles (Table 4.11-5). Most species occur as nonbreeding residents or spring and fall migrants. All the special-status birds may fly over the marine range area at Fort Ord or float in the open water, and southern sea otters may occasionally feed in the marine range area; however, no important marine mammal haul-out (resting) or breeding areas or seabird nesting colonies occur at Fort Ord (Figure 4.11-14).

Table 4.11-5 Special-Status Wildlife Species Known to Occur in the Marine Environment in Monterey Bay

Common and Scientific Name	Legal Status ^a	Occurrence
Northern Sea Lion <i>Eumentopsis jubatus</i>	FT	Nonbreeding resident/visitor
Guadalupe Fur Seal <i>Arctocephalus townsendi</i>	FT, ST	Rare seasonal transient
Southern Sea Otter <i>Enhydra lutris nereis</i>	FT	Breeding year-round resident
Gray Whale <i>Eschrichtius robustus</i>	FE	Seasonal migrant
Blue Whale <i>Balaenoptera musculus</i>	FE	Seasonal migrant
Fin Whale <i>Balaenoptera physalus</i>	FE	Seasonal migrant
Hump-Backed Whale <i>Megaptera novaeangliae</i>	FE	Seasonal migrant
Pacific Right Whale <i>Balaena glacialis japonica</i>	FE	Rare seasonal migrant
Sperm Whale <i>Physeter macrocephalus</i>	FE	Rare seasonal migrant
Double-Crested Cormorant <i>Phalacrocorax auritus</i>	SSC	Breeding

Table 4.11-5 Continued

Common and Scientific Name	Legal Status ^a	Occurrence
Caspian Tern <i>Sterna caspia</i>	*	Breeding
Forster's Tern <i>Sterna forsteri</i>	*	Breeding
Marbled Murrelet <i>Brachyramphus marmoratus</i>	FPT, SE	Breeding
Rhinoceros Auklet <i>Cerohinea monocerata</i>	SSC	Breeding
Tufted Puffin <i>Fratercula cirrhata</i>	SSC	Breeding
Common Loon <i>Gavia immer</i>	SSC	Nonbreeding resident/visitor
Western Grebe <i>Aechmophorus occidentalis</i>	*	Nonbreeding resident/visitor
California Brown Pelican <i>Pelecanus occidentalis californicus</i>	FE, SE	Nonbreeding resident/visitor
California Gull <i>Larus californicus</i>	SSC	Nonbreeding resident/visitor
Elegant Tern <i>Sterna elegans</i>	C2, SSC	Nonbreeding resident/visitor
Xantus' Murrelet <i>Synthliboramphus hypoleucus</i>	*	Nonbreeding resident/visitor
Ashy Storm-Petrel <i>Oceanodroma homochroa</i>	SSC	Nonbreeding resident/visitor
Laughing Gull <i>Larus atricilla</i>	SSC	Seasonal migrant
California Least Tern <i>Sterna antillarum browni</i>	SE, FE	Seasonal migrant
Short-Tailed Albatross <i>Diomedea albatrus</i>	FE	Rare visitor
Black Skimmer <i>Rynchops niger</i>	SSC	Rare visitor
Green Turtle <i>Chelonia mydas</i>	FE	Rare visitor
Leatherback Turtle <i>Dermochelys coriacea</i>	FE	Rare visitor

Table 4.11-5 Continued

Common and Scientific Name	Legal Status ^a	Occurrence
Pacific Ridley Turtle <i>Lepidochelys olivacea</i>	FE	Rare visitor

^a Status explanations (see the "Definitions of Special-Status Species" section above for citations):

FE = listed as endangered under the federal Endangered Species Act.

FT = listed as threatened under the federal Endangered Species Act.

C2 = Category 2 candidate for federal listing. Category 2 includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status. Species that are possibly extinct are indicated with an asterisk (*). Category 2 species are not necessarily less rare, threatened, or endangered than Category 1 species or listed species; the distinction relates to the amount of data available and is therefore administrative, not biological.

SE = listed as endangered under the California Endangered Species Act.

ST = listed as threatened under the California Endangered Species Act.

FPT = proposed as threatened by the federal government.

SSC = California state species of special concern.

* = Taxa that fall into one or more of the following categories: taxa that are biologically rare, very restricted in distribution, or declining throughout their range; populations in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California; taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old-growth forests).

4.11.4 Vegetation Management Programs

Fire management and livestock grazing are used to manage vegetation at Fort Ord. These activities can change habitat conditions for vegetation and wildlife on the installation.

4.11.4.1 Fire Management

Fire management includes maintenance of fuel breaks and fire roads, controlled burning, and fire suppression. Fuel and fire breaks are maintained over the entire installation. Maintaining fuel breaks results in conditions that provide favorable habitat for species that require early successional stages, such as sand gilia and Monterey spineflower. Prescribed burning is primarily used in the inland range area to reduce fuel levels before training exercises. These activities result in favorable habitat conditions for most chaparral

species that are adapted to periodic disturbance from fires. The mosaic of sites of different successional stages (i.e., different ages from the last burn) favors special-status plants that thrive in young and intermediate-aged stands, such as sandmat manzanita, Hooker's manzanita, Eastwood's ericameria, and Monterey ceanothus. The mosaic of successional stages resulting from fire management practices also improves habitat value for many wildlife species.

4.11.4.2 Livestock Grazing

Approximately 7,500 acres are leased for sheep grazing in the grasslands in the southeastern portion of Fort Ord. Approximately 2,700 head of sheep graze this area between February and June. Grazing leases are selected through a sealed bid process, with the lease awarded to the highest bidder. The annual lease fee is based on grazing capacity of the range.

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Document # BW-1348

Figure 4.11-3
 Known Distribution of Sand Gilia (*Gilia tenuiflora* ssp. *arenaria*) at Fort Ord

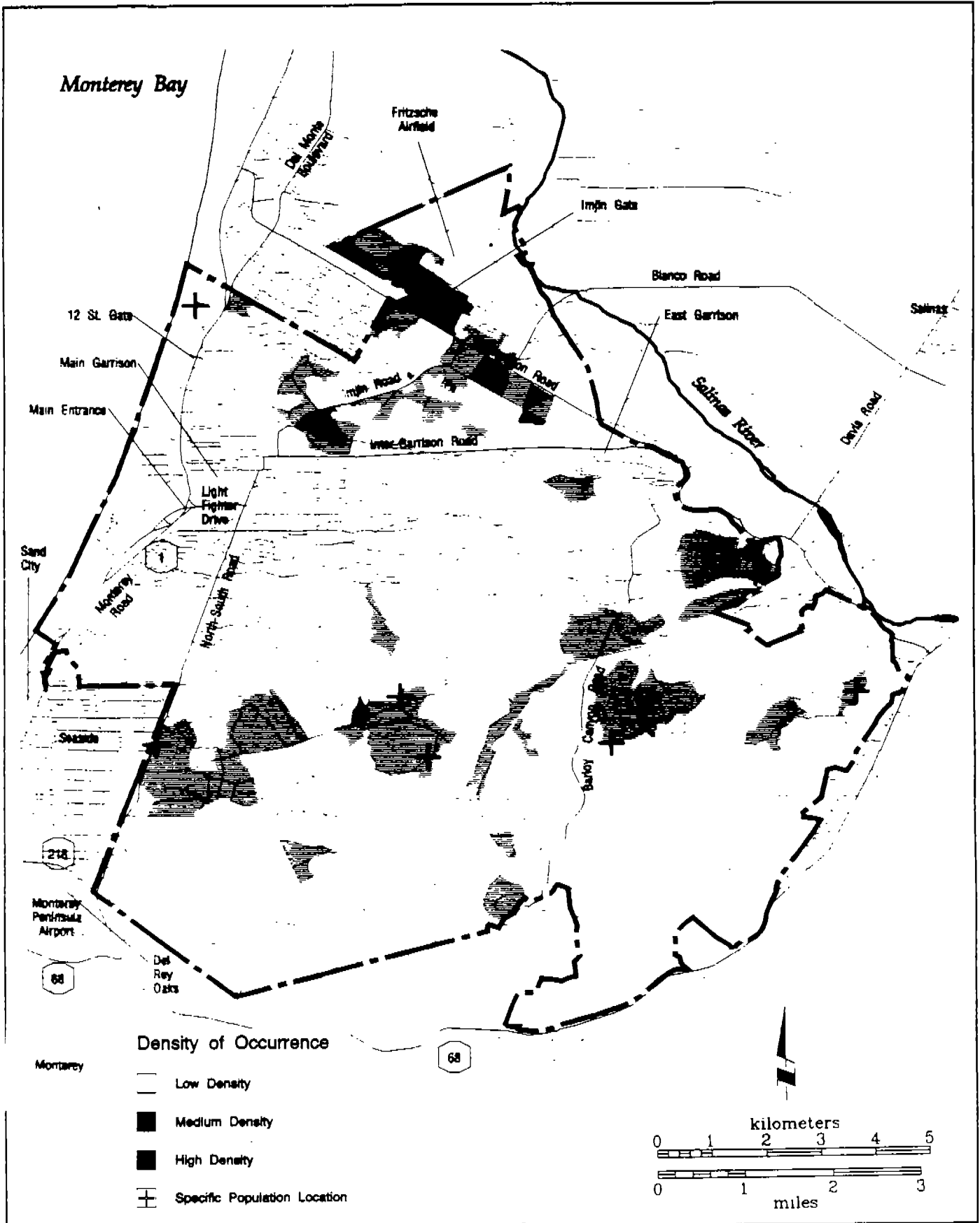


Figure 4.11-4
 Known Distribution of Sand Gilia (*Gilia tenuiflora* ssp. *arenaria*) near Fort Ord

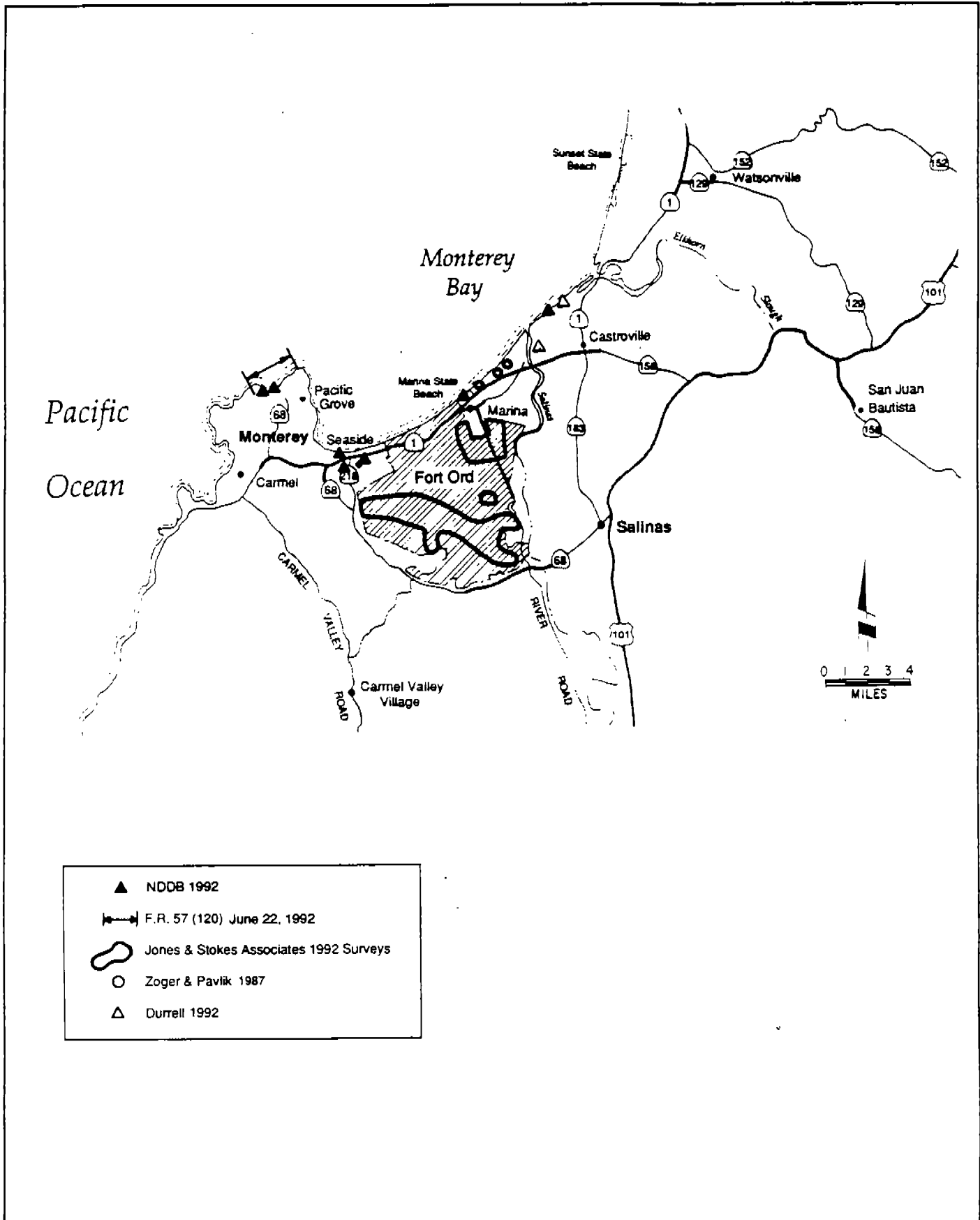


Figure 4.11-5
 Known Distribution of Monterey Spineflower (*Chorizanthe pungens* var. *pungens*)
 at Fort Ord

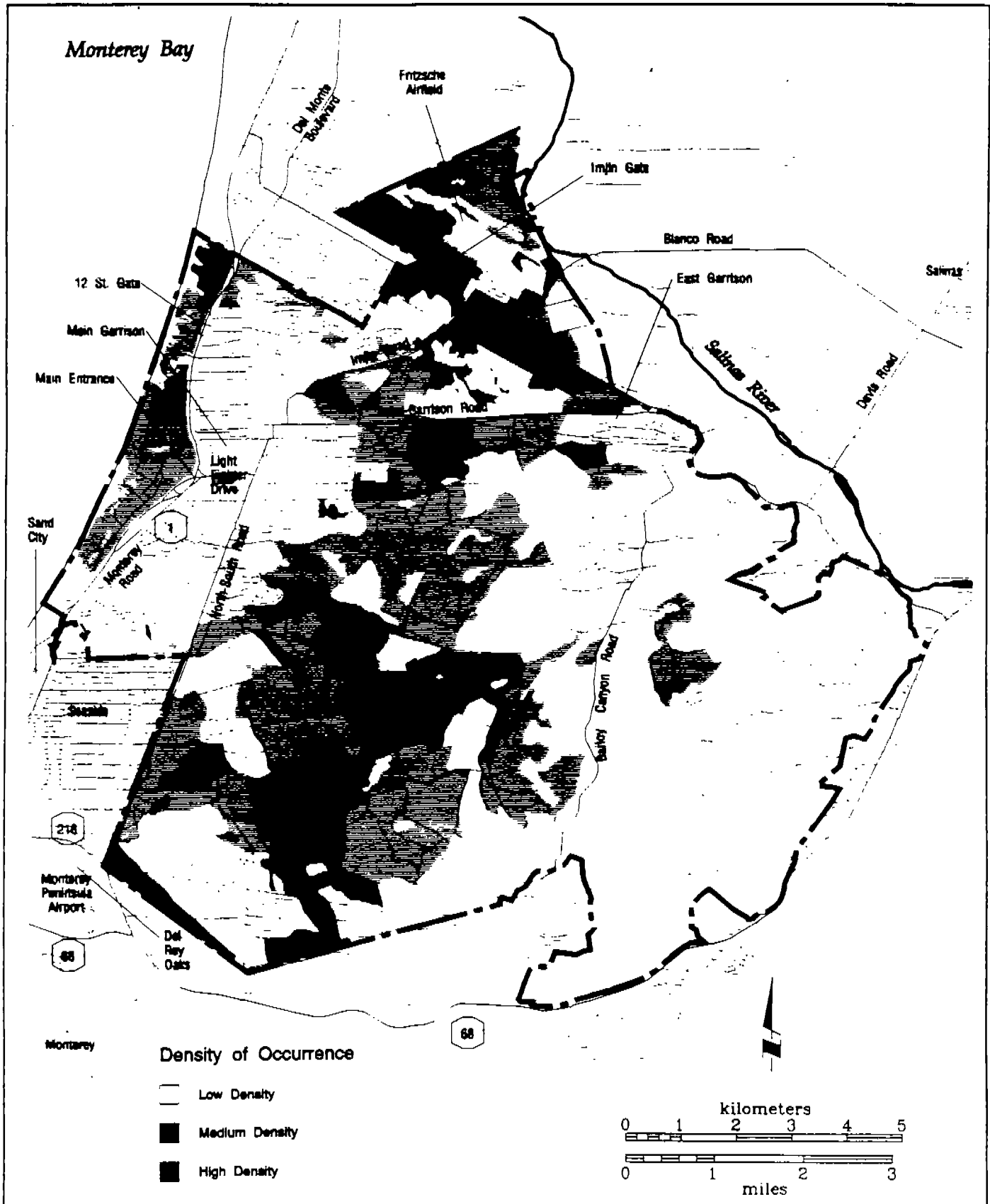


Figure 4.11-6
 Known Distribution of Monterey Spineflower
 (*Chorizanthe pungens* var. *pungens*) near Fort Ord

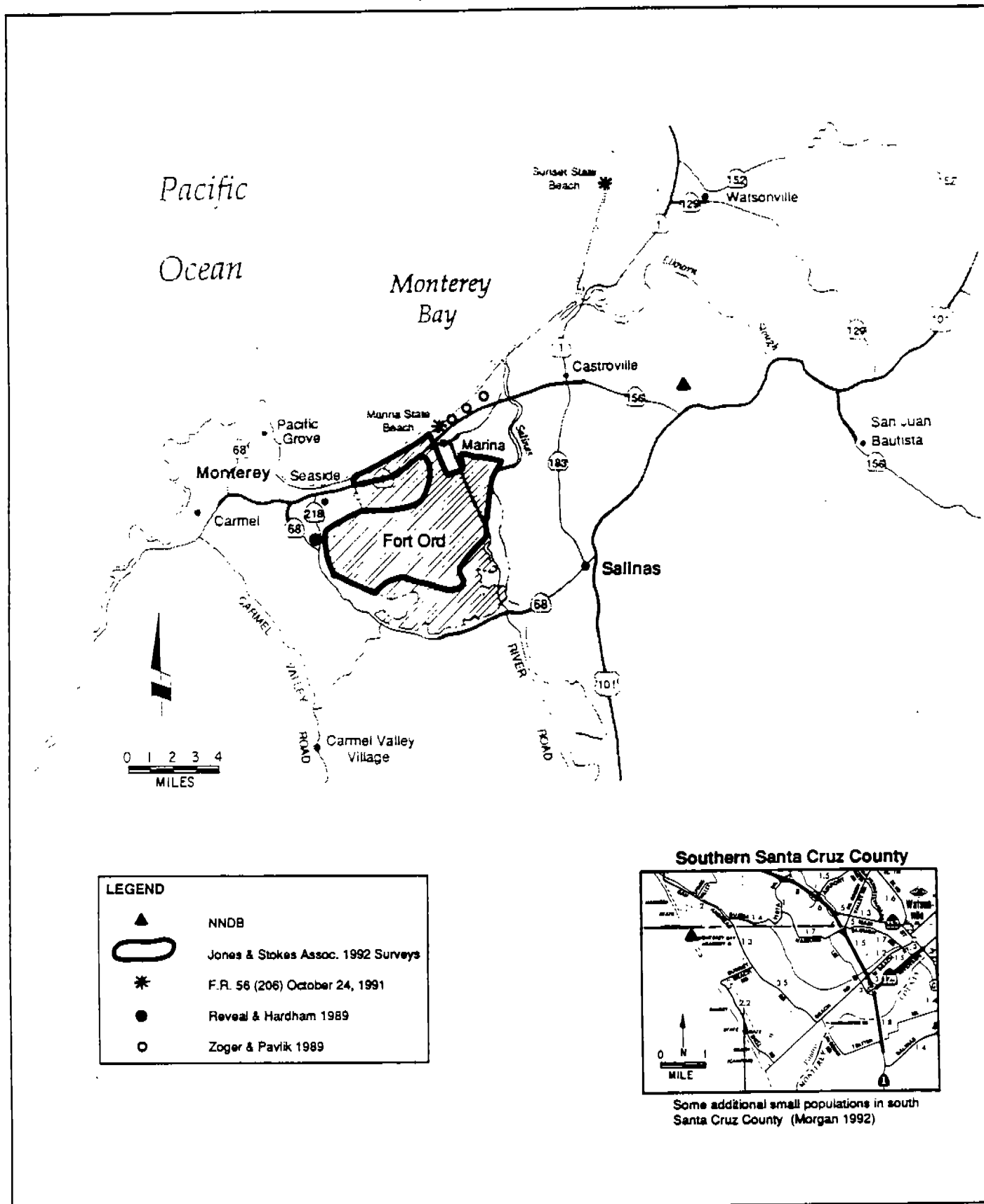


Figure 4.11-7
 Known Distribution of Robust Spineflower (*Chorizanthe robusta* var. *robusta*)
 at Fort Ord

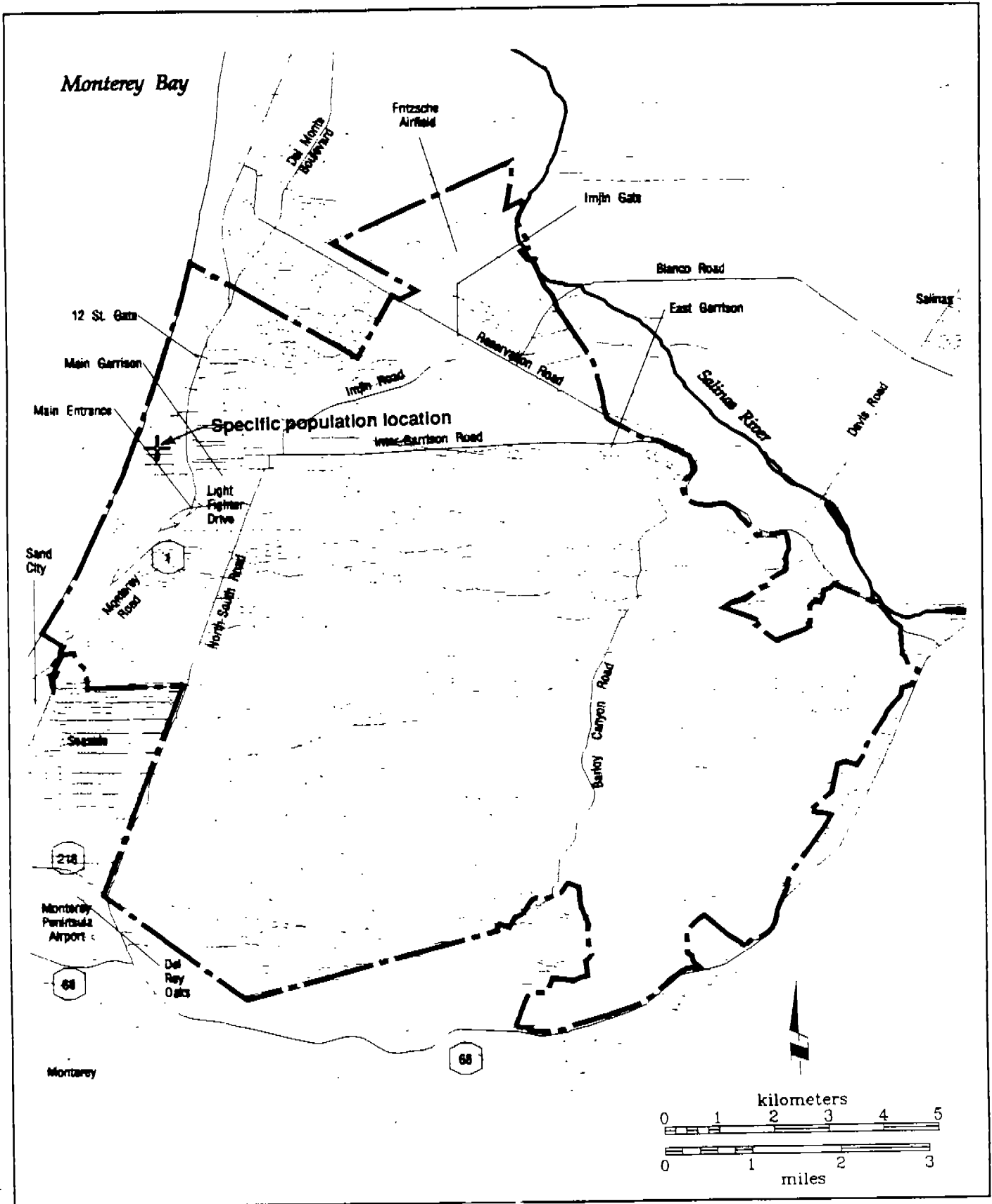
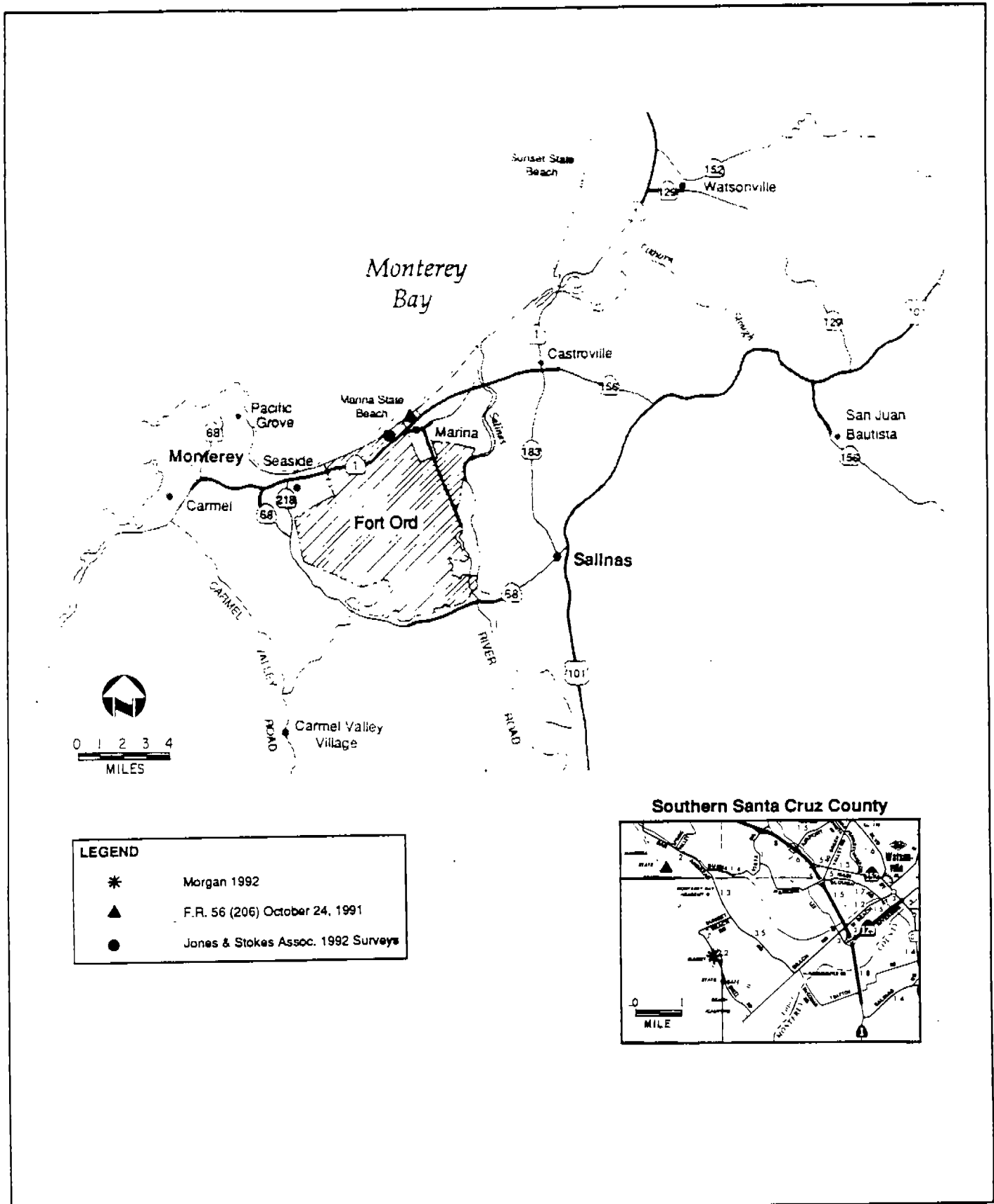


Figure 4.11-8
 Known Distribution of Robust Spineflower (*Chorizanthe robusta* var. *robusta*)
 near Fort Ord



LEGEND	
*	Morgan 1992
▲	F.R. 56 (206) October 24, 1991
●	Jones & Stokes Assoc. 1992 Surveys

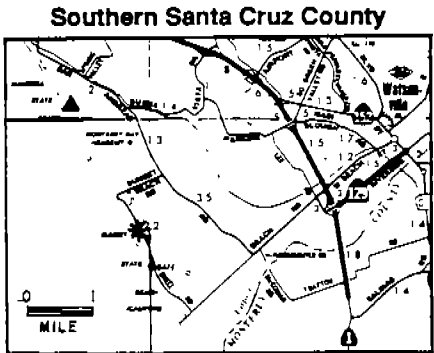


Figure 4.11-9
 Known Distribution of Seaside Bird's-Beak (*Cordylanthus rigidus* var. *littoralis*)
 at Fort Ord

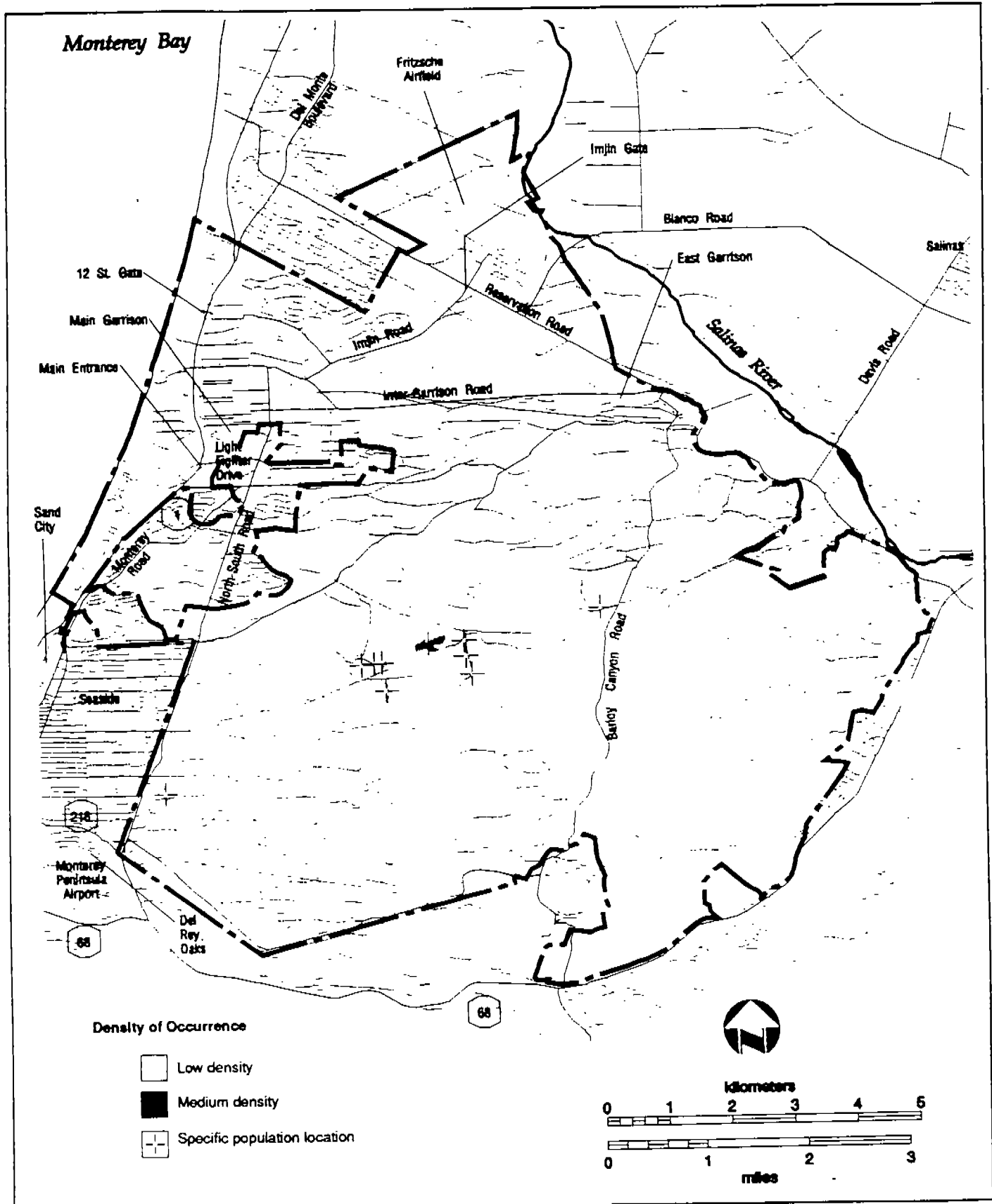
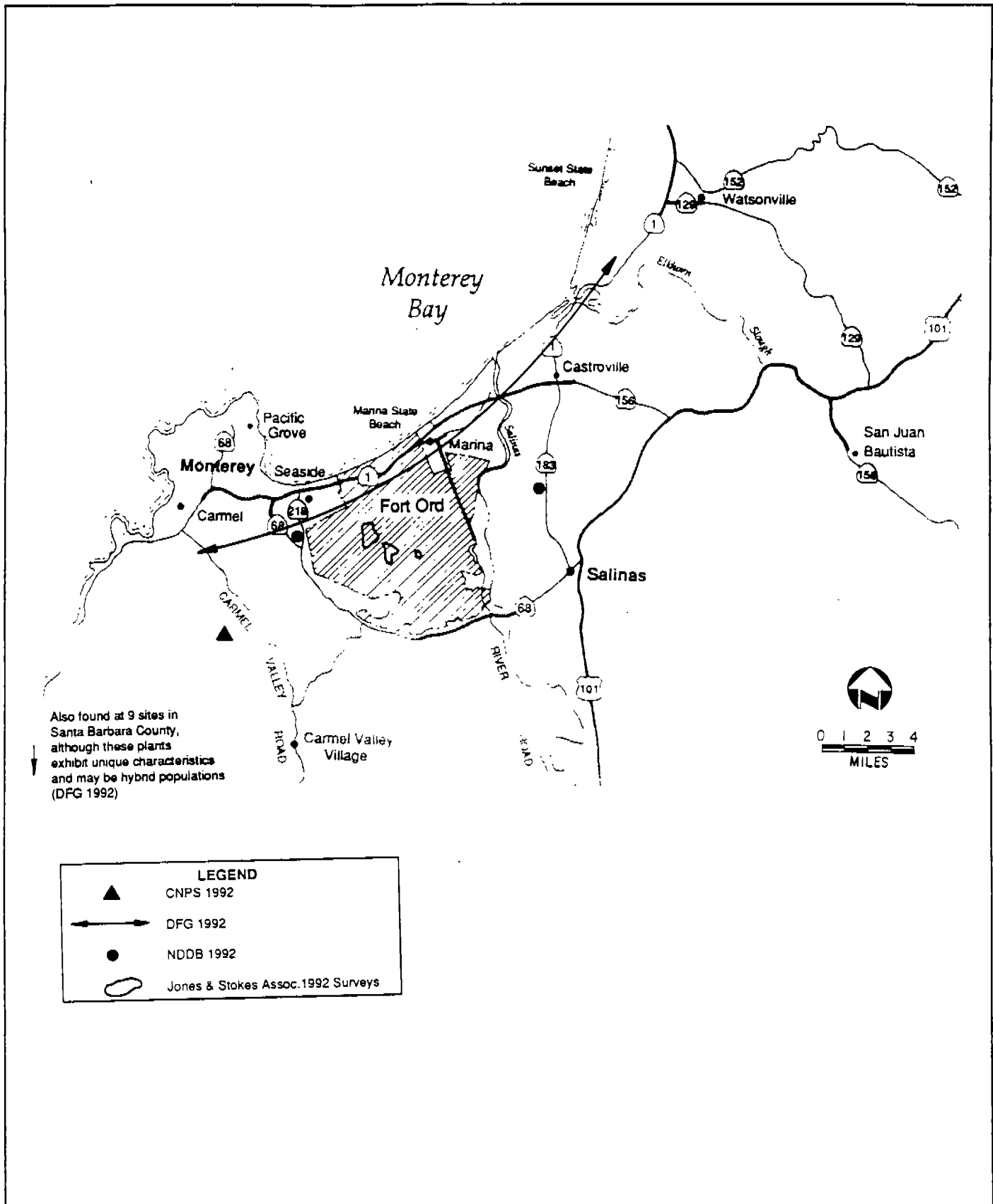


Figure 4.11-10
 Known Distribution of Seaside Bird's-Beak (*Cordylanthus rigidus* var. *littoralis*)
 near Fort Ord



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Figure 4.11-12
 Known Locations of Plant and Butterfly Reserve Areas at Fort Ord

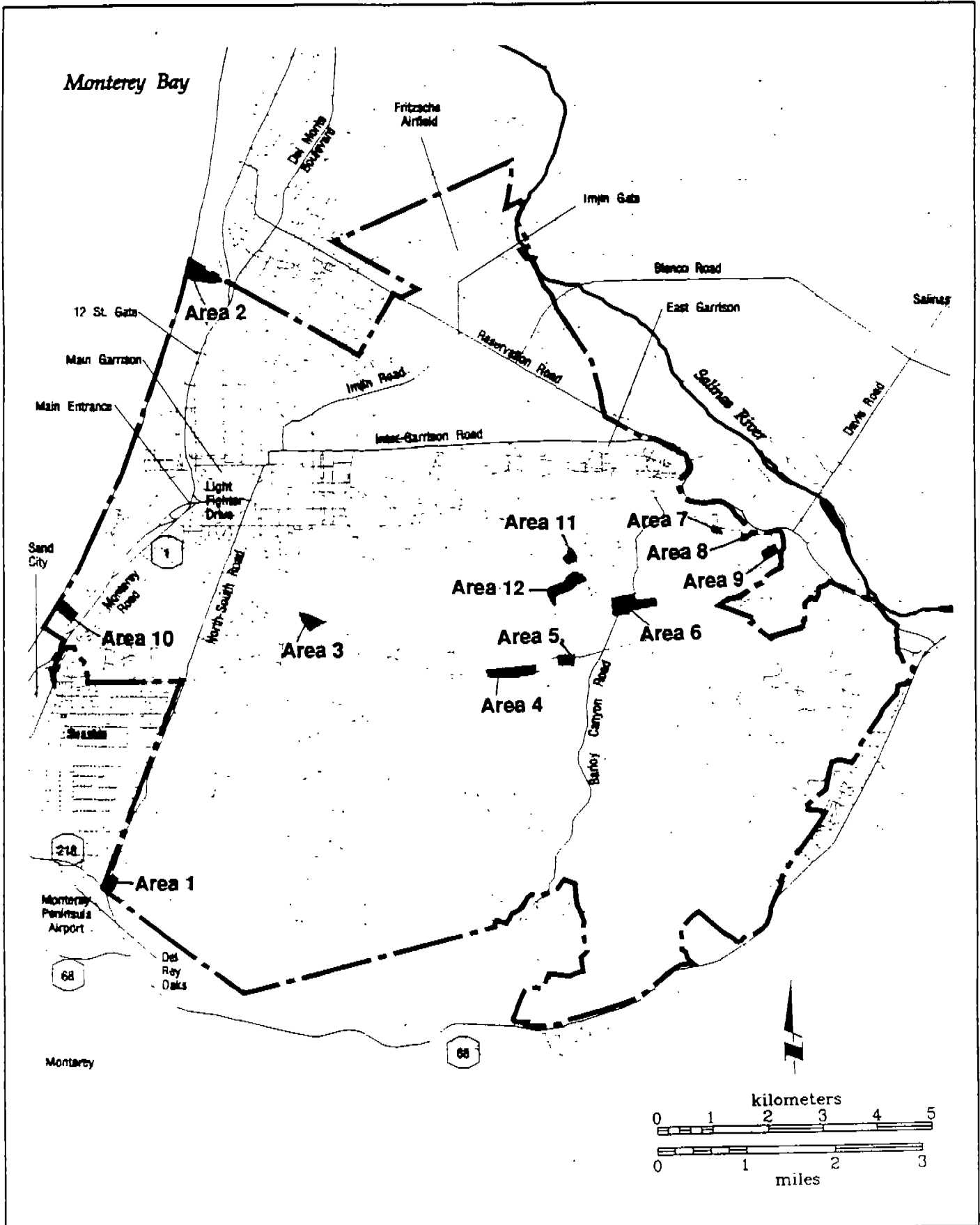
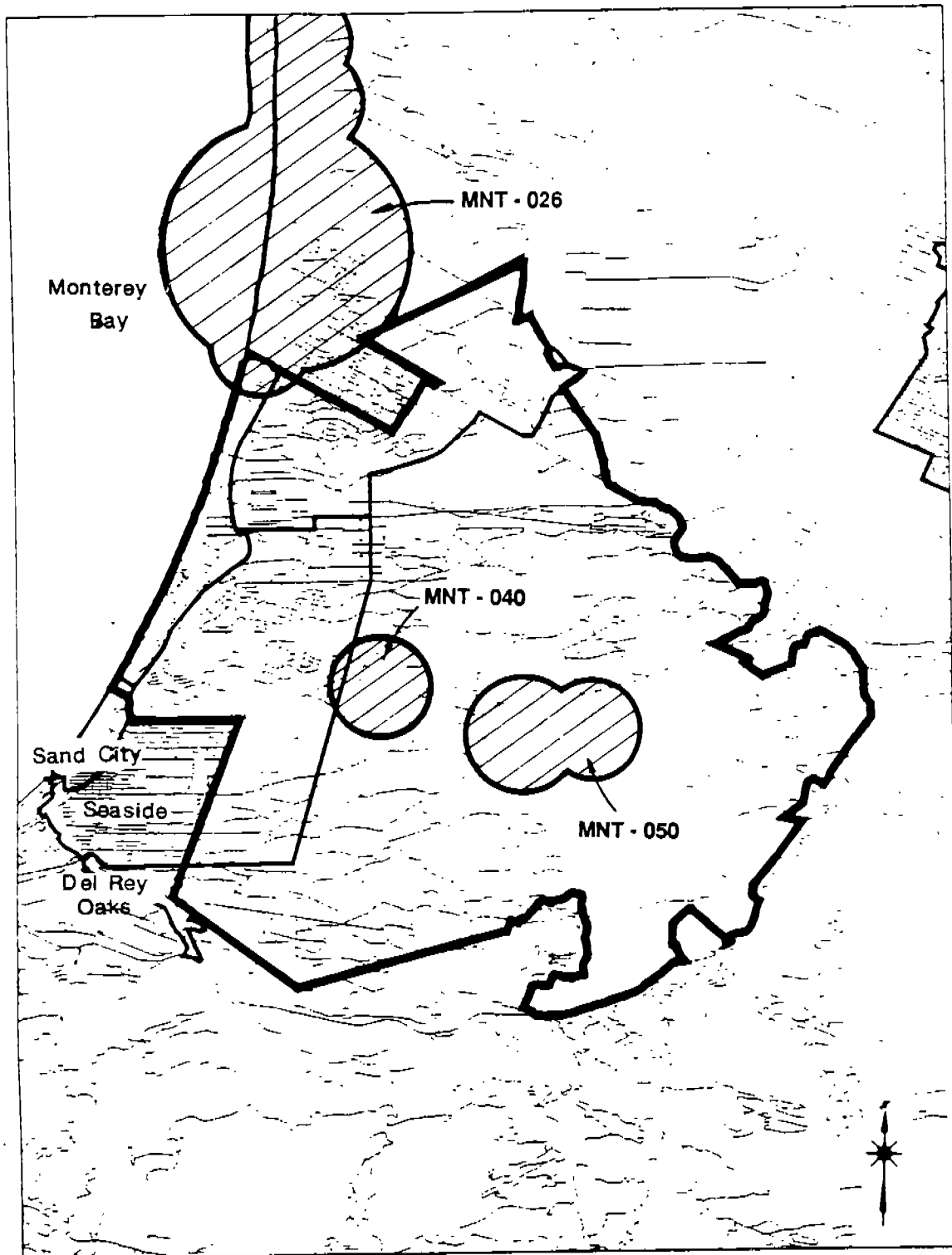


Figure 4.11-13
General Locations of Significant Natural Areas at Fort Ord

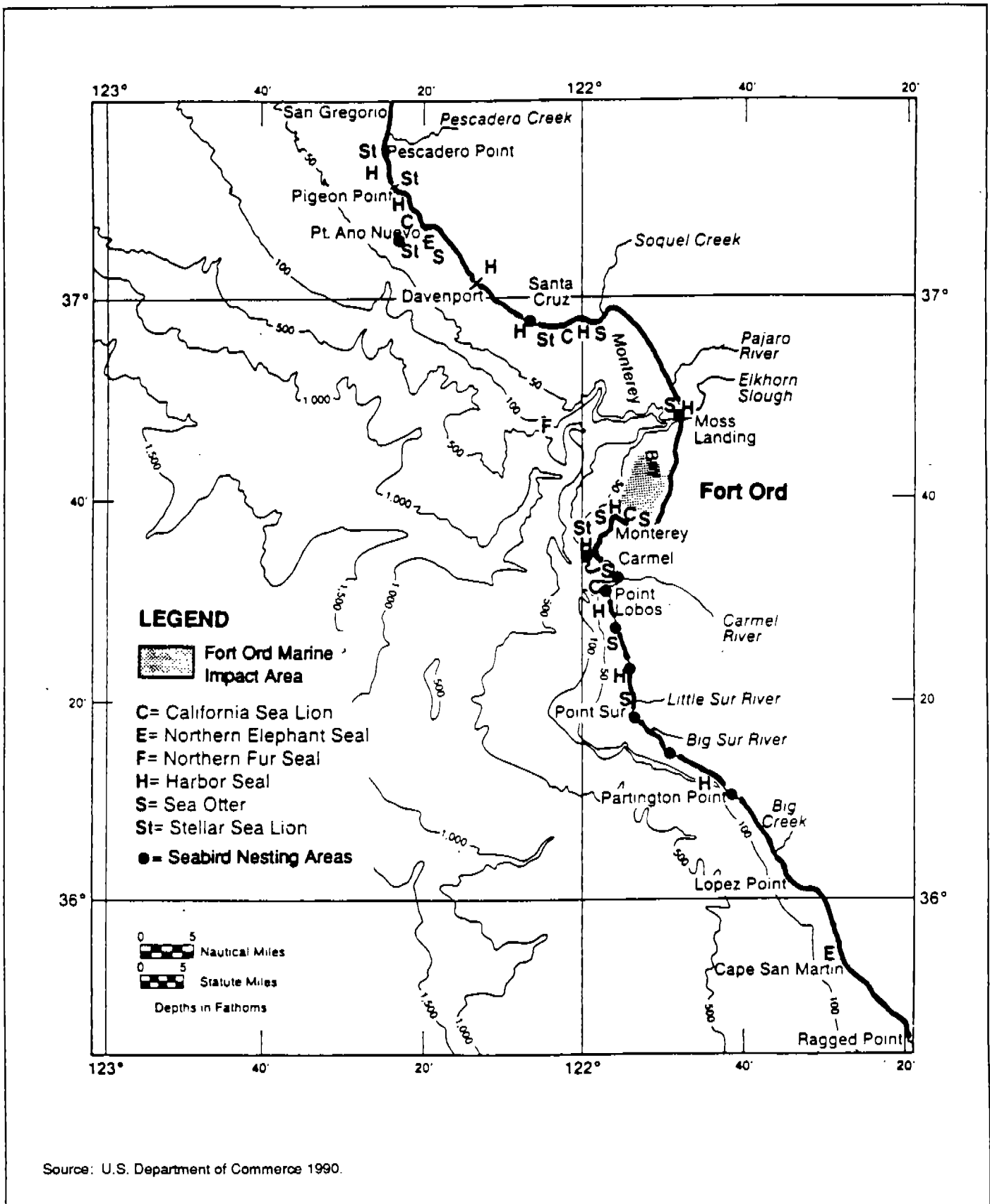


MNT - 026, MNT - 040, MNT - 050 = California Department of Fish and Game designation numbers for significant natural areas in Monterey County

Source: Natural Diversity Data Base 1992.

Figure 4.11-14

Principal Sea Otter, Seal, and Sea Lion Areas of Concentration and Seabird Nesting Areas in Monterey Bay Area



4.12 VISUAL RESOURCES

4.12.1 Introduction

This section incorporates by reference information from the Other Physical Attributes Baseline Study of Fort Ord, California, which is available at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992e). In addition, information has been generated using geographic information system computer technology. This information is a refinement of baseline study information on the visibility, visual quality, and visual sensitivity of the affected environment for Fort Ord.

The approach for analyzing visual resources for the affected environment of Fort Ord is based on principles and established procedures developed and used by federal agencies including the Federal Highway Administration (1983), the U.S. Army Corps of Engineers (U.S. Army Corps of Engineers 1984, Smardon et al. 1986), the U.S. Bureau of Land Management (1980), the U.S. Soil Conservation Service (1978a), and the U.S. Forest Service (1974).

Figures 4.12-1 through 4.12-3 are located at the end of this section.

4.12.2 Methodology

The methodology for analyzing visual resources involved collecting visual resources information for the region and study area for Fort Ord, identifying the visual character of the region and study area, identifying important zones of visibility for the study area, identifying the visual quality of Fort Ord's physical resources, and evaluating visual sensitivity of Fort Ord based on combining data for visual resource quality and visibility. Data on visual resources were collected using ground-level field reconnaissance and interpretation of topographic maps, aerial photography, and general site photographs and videotape.

Defining regional visual character provides a frame of reference for identifying the visual character and quality of the study area. Visual character for the region and study area is described using Federal Highway Administration methodology and terminology (Federal Highway Administration 1983).

Vividness refers to the visual power or memorability of landscape components as they combine in visual patterns. Intactness refers to the visual integrity of the natural and built landscape and its freedom from encroaching elements; this factor applies in urban and rural settings, as well as more natural landscapes. Unity refers to the visual coherence and compositional harmony of the landscape considered as a whole and frequently attests to the careful design of individual components in the artificially made landscape. (Federal Highway Administration 1983.) Distance zones refer to divisions of a particular landscape viewshed based on the spatial separation between observer and subject (U.S. Army Corps of Engineers 1984). Distance zones are generally categorized as foreground, middleground, and background, with precise distances for each zone varying with terrain and atmospheric and other conditions (U.S. Forest Service 1974, U.S. Bureau of Land Management 1980). Visibility refers to the geographic extent and legibility of features of a visual resource that can be seen by an observer from a particular location (U.S. Army Corps of Engineers 1984).

Important zones of visibility (Figure 4.12-1) were identified for the study area by identifying all areas visible from primary and secondary roads. The area of Monterey Bay located about 1/2-2 miles from the Fort Ord shoreline was also identified as an area with important views of Fort Ord. Views from the bay are considered important because of the bay's high use by recreationists and status as a national marine sanctuary. Important areas of Fort Ord visible from the bay extend inland approximately 2 miles from the coastline. Distance zones were identified from the various roads, with the foreground zone identified as

0-1/2 mile from the viewing location and the middleground zone identified as 1/2-3 miles from the viewing location. These distance zones are derived from criteria developed by the U.S. Forest Service (1974) and used at the Los Padres National Forest (a portion of which is located in Monterey County 15 miles south of Fort Ord) and other national forests throughout the nation. These distance zone criteria are appropriate to apply at Fort Ord based on the generally high level of visibility of landscape features in the region and study area. Visibility was identified using only available topographic data; tall vegetation and small changes in relief could screen views from portions of viewing locations.

The visual quality of Fort Ord's physical resources (Figure 4.12-2) was identified by evaluating the visual quality of attributes of land cover (Table 4.12-1). Visual quality ratings for land cover types for Fort Ord were identified as high, moderate, or low based on an assessment of the visual characteristics of dominant vegetation cover, land use, topography, surface water, and structures of scenic importance. Visual quality ratings were identified for each land cover type based on its relative degree of vividness, intactness, and unity; relative scarcity in the region and study area; native plant species composition; and distinctiveness with regard to topographic features and constructed elements.

Table 4.12-1. Visual Quality Ratings for Land Cover Types at Fort Ord

Land Cover Type	Visual Quality Rating
Beaches, Bluffs, and Blowouts	High
Disturbed Dunes	Medium
Native Coastal Strand	High
Dune Scrub	High
Ice Plant Mats	Medium
Maritime Chapparral	High
Coastal Scrub	High
Coast Oak Woodland	High
Inland Oak Woodland	High
Oak Savanna	High
Annual Grassland	Low
Mixed Riparian Forest	High
Vernal Pools	High
Ponds and Freshwater Marsh	High
Oak Riparian Forest	High
Perennial Grassland	Medium
Golf Course	Medium
Important Historic Structures	
East Garrison	High
Stilwell Hall	High
Martinez Hall	High
Other Developed Areas	Low

Visual sensitivity (Figure 4.12-3) was determined by combining information on visibility and visual resource quality. Generally, areas visible from and within 3 miles of important viewing locations and are of high to moderate visual quality are ranked as having high to moderate visual sensitivity, and areas more than 3 miles from important viewing locations are ranked as having low visual sensitivity. Cultural resources (e.g.,

Stilwell Hall and Martinez Hall) of scenic importance are ranked as having high visual sensitivity regardless of their distance from important viewing locations. The visual sensitivity analysis indicates that most of the perimeter and virtually all of the coastal portions of Fort Ord are highly sensitive. Maps of important viewsheds (i.e., seen areas) and visual sensitivity for the study area were generated using GIS technology.

Various state and local government policies that address the visual resources of Fort Ord and the surrounding region are listed below. These policies address the importance of protecting and carefully managing the visual resources of lands that include portions or all of Fort Ord.

California Coastal Act of 1976 planning and management policies applicable to the Fort Ord coastal zone are contained in Appendix C of the Land Use Baseline Study (U.S. Army Corps of Engineers, Sacramento District 1992b). Section 30251 of the coastal act, "Scenic and Visual Qualities", states:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Preservation and Recreation Plan by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Various goals, objectives, and policies of the Monterey County General Plan (Monterey County 1982) address the importance of preserving unique and important visual resources and the visual character of the county. Goals, objectives, and policies for preserving visual resources are identified in the plan in sections for open space conservation (Goal 1, Objective 1.1, Policy 1.1.2), general land use (Policies 26.1.5, 26.1.6, 26.1.8, 26.1.9, 26.1.10, and 26.1.12), watershed areas (Goal 35), scenic highways (Goal 40; Objectives 40.1, 40.2, and 40.3; Policies 40.1.1, 40.2.1, 40.2.2, 40.3.1, and 40.3.2), park and recreation facilities (Goal 51), and public utilities (Objective 56.2, Policies 56.2.1 and 56.2.2).

4.12.3 Visual Resources and Character

4.12.3.1 Region

Fort Ord is located in a region of diverse, sensitive, and high-quality visual resources. The region contains some of the most vivid and important aesthetic images in California: the Monterey Peninsula, with its rocky cliffs and shores, windswept cypress trees, cove beaches, rolling sand dunes, Fisherman's Wharf, Cannery Row, and mission; Monterey Bay, with its changing colors, sunsets, sailboats, fishing boats, and migrating whales; the broad pastoral and scenic Salinas Valley, with its agricultural fields, meandering streams and river, and shifting fog; and rugged coastal hills and ranges, with their steep slopes and drainages and diverse patterns of oak woodlands, chaparral, and grasslands.

Fort Ord contributes substantially to the region's highly valued visual character and quality. It provides a major area of open space and has a mostly natural appearance and unified development character. The high visual quality, visibility, and sensitivity of its coastal and other areas contribute substantially to the region's character and quality.

In recognition of the aesthetic importance of the region, the State of California and Monterey County have designated some roads and highways as scenic and the county has identified some areas as highly visually sensitive. Roads are the principal vantage points from which tourists, recreationists, and residents view the diversity of visual environments in the region. Views from roads are an important means by which

people gain their impressions of an area. The bay also is an important vantage point for viewing the region because of its status as a national marine sanctuary and because of high use by recreationists and tourists.

4.12.3.2 Study Area

Fort Ord's visual character is comprised of its visual uniqueness within its regional setting, visual sensitivity, and visual quality. Within its regional context, much of Fort Ord is visually unique because it contains vast areas of natural and diverse vegetative cover, its shoreline appears relatively undisturbed, and it is mostly undeveloped. Most of the installation's development, largely confined to the Main and East Garrisons and associated residential areas, consists of one- or two-story buildings. Mature landscaping surrounding these buildings partially conceals them from view, softens their appearance by helping blend them with their surroundings, and contributes to the natural character of the landscape. With the exception of a few areas near SR 1 and in the north and northeast portions of the study area, Fort Ord appears preserved as a vestige natural area surrounded by intensively farmed land and increasing urban development.

Important zones of visibility for the Fort Ord area include viewsheds from primary and secondary roads and the area of Monterey Bay located about 0.5-2 miles from the installation's shoreline. Primary roads in the Fort Ord study area are heavily used by tourists and recreationists and include SR 1, a proposed state scenic highway, and state-designated scenic highway SR 68. Views from SR 1 include expansive, highly vivid, and intact views of Monterey Bay; important views of adjacent coastal dunes and shoreline; views of Stilwell Hall; and views of developed lands mostly east of the highway. Views of Fort Ord from SR 68 generally consist of low, rolling hills and moderately steep slopes covered mostly with grazed annual grasslands interspersed with areas of oak woodland and riparian vegetation. Secondary roads include important paved roads within and near Fort Ord that are traveled most often by local area workers and residents. Views from Fort Ord's secondary roads include views of developed areas, such as the Main and East Garrisons; residential areas; and hillsides covered with maritime chaparral, oak woodlands, and savanna, which characterize most of the installation's interior. Views of Monterey Bay from Fort Ord range from expansive vistas encompassing the Monterey Peninsula to distant views of the bay meeting the western horizon. High-quality, expansive views of Monterey Bay and the Fort Ord coastline can be seen best from Stilwell Hall and the tops of the coastal dunes.

Factors that contribute to Fort Ord's high visual quality are its strong characteristics of vividness, intactness, and unity. Vividness of the study area, particularly when viewed from the Salinas Valley; the bay; and heavily used tourist areas, such as Fisherman's Wharf in Monterey, is high because of its generally undeveloped appearance in contrast to nearby developed urban areas. The study area exhibits a high level of visual intactness because of its extensive natural vegetation cover and generally low amount of development; few constructed elements encroach on its natural character. Although some built elements (e.g., the Silas B. Hays Army Community Hospital and water towers) contrast strongly in form with other elements in the Fort Ord landscape, the visual unity of the study area is high. Constructed elements are generally consistent in architectural style, low in height, and surrounded by a nearly continuous cover of mature vegetation that helps blend the elements with their surroundings; these factors combine to produce a high degree of visual coherence and the appearance of compositional harmony of individual components within the study area as a whole.

Much of Fort Ord is visually sensitive because large portions of it are of high visual quality and are highly visible from surrounding areas and features of importance (e.g., residences, roads, tourist areas, and the bay). The bay and nearby beaches and visitor attractions afford important views of Fort Ord's visually sensitive beaches, sand dunes, coastal bluffs, and interior hills. Important views of the study area are gained from the south and east from SR 68 and from the west from SR 1, and much of the study area is visible from important secondary travel routes. In addition, Fort Ord is a highly important visual resource for the region because it is a large, relatively undeveloped area that is highly intact and vivid.

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Document # BW-1348

4.13 CULTURAL RESOURCES

4.13.1 Base Realignment and Closure Programmatic Agreement

Since Fort Ord has not yet finished its installation inventory of National Register eligible properties and it is not possible to complete this inventory within the time frame of this EIS, the Army will utilize the provisions of a programmatic agreement concluded in anticipation of this situation. The following paragraphs describe how the Army will meet the requirements of the National Historic Preservation Act for this Base Realignment and Closure (BRAC) action.

A Programmatic Agreement was executed on 17 July 1992 between the Department of the Army, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers concerning investigations of cultural resources associated with BRAC activities (Appendix P in Volume III). This agreement allows the Army to complete analysis and documentation required by the National Environmental Policy Act (NEPA), when necessary, for BRAC actions prior to fulfilling its responsibilities under the National Historic Preservation Act of 1966, as amended (NHPA).

The agreement does not relieve the Army of its NHPA obligations. In those instances where it is infeasible to complete the actions required by Sections 106 and 110(f) of the NHPA prior to the NEPA decision, the Army will stipulate in the Finding of No Significant Impact (FONSI) or the Record of Decision (ROD) the specific areas of non-compliance. The FONSI or ROD will further specify that new BRAC construction, renovation, land disposal, or training exercises will not be undertaken until the actions necessary to inventory, assess, and take into account the effects on historic properties have been completed consistent with the terms of the Programmatic Agreement.

4.13.2 Background

Archeological evidence and radiocarbon dates establish human occupation of the California Coast dating back at least 10,000 years. Evidence from coastal areas of Monterey County suggests settlement of this area by at least 5,000 B.C., and possibly earlier. Two major patterns have been defined archeologically which describe the cultural sequence. The Sur Pattern, which probably represents Hokan speaking, proto-Esselen peoples, is first seen archeologically dating to 5,000 B.C. This pattern persisted until about 500 B.C. when the Monterey Pattern made its appearance. The two patterns are differentiated predominately by changes in their subsistence strategies. It has been suggested that the Monterey Pattern represents the appearance of proto-Coastanoan peoples, which either displaced or absorbed the earlier proto-Esselen foragers. The Monterey Pattern persists up to the Historic Period.

Fort Ord is located within lands historically occupied by the Rumsen Indians. This group, which may have numbered only 800 individuals before Euro-American contact, inhabited the southern half of Monterey Bay, the Monterey Peninsula, Carmel Bay and some of Carmel Valley, and the coastal area south to Big Sur. The Rumsen belonged to a branch of the Costanoan (or Ohlone) language family. Their sociopolitical organization was based on the triblet, each of which consisted of a primary village and several satellite settlements. The triblet center closest to Fort Ord was located at present day San Carlos. Rumsen/Ohlone traditional lifeways were largely destroyed when Euro-Americans began colonizing their territory in the 1770s. The introduction of foreign disease and the effects of acculturation severely reduced their populations.

European contact began with the arrival of Spanish explorers in the 16th century. However, it was not until 1770 that the Portola expedition arrived in Monterey Bay and established the first mission and Royal Presidio. In 1771, the Mission was moved to the Carmel Valley, 5 miles to the south, adjacent to arable land. With the Mission, a period of intense Native American conversion to Catholicism was initiated. By 1778, most of the Rumsen and Esselen Indians in Carmel and Monterey were baptized and settled around the Mission to farm church lands. This resettlement marks the beginning of the disintegration of Native American traditional lifeways in this area.

In 1820, Mexico gained independence from Spain, and a period of secularization ensued. The remaining Indian groups were employed as ranch hands and domestic servants, and by 1840, the Mission was in a state of ruin. Many Indians returned to pre-Spanish food collecting and hunting practices. Some hunted livestock instead of native elk and antelope, and were punished severely as livestock thieves. Whole triplets disappeared from this interaction. With the arrival of Anglo settlers, this process was accelerated as competition for land increased. By the turn of the century, vestigial Indian communities disappeared, and by 1935 the Ohlone language was extinct.

Fort Ord was created in 1917 from land designated as City of Monterey Tract No. 1 and several ranches. The installation was originally called Gigling Reservation and was a subinstallation of the Monterey Presidio. The reservation was renamed Camp Ord in 1933 after Major General Edward Ord, an important figure in California military history.

During the early years, the reservation was used to drill the 11th Cavalry which was stationed at the Presidio of Monterey. Before 1938, the only improvements at Camp Ord were a caretaker's house and a few bivouac sites. Beginning in 1940, many facilities were built at Camp Ord using funds from the Work Progress Administration, these include the East Garrison buildings and Stilwell Hall. In that same year the camp was renamed Fort Ord and the 7th Infantry Division was reactivated and stationed there. After the Japanese attack on Pearl Harbor, Fort Ord was expanded and construction increased dramatically. Fort Ord was an important staging area for units deployed to the Pacific theater of operations during World War II and was used as a processing center for deactivated personnel when the war ended. During the Korean War, Fort Ord was used primarily as a basic and advanced training facility. In 1953, the areas of Camp Roberts and Hunter Liggett were placed under the command of Fort Ord as subinstallations. Fort Ord has been an active military installation for the housing and training of Army troops since its reactivation just before World War II.

4.13.3 Summary of Fort Ord Cultural Resource Investigations

Fort Ord does not have a Historic Preservation Plan for the management and inventory of its cultural properties. The inventory of Fort Ord cultural properties is incomplete at this time. At present Fort Ord has no agreements with the California State Historic Preservation Officer (SHPO) or the Advisory Council concerning the management of cultural resources.

Three archeological surveys have been conducted within the boundaries of Fort Ord (A. S. Peak and Associates 1978; Johnson 1975; Swernoff 1982). The Swernoff survey examined the largest area, 1047.5 acres, and made preliminary recommendations on high, medium, and low probability areas for prehistoric site locations. Only two archeological sites, CA-MNT-416 and CA-MNT-933H, have been located on Fort Ord by these surveys.

A cultural resource overview was conducted of Fort Ord in 1980 by Zahnizer and Roberts. This study identified several historic resources that were recommended as being potentially eligible for listing in the National Register. These included Whitcher Cemetery, Stilwell Hall, Martinez Hall, and the East Garrison Mess Hall complex. Swernoff (1982) also recommended Stilwell and Martinez Halls and 11 of the East Garrison Mess Hall buildings as being potentially eligible for the National Register. No formal determinations of eligibility were made for these resources.

After determining that many of the World War II temporary buildings across the country mandated for removal by Congress were eligible for listing in the National Register, the DOD entered into a Programmatic Agreement with the Advisory Council and the National Conference of State Historic Preservation Officers in 1986 (Appendix P in Volume III). In compliance with this agreement the DOD has conducted studies to document the World War II mobilization and construction effort. The Programmatic Agreement was amended in 1991 to extend its expiration date. The Fort Ord World War II temporary buildings were examined as part of this nationwide effort in August 1991 (U.S. Army Corps of Engineers

Construction, Engineering, and Research Laboratory 1991). All Fort Ord World War II temporary buildings were found to be standard types erected at numerous other installations and no additional recordation studies were recommended specifically for them. The overall DOD mitigation study for World War II temporary buildings is scheduled for completion by December 1992.

Fort Ord has no cultural resource properties that are on or have been formally determined to be eligible for the National Register. No National Historic Landmarks are located on Fort Ord lands. Fort Ord, in the past, has not formally coordinated with Native American groups to determine whether culturally sensitive traditional properties are present on Army lands.

4.13.4 Base Realignment and Closure Cultural Resource Studies

The Army is undertaking several studies to determine the effect that disposal of Fort Ord lands will have on cultural resources and Native American traditional properties. The only lands that may be retained by the Army are the proposed Presidio of Monterey annex and the reserve center. An architectural inventory is now being conducted of Fort Ord permanent buildings constructed prior to 1947. The semi-permanent buildings found at Fort Ord are World War II temporary buildings that have been modified and upgraded in status. Tentative recommendations, subject to agreement by the California SHPO, suggest that 33 East Garrison buildings, and 2 buildings in the main cantonment may be eligible for the National Register (Table 4.13-1). All other permanent buildings have been extensively modified or do not possess the historical or architectural significance necessary for nomination to the National Register. A report of these findings is now being prepared for submission to the California SHPO (U.S. Army Corps of Engineers Construction, Engineering, and Research Laboratory 1992).

An archeological research design is now being prepared for Fort Ord (U.S. Army Corps of Engineers Construction, Engineering, and Research Laboratory 1992). This design has divided Fort Ord into five strata based on landforms: 1) beach strand, 2) active (unstabilized) dunes, 3) younger (early-mid-Holocene) stabilized dunes, 4) older (Late Pleistocene) stabilized dunes, and 5) dissected uplands (Figures 4.13-1 and 4.13-2). The research design recommends that the active beach strand has no archeological potential, the unstabilized active dunes have low potential for possessing prehistoric archeological resources, and the stabilized dunes that make up strata 3 and 4 have medium potential with the exception of the wet cycle lakes. These lakes have a high potential for possessing archeological resources around their peripheries. The dissected uplands, stratum 5, have a high potential for prehistoric archeological resources along the streams that connect with the Salinas River floodplain through Pilarcitos and Impossible Canyons. Lands within the dissected uplands that have less than 15% slope are thought to have a moderate potential for archeological resources. The benches and terraces adjacent to the Salinas River and El Toro Creek along the northeastern boundary of the installation are considered to have a high potential for possessing archeological resources. The research design also proposes to test for buried landforms that may be associated with a post-Pleistocene estuary under the dunes in strata 3 and 4. If present, these buried landforms have the potential to possess Paleo-Indian occupations.

The Fort Ord artillery impact area (inland range area) and the cantonment areas will be excluded from archeological survey. Fort Ord areas defined as having a high probability for possessing archeological resources are recommended for 100% survey coverage. It has been proposed to randomly sample areas with low and medium archeological potential at a 10% level. Recommendations for future surveys will be contingent on the results of these initial efforts.

Consultation has been initiated with the California SHPO concerning the identification and protection of Fort Ord National Register eligible properties during the land disposal process. The California Native American Heritage Commission will be contacted to identify specific California Native American points of contact for this region. All Fort Ord cultural resource investigations and consultations will be conducted in accordance with the amended BRAC Cultural Resource Programmatic Agreement.

Table 4.13-1 Fort Ord Preliminary List of Potential National Register Eligible Buildings

Building Number	Function
12	Lavatory Building
13	Applied Instruction Building
14	General Purpose Administration Building (formerly Officers Dining Hall)
16	Officers Dining Hall
17	Lavatory Building
27	Enlisted Dining Hall
29	Enlisted Dining Hall
30	Learning Resource Center (formerly Enlisted Dining Hall)
33	Enlisted Dining Hall
34	Enlisted Dining Hall
35	Enlisted Dining Hall
36	Enlisted Dining Hall
37	Enlisted Dining Hall
38	General Purpose Administration Building
74	Lavatory Building
75	Storehouse (formerly Lavatory Building)
76	Lavatory Building
77	Lavatory Building
78	Lavatory Building
79	Lavatory Building
80	Lavatory Building
81	Lavatory Building
82	Lavatory Building
83	Lavatory Building
91	Exchange Branch
111	Warehouse
112	Warehouse
113	Warehouse
115	Warehouse
116	Warehouse
117	Warehouse
118	Warehouse
124	Rod and Gun Club (formerly Dispensary)
2075	Stilwell Hall, Community Center (formerly Soldiers Club)
2425	Maintenance Shed

Figure 4.13-1
Fort Ord Geophysical Strata

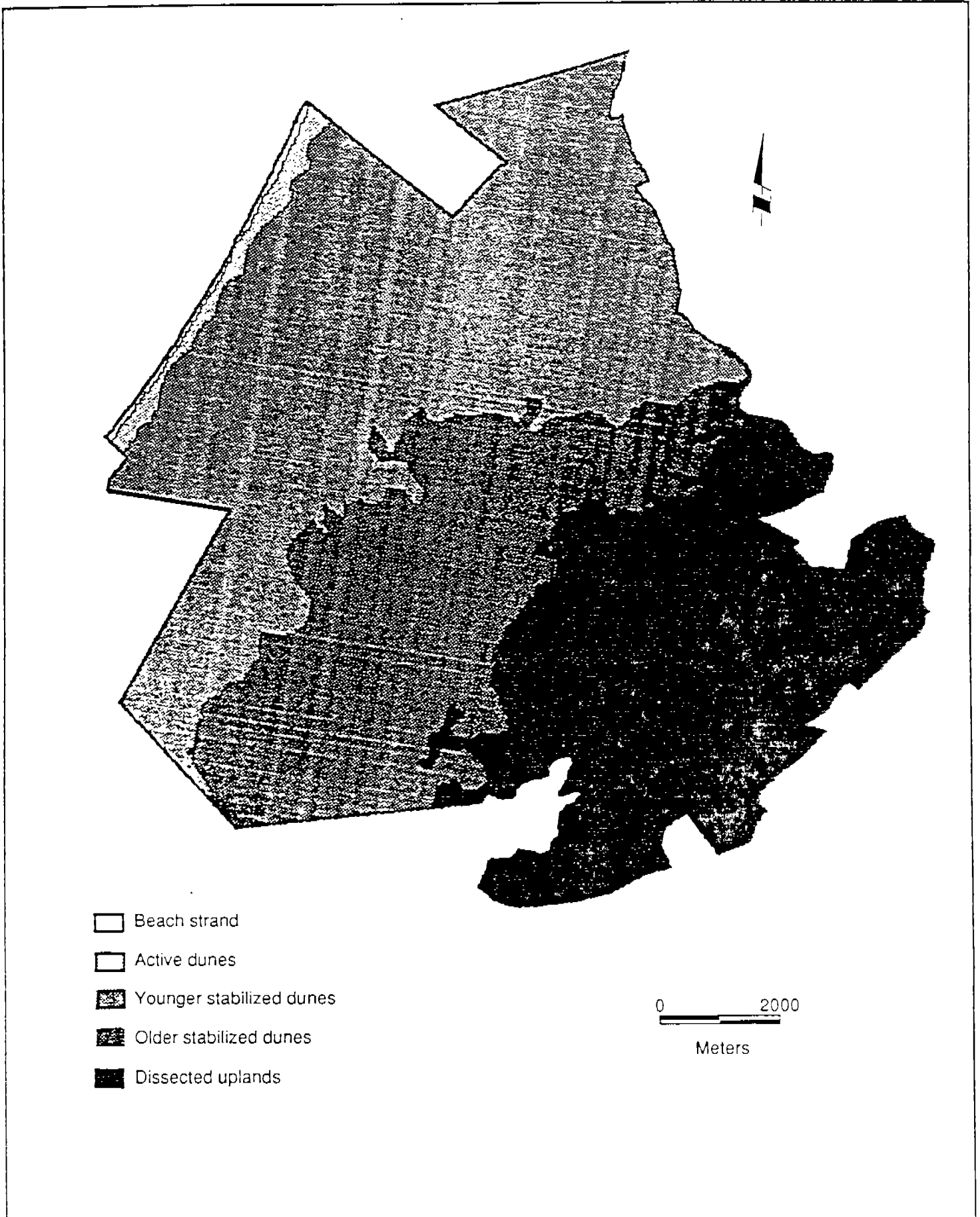
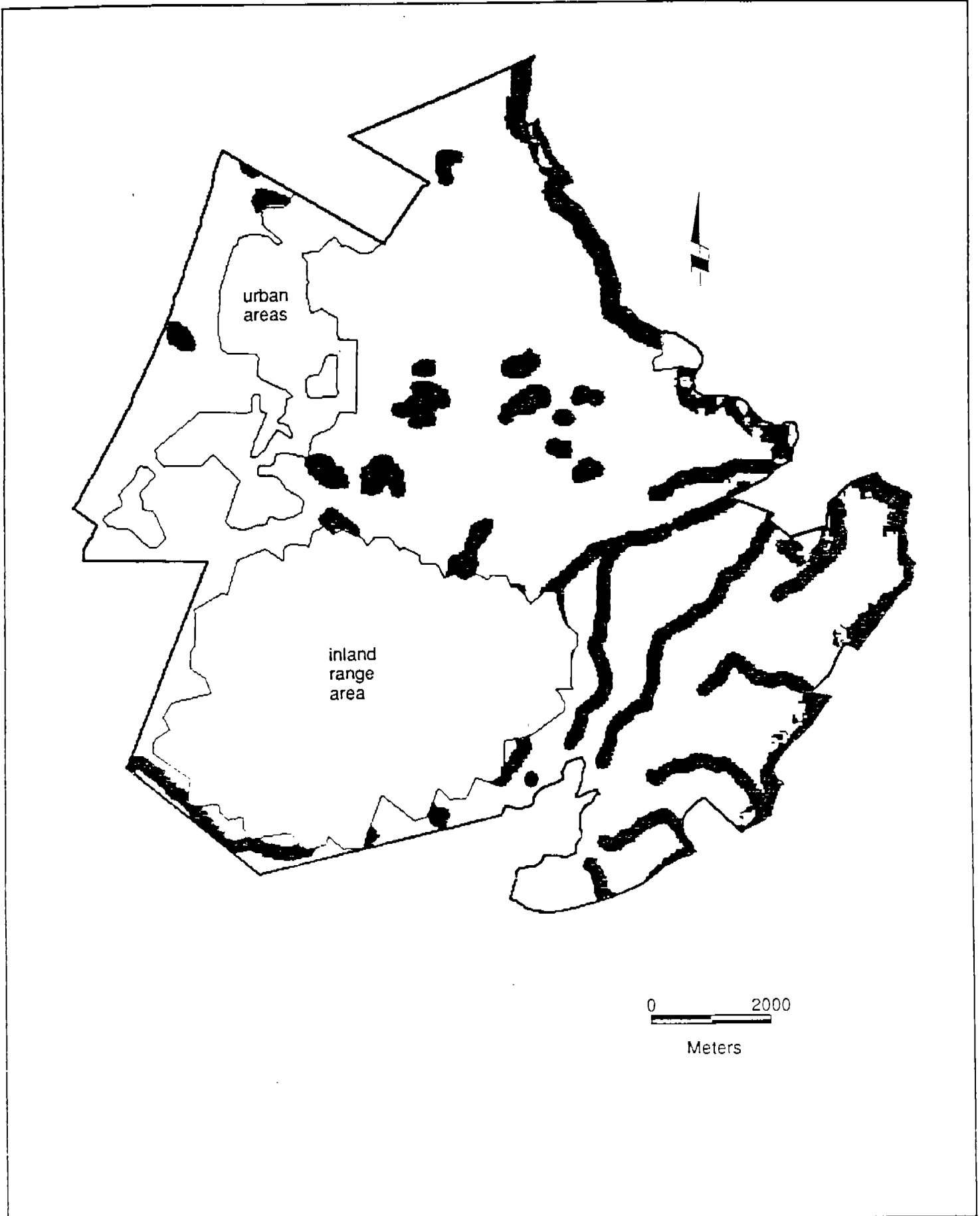


Figure 4.13-2
Fort Ord 100% Coverage High Probability



14.14 COASTAL RESOURCES

This section describes the federal Coastal Zone Management Act (CZMA) and the California Coastal Act of 1976 (Coastal Act), which govern coastal resources. It also presents brief descriptions of relevant sections of the Coastal Act and relevant coastal planning documents. Consistency of the proposed action with these relevant Coastal Act provisions is discussed in Section 5.0, "Environmental and Socioeconomic Consequences". Consistency of the proposed action with relevant coastal planning documents is presented elsewhere in this section, under headings describing land use impacts.

4.14.1 Coastal Zone Management Act

The CZMA was enacted by the U.S. Congress to ensure the protection, enhancement, and careful development of the resources within America's coastal zone (16 U.S.C. Section 1451 et seq.). The "coastal zone," as defined by the CZMA, encompasses coastal lands and waters that influence each other. Individual states interpret this definition differently, using geologic formations, uniform setbacks, jurisdictional boundaries, and other features to define their coastal zones.

Under the CZMA, coastal states may apply for grants to develop coastal management plans (CMPs), assist in the initial implementation of the plans, and administer the plans. Completed CMPs must be approved by the Secretary of the U.S. Department of Commerce. To be approved, a plan must contain several mandatory elements, including a description of the state's coastal zone boundaries, an inventory of areas of particular concern within the coastal zone, means for controlling land and water uses within the coastal zone, and a description of the organizational structure by which the state intends to implement the CMP. As long as a CMP meets the substantive requirements of the CZMA, the particular method of implementation is left to the discretion of the state. California created an independent agency, the California Coastal Commission, to implement its CMP.

The CZMA also requires that all federal activities and projects affecting a state's coastal zone be consistent with the state's approved CMP. The consistency determination for federal activity in the coastal zone is contained in Appendix S (Volume IV, Section 6.0).

4.14.2 California Coastal Act and California Coastal Commission

The Coastal Act (Calif. Pub. Res. Code Section 30000 et seq.) was enacted to serve as California's CMP (Calif. Pub. Res. Code Section 30008). The Coastal Act created the California Coastal Commission to administer this program. The Coastal Act also customizes the CZMA's definition of "coastal zone" to California. It states that the California coastal zone extends seaward to the state's outer limit of jurisdiction, including all offshore islands, and inland generally 1,000 yards from the mean high tide line of the sea. The coastal zone in the Fort Ord vicinity is depicted in Figure 2-3 in Section 2.0, "Proposed Action".

4.14.2.1 Coastal Act Sections Relevant to the Proposed Action. Among the many provisions of the Coastal Act are several sections that pertain directly to this action:

- Sections 30212(a) and 30214(a) maintenance of public access in new development;
- Section 30220 priority of water-oriented recreation activities;
- Section 30221 protection of oceanfront land for recreational use;
- Section 30230 maintenance and enhancement of marine resources;

- Section 30231 maintenance and enhancement of biological productivity;
- Section 30233(a) diking, filling, or dredging of coastal waters, wetlands, estuaries, and lakes;
- Section 30240 disruption of environmentally sensitive habitat;
- Section 30250(c) location of visitor-serving facilities;
- Section 30251 protection of scenic and visual qualities;
- Section 30252 maintenance of public access;
- Section 30253 new development policies;
- Section 30254 public works facilities development policies; and
- Section 30255 priority of coastal-dependent development over other types of development.

The relevant text of these sections is presented in Table 6.14-1 in Section 6.14, "Coastal Zone". The full text of these sections appears in Appendix T (Volume IV, Section 6.0).

4.14.2.2 Local Coastal Programs. To implement the CMP, the Coastal Act requires local governments with jurisdiction over land within the coastal zone to prepare local coastal programs (LCPs). The LCPs are planning documents that contain policies and land use designations guiding development specifically within the coastal zone, and they must be submitted to the California Coastal Commission for approval.

Several local jurisdictions in the Fort Ord vicinity have control over lands within the coastal zone, including Monterey County and the Cities of Marina, Seaside, Sand City, and Monterey. The policies associated with these jurisdictions' LCPs are presented in the Land Use Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992b).

4.14.3 Other Coastal Protection Designations

Monterey Bay was recently designated a National Marine Sanctuary, which added another layer of protection for the bay's resources. The National Marine Sanctuary designation is discussed in Section 4.15, "Monterey Bay National Marine Sanctuary".

Significant state and local efforts have been directed toward protecting 12 miles of the Monterey County coastline stretching from the Salinas River mouth south to wharf No. 2 in the City of Monterey as a state seashore. Four local cities (Monterey, Del Rey Oaks, Pacific Grove, and Carmel) have passed resolutions supporting this state beach concept. To initiate preservation efforts, the Big Sur Land Trust, California Department of Parks and Recreation, and the Monterey Peninsula Regional Park District have recently purchased various parcels along this section of beach.

The Big Sur Land Trust has recently prepared *The Monterey Bay State Seashore, A Study for the Preservation of the Monterey Bay Dunes*. This study was produced with a grant from the Packard Foundation. Former Congressman Leon Panetta, State Senator Henry Mello, and State Assemblyman Sam Farr have endorsed this proposal.

4.15 MONTEREY BAY NATIONAL MARINE SANCTUARY

The information contained in this section comes from the Monterey Bay National Marine Sanctuary Final EIS/Management Plan prepared for the U.S. Department of Commerce by the National Oceanic and Atmospheric Administration (NOAA) in June 1992 and from discussions with NOAA staff.

The Monterey Bay is located along the central California coast about 80 kilometers south of San Francisco (Figure 4.15-1). The bay possesses the deepest and largest submarine canyon on the coast of North America, equivalent in size to the Grand Canyon.

The sanctuary area encompasses both Monterey Bay and the adjacent coastline to the north and south, approximately 4,024 square nautical miles. The northern terminus of the boundary is located along the southern boundary of the Gulf of Farallones National Marine Sanctuary and runs westward to approximately 123°07'W. The boundary then extends south in an arc that generally follows the 500-fathom isobath. At approximately 37°03'N, the boundary arcs south to 122°25'W, 36°10'N, due west of Partington Point. The boundary again follows the 500-fathom isobath south to 121°41'W, 35°33'N, due west of Cambria. The boundary then extends shoreward toward the mean high-water line. The landward boundary is defined by the mean high-water line between Cambria and the Gulf of the Farallones National Marine Sanctuary, exclusive of a small area off the coast of San Mateo County and the City and County of San Francisco between Point San Pedro and Point Bonita. The harbors of Monterey (excluding Elkhorn Slough), Moss Landing, Pillar Point, and Santa Cruz are excluded.

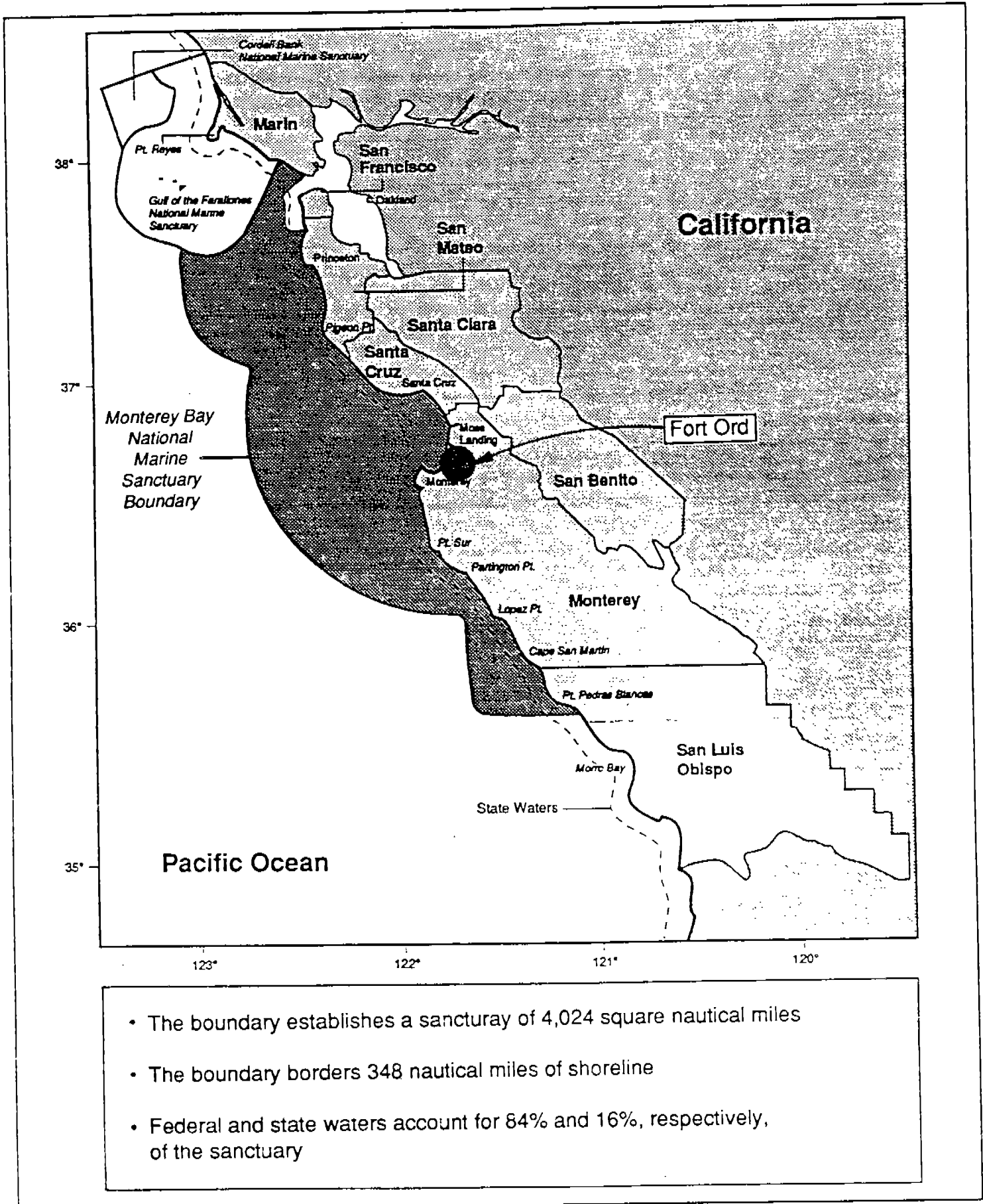
Under the 1988 reauthorization of the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA), NOAA was directed to designate Monterey Bay as a national marine sanctuary. The NOAA conducted scoping meetings in the Monterey area in January 1989 and received favorable response. In August 1990, the NOAA released a draft EIS and draft management plan for the sanctuary. In June 1992, NOAA officially designated the Monterey Bay as a marine sanctuary and released the final EIS/management plan. This was followed by an official declaration from the U.S. Congress in September 1992. The regulations of the management plan for the Monterey Bay National Marine Sanctuary took effect on January 1, 1993.

The major benefit of the sanctuary designation is the integration of many important nearshore and oceanic marine resource zones and their corresponding human uses into one management regime. Other benefits of designation include the following:

- support of research on and monitoring of the resources,
- enhancement of public awareness of the value of this area,
- aid in coordinating actions by existing authorities,
- formulation of long-range plans and ability to respond to currently unforeseen threats that might arise, and
- regulation of activities that either pose a current risk of causing significant damage or may have greater impacts as use of the area increases.

This unique, biologically diverse, and relatively undeveloped natural setting provides an ecologically diverse haven for many significant concentrations of living resources, and the waters support a number of socially beneficial human activities. These activities range from fishing to nature observation, education, scientific research, national defense, and law enforcement. To date, such activities have been pursued at low intensity levels. However, these and other potential human activities (e.g., oil and gas development,

Figure 4.15-1
 Monterey Bay National Marine Sanctuary



- The boundary establishes a sanctuary of 4,024 square nautical miles
- The boundary borders 348 nautical miles of shoreline
- Federal and state waters account for 84% and 16%, respectively, of the sanctuary

dredge spoil disposal) are clearly capable of generating conflicts that could harm the resources of this marine area.

The marine ecosystem's diverse resources and rich productivity make it an area of regional and national significance. With sanctuary designation, the area receives long-term protection and enhancement to complement the protection already provided for some of its resources onshore and for sections of the extreme nearshore zone. Sanctuary designation provides a unique opportunity for coordinated coastal zone management and research efforts through the integration of the facilities, resources, and programs of the reserve and the sanctuary. This type of program emphasizes land-sea interactions and serves as an innovative model for other coastal areas of the United States where local land issues and coastal zone problems have traditionally been separated from offshore marine issues in terms of jurisdiction and research effort.

The designation will improve resource protection by instituting new regulatory measures and by supplementing present surveillance and enforcement actions. The NOAA works within the constraints of Title III of the MPRSA when promulgating regulations. Specifically, Section 304(c) provides that NOAA cannot terminate valid leases, permits, licenses, or rights of subsistence use or of access existing as of the date of sanctuary designation but can regulate the exercise of such authorizations and rights consistent with the purposes for which the sanctuary was designated.

Sanctuary regulations govern hydrocarbon and mineral activities; discharges and deposits (both from within and outside of sanctuary boundaries; overflights; alteration of or construction on the seabed; historical resources; marine mammals, turtles, and seabirds; personal water craft; prohibitions on possession of resources and on interference with enforcement operations; vessel traffic; and aquaculture/kelp harvesting.

Section 5.0 Environmental and Socioeconomic Consequences

5.1 INTRODUCTION

This section describes the environmental and socioeconomic consequences of implementing the proposed action at Fort Ord (described in Section 2.0, "Proposed Action") or implementing an alternative to the proposed action (described in Section 3.0 "Alternatives"). This section is organized parallel to Section 2.0 to facilitate tracking the impacts of the various segments of the proposed action.

The impact discussion is divided into five major categories as follows:

- pre-disposal actions,
- disposal process,
- establishment of Presidio of Monterey (POM) annex,
- retention of reserve center, and
- reuse alternatives.

Predisposal actions include placing the installation in a caretaker status, remediating contaminated sites, and issuing interim leases. These actions are independent of the disposal process and, except for interim uses, are exempt from National Environmental Policy Act evaluation as indicated in Section 2.0. Nonetheless, the implications of undertaking these predisposal actions are described briefly to provide the reader with an understanding of conditions that exist before disposal.

The Army's principal actions analyzed in this section are implementing the land disposal process, establishing the POM annex, and retaining the reserve center. Each of these actions is analyzed independently below, with alternatives to these actions comparatively analyzed. Mitigation is described previously when measures have been identified that may be appropriate for Army implementation. Other mitigation is described in Volume II, "Detailed Analysis of Disposal and Reuse".

Reuse of disposed land at Fort Ord will not be an Army action; however, the impacts of reuse are considered indirect effects of the Army's disposal action and are analyzed in the environmental impact statement (EIS). Land uses proposed for the POM annex and the reserve center have been included in each reuse alternative so that these analyses represent a cumulative impact analysis of establishing the POM annex and retaining the reserve center. Each of the reuse alternatives in Section 3.0, "Alternatives", is considered separately in this section so that the reader can understand the overall effect of the various reuse schemes, as well as the mitigation that has been identified as being potential mitigation for Army implementation. The reuse impacts are described in greater detail in Volume II, "Detailed Analysis for Disposal and Reuse", where the analysis is organized by resource category rather than by alternative. Detailed descriptions of potential mitigation measures are provided in these resource discussions for each alternative, including mitigation that could be implemented by other agencies, local governments, and future owners and managers of the lands. This separate appendix allows this section of the main body of the EIS to focus on the key elements of the federal action of disposal and maintain the readability of the document.

5.2 PRE-DISPOSAL ACTIONS

5.2.1 Caretaker (No Action Alternative)

Caretaker actions will include building modifications, changes in infrastructure, and alterations in land management and installation operations. These actions are necessary to account for the reduced force and availability of operation and maintenance funding at Fort Ord following movement of the 7th Infantry Division (Light) (7th IDL). The length of time parcels will be in caretaker status vary, depending on the time needed to complete remediation or certify that parcels are clean and available for disposal. Some areas of Fort Ord may be in a caretaker condition for up to 10-15 years.

Funding available for Fort Ord operation and maintenance has decreased in recent years because of the general trend in force reductions and decreased budgets throughout the Army. Decreases in funding are expected to continue through the closure and caretaker periods, reducing the Army's ability to adequately maintain all utility systems at Fort Ord. The Army is committed to a minimum level of funding and staffing that maintains safety, security, and health standards, but some system deterioration is likely.

Placing Fort Ord in caretaker status could result in the following effects: utility system deterioration, building demolition, reduced levels of security, and reduced levels of maintenance and emergency services.

5.2.1.1 Utility System Deterioration

Utility system deterioration during the caretaker period could lead to environmental damage at Fort Ord. This damage could include a decrease in drinking water quality because of stagnant water conditions in water lines, localized flooding from failure to locate and clear clogged or broken storm drain pipes, and spills of untreated wastewater where collector pipelines or pump stations are not adequately maintained. Other infrastructure systems may deteriorate during prolonged caretaker conditions, including electrical lines, gas pipelines, water supply pipelines, telephone lines, cable television lines, and paved and unpaved roadways. Deterioration of roadways could ultimately lead to unsafe driving conditions on Fort Ord. System deterioration during caretaker status will increase costs to upgrade and reestablish use of infrastructure in the future, when new uses are developed at Fort Ord.

5.2.1.2 Building Demolition

As buildings are vacated by the 7th IDL, each will be stabilized to the level appropriate for its anticipated future use. Some may be demolished rather than stabilized. The demolition process will generate waste to be disposed of in the Marina landfill. If asbestos-containing materials are present, there will be a health risk to workers and perhaps occupants of nearby structures. The asbestos materials would have to be disposed of in a properly permitted disposal site. The demolition process will also temporarily increase noise levels in the area; noise impacts on humans could occur if occupied structures or recreational areas are adjacent to the construction site.

The potential impacts on historic structures, sites, objects, and districts must be considered in placing the installation in caretaker status and of maintenance and operation of Fort Ord until disposal. If buildings are stabilized or demolished, features with historic significance could be adversely affected. Removing or damaging windows and doors, interior fixtures, and other elements of architectural style could be considered adverse effects if the structures are determined to be eligible for listing in the National Register of Historic Places. Effects on the settings of contributing elements and on supporting utilities and fire protection and police could be adverse. The amended Base Realignment and Closure (BRAC) Cultural Resource Programmatic Agreement will be followed in considering these potential effects (Appendix P in Volume III).

5.2.1.3 Reduced Levels of Security

Reduced staffing and funding for installation operations will affect land management activities and security. Although public access to the installation will be restricted during caretaker conditions, a much lower military presence will be on the undeveloped and unused portions of the installation. Increased illegal entry by off-road vehicle users, especially in the grassland areas of the southern portions of the installation, could increase soil erosion, visual blight, and loss of sensitive vegetation. Illegal access in other areas could result in vandalism of structures (including vandalism of historically significant structures, sites, and districts), illegal dumping, poaching of wildlife, and public safety risks to residents and workers in the POM annex.

5.2.1.4 Reduced Levels of Maintenance and Emergency Services

A reduced maintenance force will mean less frequent grounds maintenance in unoccupied residential and office areas, resulting in degraded views. Grounds maintenance activities such as erosion control may also be reduced, leading to increased sedimentation and loss of soil resources. Emergency medical services, including ground ambulance service and helicopter medical evacuation, will be lost or reduced in the caretaker condition at Fort Ord. Fire protection services will also decline, leading to a reduced ability to respond to wildland and structural fires on Fort Ord and a reduced ability to respond to calls for mutual aid in areas surrounding Fort Ord.

The Army recognizes these potential effects associated with reducing forces and placing lands in a caretaker status and is committed to minimizing effects to the extent funds and staff are available during the period between closure and disposal of excess land. An environmental planning guide is being prepared for Fort Ord as a directory for Garrison personnel with the responsibility to properly maintain the facility in this interim period. This guide will identify legal and regulatory programs and environmental requirements that must be considered as the land is managed in the future. The guide will also identify staffing and equipment needs to fulfill the Army's land stewardship responsibilities.

5.2.1.5 Effects on Monterey Bay National Marine Sanctuary

Runoff. The existing storm drain system at Fort Ord was designed to convey runoff from urban areas to outfalls located in the dune and beach area of Monterey Bay and into agricultural fields located along the Salinas River. Impacts on the Monterey Bay National Marine Sanctuary (sanctuary) associated with urban runoff from Fort Ord occur at intermittent intervals that are related mostly to meteorological events. Rainfall events that are preceded by long dry periods are known as the "first flush" and generally deliver a pulse of urban pollutants that could affect water quality in the receiving bodies of water. Urban pollutants vary considerably but generally include pesticides and fertilizers, petroleum byproducts, metals, animal wastes, and erosion and siltation during and after construction. Raw sewage overflows from pump stations on Fort Ord also have contributed to urban runoff pollutant loads in the past. As the urban population on Fort Ord decreases, it is expected that a parallel trend in urban pollutants will also occur, reducing the impact on the sanctuary.

Erosion. The existing condition of severe soil erosion occurring on the Aromas and Paso Robles formations in the southeast quadrant of Fort Ord may also indirectly affect the sanctuary. Several small streams in Impossible, Wildcat, Barloy, Picnic, and Pilarcitos Canyons flow from this region toward the Salinas River and empty into Monterey Bay. Runoff from slopes along the southeast boundary of Fort Ord flow into El Toro Creek and into the Salinas River. The incremental contribution of sediment from Fort Ord lands to the Salinas River and Monterey Bay, relative to similarly eroding lands in the El Toro Creek watershed south and east of Fort Ord and the Salinas River watershed as a whole, are not known at this time.

Biological Resources. Fort Ord's property line extends out approximately 3,000 feet into the Monterey Bay. Sensitive biological species found in this area off the coast of Fort Ord could potentially lose federal protection as a result of the federal government's decreased presence in the area. This situation, however, may not be considered significant because even with a loss of federal protection, any species in the area have, since January 1993, gained protection under the sanctuary Management Plan, protecting the species and their respective aquatic habitats.

5.2.2 Contaminated Sites

Cleanup of contaminated sites is an ongoing process at Fort Ord, independent of the decision to close and dispose of the property. Evaluation of the extent of contamination has been underway since before the U.S. Environmental Protection Agency (EPA) placed Fort Ord on the National Priorities List on February 21, 1990. Efforts are now proceeding to identify the appropriate remedial actions necessary to clean up land for future use. The cleanup process, described in Section 2.0, is dictated by the Comprehensive Environmental Response Compensation and Liability Act; the process includes its own public involvement program and environmental review. The following discussion indicates the range of remedial measures likely to be used at Fort Ord and generally describes the environmental implications of the cleanup process. A more specific analysis of impacts will be possible after the full extent of contamination has been documented and remedial measures are selected.

5.2.2.1 Potential Remedial Measures

The selection of remedial measures will consider cost and anticipated future use of the land. Level of unexploded ordnance will be commensurate with the level of reuse of the property. The Army is already undertaking cleanup where sites are fully characterized and remedial measures have been determined. Specific cleanup measures for other sites will be selected after the remedial investigation/feasibility study is complete and more is known about future uses. In some cases, remediation may proceed to the level needed to fully protect human health and the environment before a future use or disposal action has been determined. Additional measures may be needed after a particular reuse is established. As proposed in the Fort Ord Environmental Restoration Acceleration Action Plan, a remedial technology screening document will be prepared to evaluate potential remedial measures that may be applicable for contaminated soil or groundwater. The following measures are typical of what is expected to remediate sites at Fort Ord.

Potential remedial measures to treat contaminated soils include four general alternatives: no action, excavation and onsite treatment, *in situ* treatment, and encapsulation with impermeable high-density polyethylene liners (primarily used in landfill areas). Specific proven remedial options will be selected to sufficiently remediate the different types and combinations of contaminants present at Fort Ord.

Under no action, a screening-level risk evaluation would be required to ensure that concentrations of contaminants remaining in the soil do not pose unacceptable risks to human health or the environment.

Excavation and onsite treatment may involve bioremediation to enhance microbial degradation of organic matter and soil aeration or low-temperature thermal treatment to volatilize organic compounds. Bioremediation involves placing microorganisms in the groundwater treatment system effluent and applying the effluent to contaminated soil stockpiles to enhance biodegradation. Stockpiles are then tilled periodically to ensure thorough microorganism distribution. To enhance volatilization through aeration, stockpiled soil is distributed into uniform lifts and left uncovered; low-temperature thermal treatment enhances volatilization by thermal oxidation. *In situ* treatment may occur by extracting and treating soil vapors, *in situ* bioremediation (injecting nutrients into the unsaturated soil), or injecting steam to thermally oxidize volatile organic compounds or petroleum hydrocarbons.

The proposed treatment location for petroleum hydrocarbon-contaminated soils excavated during remediation activities is the existing treatment facility in the Fritzsche Army Airfield fire drill area. The Army will upgrade the existing facility to meet regional water quality control board requirements for a Class II waste treatment facility (U.S. Army Corps of Engineers, Sacramento District 1992e). The amount of soil excavated from each location and treated in this area could be up to several thousand cubic yards; the size of excavations will be determined by the extent of contamination and the level of remediation, which will be commensurate with possible land reuse.

Soils contaminated with pesticides or dissolved metals generally cannot be treated using bioremediation, aeration, or other volatilization techniques. Soils containing these types of contaminants would likely be excavated and disposed of offsite, excavated and incinerated onsite or offsite, or encapsulated to prevent leaching or future contact with other soils.

Soils in training ranges and other sites containing spent ammunition would likely be excavated, screened to remove spent projectiles, and treated for dissolved compounds associated with ordnance explosive waste.

Potential remedial actions for contaminated groundwater at Fort Ord include three alternatives: no action, pump and treat, and containment. A screening-level risk evaluation to ensure the protection of human health and the environment would be required under no action; continued groundwater monitoring also may be required. Pump and treat remediation involves pumping groundwater into onsite treatment systems that may include carbon filtration, ultraviolet oxidation, use of bioreactors, or use of air strippers. Containment methods include installing a slurry wall or collection trenches to prevent migration of contaminated groundwater.

Implementation of pump and treat groundwater systems involves installing one or more groundwater extraction wells to pump contaminated groundwater into an onsite treatment system. Carbon filtration treats water through a series of granular-activated carbon filters in aboveground holding tanks; ultraviolet oxidation uses mercury vapor lamps to inactivate organic compounds; and air strippers force streams of clean air through streams of contaminated groundwater in a series of cooling towers and basins. As the air and water come in contact, volatile compounds are removed from the groundwater.

Groundwater remediation will occur in several areas at Fort Ord, requiring several onsite treatment systems. The locations and design specifications of groundwater treatment systems will be determined after the type of remedial action has been selected for each contaminated area. The Army will continue to use the existing groundwater treatment system in the Fritzsche Army Airfield fire drill area (U.S. Army Corps of Engineers, Sacramento District 1992b).

U.S. Department of Defense (DOD) Standard 6055.9-STD addresses land disposal of former impact areas to non-DOD agencies. Chapter 12 of this standard contains policies to reduce human health and safety risks caused by the presence of unexploded ordnance.

Surface clearance of unexploded ordnance may involve conducting selective vegetation removal, possibly including the burning of vegetation to clear the ground surface (dense vegetation in some areas of the inland range area may render burning infeasible); locating unexploded ordnance by visual and electromagnetic means (metal detectors); identifying unexploded ordnance; and disposing of any unexploded ordnance located. During the location process, inert ordnance and ordnance scrap will be collected and properly disposed of. Identification and disposal may require excavating soil from around the unexploded ordnance. Excavations could range in size from a single square foot to several square feet, depending on the type of unexploded ordnance, its location, and its position. The preferred method of disposal of unexploded ordnance is *in situ* detonation, which would increase the amount of soil disturbed.

Subsurface investigation and clearance activities may be conducted in areas that historical record reviews and interviews indicate the possible presence of buried ammunition or in impact areas where the velocity, trajectory, and momentum of munitions are likely to cause them to penetrate the ground's surface. Subsurface unexploded ordnance is located by using metal detectors, ground-penetrating radars, or other appropriate methods, and then excavating to determine the source of the magnetic anomaly. Depending on the type and means of delivery, excavations could reach depths in excess of 10 feet and have surface areas ranging in size from several square feet to tens of square feet. The preferred method of disposal of unexploded ordnance is *in situ* detonation, which would increase the amount of soil disturbed.

During caretaker status, the Army would take appropriate action to protect safety and property. Considering the urban vicinity of the installation, it is likely that a surface clearance would be done to remove unexploded ordnance. The unexploded ordnance clearing process involves reviewing historical records and interviewing installation officials; conducting representative site investigations to confirm the existence of and types and densities of unexploded ordnance; performing computer modeling to estimate the quantities, densities, and distribution of unexploded ordnance in various areas; conducting surface clearances of unexploded ordnance; and possibly conducting subsurface clearances. The unexploded ordnance clearance process would be conducted throughout the installation to ensure that no unexploded ordnance remains outside designated areas.

Predisposal remediation in the beach firing ranges could involve straining soils for lead and excavating soil otherwise contaminated with chemicals for proper disposal. Predisposal remediation at the Main Garrison and Ord Village Sewage Treatment Plants could involve only pumping and treating of contaminated groundwater. Structures at these two sites would not be demolished during predisposal remediation.

5.2.2.2 Environmental Considerations

Predisposal remediation activities at Fort Ord are likely to have substantial effects on the following:

- vegetation and wildlife resources,
- soil erosion rates,
- soil quality and fertility,
- surface water quality,
- air quality,
- noise-sensitive activities, and
- possibly cultural resources.

Removal of Unexploded Ordnance. Surface and subsurface clearance of unexploded ordnance poses the greatest threat to vegetation and wildlife resources. Surface clearance from the inland range area and other live fire areas could result in the loss of portions of sand gilia and Monterey spineflower populations. Sand gilia and Monterey spineflower plants would be removed by vegetation burning and cutting, whole plant excavation, crushing or trampling from movement of excavation equipment and removal team foot traffic, and onsite ordnance detonation. The maritime chaparral habitat that supports these species would be removed by burning and cutting.

Surface clearance of unexploded ordnance could occur in areas supporting approximately 75% of the occupied habitat of sand gilia and Monterey spineflower at Fort Ord. The number of individuals and amount of habitat affected cannot be determined because the locations and amount of unexploded ordnance is not known. Fort Ord covers approximately 50-70% of the entire range of sand gilia and about 75-95% of the entire range of Monterey spineflower.

Removal of individuals or populations of sand gilia is prohibited by the Federal Endangered Species Act. If the Monterey spineflower becomes federally listed as threatened or endangered, its removal would also violate the Endangered Species Act.

A habitat management plan (HMP) could be developed and implemented to preserve and restore populations and habitat of sand gilia and Monterey spineflower affected by removal of unexploded ordnance. An HMP would reduce impacts on all affected species in sand gilia and Monterey spineflower habitat, by preserving populations and habitat. As part of the HMP, a vegetation management plan could be developed. The vegetation management plan would be implemented in conjunction with ordnance clearing.

Controlled burning of maritime chaparral could be conducted in a random pattern of patches ranging from 25 to 75 acres. The amount of maritime chaparral burned in remediation sites each year would be large enough to complete ordnance clean-up within a 20-year period.

Removal of sand gilia and Monterey spineflower, if Monterey spineflower becomes listed as threatened or endangered, would require consultation with U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act. A habitat conservation plan could be developed and implemented to preserve and restore populations and habitats of these plant species.

California linderiella occur in ephemeral, freshwater aquatic habitats, such as vernal pools, swales, and ponds. Eggs laid by adults when water bodies are full remain in the soil after vernal pools and ponds have dried until the following rainy season. The excavation necessary for removal of subsurface unexploded ordnance could fill or severely disrupt six ponds and 10 vernal pools considered California linderiella habitat. If unexploded ordnance is found inside a vernal pool or pond, in situ detonation of the ordnance may disrupt a significant portion of the soil in the area and potentially destroy habitat and eggs in the soil. Soil disruption during excavation or in situ detonation could also cover California linderiella eggs with sufficient soil to prevent them from hatching, resulting in direct mortality. California linderiella have been proposed for federal listing as threatened or endangered. If this species becomes listed before remediation is complete, direct mortality or loss of habitat would be prohibited by the federal Endangered Species Act.

Disturbance of occupied California linderiella habitat (if the California linderiella is listed as threatened or endangered under the federal Endangered Species Act) may result in take and would require Section 7 consultation with the U.S. Fish and Wildlife Service.

Habitat restoration plans would be developed and implemented for California linderiella to compensate for losses of habitat. A habitat restoration plan for California linderiella could involve restoration of ponds and vernal pools onsite after removal of subsurface unexploded ordnance. Restored ponds and vernal pools could comprise the same acreage and provide the same functions as they did before clearing of ordnance. Topsoil at affected sites in the vernal pools could be set aside during excavation and replaced during restoration to salvage California linderiella eggs.

The six ponds and 10 vernal pools described above constitute wetland habitat. Unexploded ordnance that must be detonated onsite could adversely alter the hydrological functioning of these wetlands. The exact amount of surface clearing that will occur in wetlands is unknown. Vernal pools and freshwater marshes potentially are jurisdictional wetlands regulated under the Clean Water Act. Placing dredged or fill material in wetlands would require a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act.

If avoidance of wetlands is infeasible, a plan to restore wetlands onsite could be developed and implemented. After restoration, wetlands could comprise the same acreage and provide the same functions as they did before surface clearance of unexploded ordnance.

Surface clearance of unexploded ordnance could result in the loss of portions of populations and habitat of federal candidate plant species occurring at Fort Ord. Potential impact mechanisms are the same as those described above for federally protected species. Surface clearance could result in the loss of individual plants and reduction of suitable habitat for Seaside bird's-beak, Eastwood's ericameria, coast wallflower, wedge-leaved horkelia, Toro manzanita, sandmat manzanita, Monterey ceanothus, and Hickman's onion. The amount of loss of these species cannot be estimated because the amount of buried ordnance has not been determined. Large reductions in numbers and habitat for Seaside bird's-beak, Eastwood's ericameria, Toro manzanita, sandmat manzanita, and Monterey ceanothus could result in their eligibility for federal listing as threatened or endangered.

The HMP and vegetation management described above regarding federally protected plants would reduce effects on the candidate plants listed above.

Surface clearance of unexploded ordnance in the inland range area and other live firing areas could result in adverse effects on the habitat of special-status wildlife species at Fort Ord, and direct mortality to terrestrial and burrowing species. The loss of habitat associated with intensive remediation of the inland range area and other areas of Fort Ord suspected of containing unexploded ordnance, and direct mortality during remediation could result in substantial losses of known populations of and habitat for the black legless lizard and Monterey dusky-footed woodrat.

The black legless lizard is present in areas of loose sandy soils supporting native dune, coastal scrub, or maritime chaparral vegetation. The range of the black legless lizard is restricted to the Monterey Bay region. Intergrades between black and silvery legless lizards have been found elsewhere along the California coast from the east side of San Francisco Bay to San Luis Obispo County, but the status and distribution of these varieties are not resolved.

Monterey dusky-footed woodrats are present at Fort Ord in maritime chaparral and coast live oak woodlands. The range of the species is limited to Monterey County and northern San Luis Obispo County; Fort Ord is in the northern limits of its range.

Because of the limited ranges of the black legless lizard and the Monterey dusky-footed woodrat and the scarcity of suitable habitat in northern Monterey County and the Monterey Bay region, loss of habitat and individual animals at Fort Ord would substantially reduce the range of both species and could result in state or federal listing as threatened or endangered.

The initial burning or removal of vegetation before ordnance removal in maritime chaparral habitat could cause Monterey dusky-footed woodrats to temporarily abandon affected areas and could reduce direct mortality during remediation. In areas of black legless lizard habitat (i.e., dunes, coastal scrub, and maritime chaparral) legless lizards could be trapped and relocated to restored or enhanced habitat areas before remediation occurs to prevent mortality to individual animals.

Surface clearance of unexploded ordnance could result in the long-term loss of extensive areas of habitat occupied by maritime chaparral. Approximately 80% of the maritime chaparral on Fort Ord may contain unexploded ordnance. The amount of vegetation removed for surface clearing, however, cannot be estimated because the specific location and amount of ordnance in the ground is not known.

The HMP described above would also reduce the effects of ordnance clearing on maritime chaparral.

Ground disturbance and burning of vegetation needed to clear ordnance could accelerate both wind- and water-induced soil erosion. The sandy soils with weak aggregation, characteristics of the range areas, are highly susceptible to wind erosion if sufficiently large areas have vegetation removed. Where the

soil is underlain by the sandstone of the Aromas formation, as is the case in most of the inland range area, severe runoff-induced gullying will occur on disturbed and unprotected soil. This problem is especially severe in the eastern part of the inland range area. Portions of training areas J and K would have the same susceptibility. Accelerated erosion not only results in loss of the soil resource but also causes sedimentation in drainages and increased suspended solids in surface waters. Streams that could potentially be affected are the streams in Impossible, Wildcat, and Barloy Canyons tributary to the Salinas River and Monterey Bay.

Establishing a program for vegetation burning or removal that would limit the size of the area denuded at any one time will minimize erosion. Mulching and reseeding excavated sites will also limit the amount of soil loss and offsite sedimentation.

Soil quality or fertility may be affected by the depletion of soil organic matter from burning; erosion; and the disruption, mixing, and displacement of the surface horizon (or topsoil) upon excavation. As the fertility of the sandy soil types is dependent on the organic matter content primarily found in the surface horizon, its depletion or displacement may retard or limit vegetation growth.

Where excavation is required, the careful initial removal of the surface horizon, separate treatment, and replacement on the surface will reduce the loss of soil fertility. Remedial measures that limit the loss of soil organic matter should be selected wherever possible. Upon replacement, the soil surface should be mulched with coarse organic matter and revegetated to retard erosion and restore the natural organic litter layer of the surface.

Ordnance clearing by detonation has a potential for noise impacts. If clearance activities extend over a number of years, interim uses and perhaps even longer term reuse could place noise-sensitive receptors near the inland range or training area J or K. This concern does not exist for present land uses surrounding the ranges because they have been exposed to detonation of explosive rounds for many years.

As the Army receives and considers requests for interim leasing or long-term reuse, it will consider the potential for noise conflicts with ordnance removal in the inland range areas.

Ground disturbance for ordnance clearing has a low potential for disturbing unrecorded archeological resources. Excavations could encounter buried resources, but the archeological sensitivity of the inland range areas is considered low. Professional archaeologists can be consulted if cultural materials are unearthed during remediation.

Contaminated Soils Treatment. Remediation of soils contaminated with hydrocarbons, pesticides, or dissolved metals could have similar but less extensive effects on vegetation and wildlife resources, soil erosion rates, and water quality. Most of the soil contamination is located in the developed Main Garrison area where natural vegetation has been mostly removed, slopes are more gentle and most of the land has been previously disturbed. The biggest risk to sensitive plant species exists at the Fritzsche Army Airfield soil remediation site, where contaminated soils are spread and aerated to remove organics. Significant populations of sand gilia and Monterey spineflower exist in this area. The sand gilia is a federally protected plant and the Monterey spineflower is proposed for federal protection.

If the area used for soil remediation requires further expansion, a plant survey can be conducted to determine the presence of protected plant species or sensitive wildlife species. Treatment sites can be located to avoid populations of protected plant species or sensitive wildlife species.

Excavation to remove contaminated soils in the Main Garrison area has some potential for disturbing unrecorded archeological resources and damaging historic structures, landscapes, or related features. This

potential is greatest in the northwest portion of the Main Garrison, which is dominated by wood structures from the World War II era.

Contaminated Groundwater Treatment. Treatment of contaminated groundwater is already occurring at Fort Ord. Additional pump and treat facilities may be needed. These facilities would be constructed in the Main Garrison area, so the potential for loss of sensitive biological resources is small. The major concern with this remediation process is release of volatile organics to the atmosphere. Volatile organics are a precursor to the formation of ozone and a concern for the maintenance of local air quality. Air stripping facilities used to remove volatile organics are also a source of high noise levels. Constructing these facilities, therefore, could affect noise-sensitive land uses, depending on their location and design.

Site selection of pump-and-treat facilities can consider adjoining land uses to avoid adverse noise impacts. Similar consideration can be made when issuing interim leases or outgrants or disposing of property in the vicinity of a treatment facility. Air quality concerns will be addressed through the remedial investigation/feasibility study process; new treatment facilities could be subject to Monterey Bay Unified Air Pollution Control District requirements and all applicable regulations.

Landfill Remediation. Remediation for Fort Ord's main landfill site in the northern portion of the Main Garrison has the potential to affect sensitive plants. Capping the landfill at the west end of Inter-Garrison Road would result in the loss of populations of sand gilia and Monterey spineflower. Placing fill material would bury sites supporting medium- and low-density occupied habitat of these two plant species. Vehicle traffic bringing fill to the site could remove individuals of sand gilia and Monterey spineflower at sites adjacent to the landfill. Loss of sand gilia would be a violation of the Federal Endangered Species Act. If the Monterey spineflower becomes federally listed, its loss would also violate this act. Consultation with the U.S. Fish and Wildlife Service would be required under Section 7 of the Endangered Species Act before undertaking the landfill remediation.

To reduce the effects of remediating the landfill, capping could begin in midsummer following seed production of sand gilia and Monterey spineflower. Seeds could be collected from mature plants and stored. Topsoil could be salvaged at sites supporting dense populations of these plants to recover part of the soil seed bank. After landfill capping, a sandy top layer could be added and the seeds and soil containing seeds be redistributed over the landfill site.

Additionally, remediation activities would have beneficial effects on the local economy. Substantial temporary increases would occur in economic activity during the remediation by direct and indirect expenditures for the contracts for remediation actions (up to \$750 million) and by the remediation crews spending money on lodging, meals, recreation, and other services. This could lessen the adverse economic impacts. The construction of the infrastructure changes needed for disposal would also have positive effects on the local economy.

Removal of Lead and Other Heavy Metals. Lead and other heavy metals may need to be removed at the beach firing ranges. In locations where these remediation measures are conducted, Monterey spineflower, Smith's blue butterfly, western snowy plover, and black legless lizard may be adversely affected through direct mortality and long-term loss of habitat.

Removal of heavy metal-contaminated sands could occur in areas supporting approximately 5% of the occupied habitat of Monterey spineflower at Fort Ord. The number of individuals and amount of habitat affected cannot be determined because the extent of lead removal is not known. Fort Ord represents approximately 75-90% of the entire range of Monterey spineflower.

Should Monterey spineflower become federally listed, its removal would be prohibited by the federal Endangered Species Act.

If removal of lead and other heavy metals is required at the beach firing ranges, populations of Monterey spineflower in the coastal dunes could be fenced and avoided where possible during excavation. Seed could be collected from populations in areas of excavation and redistributed into suitable habitat following remediation actions. Because of their special status, the disturbance of these species and loss of their habitat would be inconsistent with Section 30240 of the California Coastal Act of 1972. This disturbance and loss could be minimized. If, however, loss of special-status species habitat is unavoidable, the habitat could be replaced through implementation of an HMP and restoration plan for the habitat affected.

Similarly, removal of lead in the beach firing ranges may disturb soil across large areas of land within the coastal zone. This process may denude the soil of vegetation, change the landform, and create splotches of disharmonious soil coloration. These visual changes could adversely affect the aesthetic qualities of the coastal zone, which would be inconsistent with Section 30250 of the California Coastal Act of 1972. Soil of a color consistent with that of surrounding soils could be imported and placed over disturbed areas. Vegetation could also be replanted in disturbed areas in patterns consistent with those of the surrounding area.

Smith's blue butterfly requires seacliff or coast buckwheat as host plants. If remediation of the beach firing ranges is required, remediation activities could involve soil excavation and removal of host plants used by the Smith's blue butterfly. Removal of host plants could also result in direct mortality to adults, larvae, or pupae depending on the time of year remediation takes place. Direct mortality and the loss of host plants would be prohibited by the federal Endangered Species Act.

An HMP, incorporating a habitat restoration plan, could be developed and implemented to preserve and restore populations and habitat of Smith's blue butterfly affected by lead removal activities. Such a plan could involve enhancing habitat and creating new habitat by planting host plants in suitable areas not affected by remediation. New host plants could be monitored to ensure that sufficient densities of individual plants and flowering heads develop to support Smith's blue butterfly. Once habitat enhancement sites are developed, host plants could be removed from remediation sites and transferred to enhanced sites to salvage as many butterfly larvae or pupae as soon as possible. The timing of excavating dunes for heavy metal remediation could be coordinated with U.S. Fish and Wildlife Service (USFWS) to result in the least disturbance to the butterfly.

Coastal populations of western snowy plovers nest on Pacific coast beaches above the high tide line. If lead removal is required on the beaches at Fort Ord, disturbance from remediation activities could cause nest failures for western snowy plovers, resulting in direct mortality. Coastal populations of western snowy plovers are federally listed as threatened. Actions resulting in direct mortality would be prohibited by the federal Endangered Species Act.

Lead removal could be avoided during the western snowy plover breeding season. Removal activities could be conducted between October and February, when snowy plovers are not nesting.

The black legless lizard occurs in areas of loose, sandy soils supporting native dune, coastal scrub, or maritime chaparral vegetation. The range of the black legless lizard is restricted to the Monterey Bay region. Intergrades between black and silvery legless lizards have been found elsewhere along the California coast from the east side of the San Francisco Bay to San Luis Obispo County, but the status and distribution of these varieties are not resolved.

Because of the limited range of the black legless lizard and the scarcity of suitable habitat in the Monterey Bay region, loss of habitat and individual animals at Fort Ord would substantially reduce the range of the species and could result in state or federal listing as threatened or endangered.

Before remediation of dump areas (if required), black legless lizard habitat could be created, restored, or enhanced in areas where removal of lead is not required. In areas of black legless lizard habitat, legless lizards could be trapped and relocated to these new habitat areas before remediation takes place to prevent mortality to individual animals.

5.2.3 Interim Use

Interim use is the use of real property through real estate documentation, such as leases, licenses, and permits (outgrants), before disposal is accomplished. Interim uses could include new leasing of office space, storage space, housing, other developed facilities and training facilities and continued leasing of schools, infrastructure facilities, and grazing land by non-Army entities. Use permits are also possible for scientific and cultural uses. Additional information on Interim use is contained in Section 2.0, "Proposed Action". After the Army signs the record of decision, interim leasing could occur until the land is disposed.

Potential impacts resulting from interim use include many of the impacts described in detail for reuse, except that no major development would be associated with interim use. Minor modifications to buildings, facilities, and utilities systems may be needed to accommodate users.

Interim uses could result in the following effects:

- land use incompatibilities,
- ground-disturbing activities,
- public service infrastructure modifications,
- need for public safety and emergency services,
- traffic accessibility and security conflict,
- air quality effects,
- noise effects,
- socioeconomic effects,
- cultural resources effects, and
- effects on the Monterey Bay National Marine Sanctuary.

5.2.3.1 Land Use Incompatibilities

Land use incompatibilities could result from remediation action occurring before disposal and in the absence of land use planning when determining interim uses. Remediation activities could expose adjacent land uses to hazardous materials, noise, or other elements associated with cleanup.

Granting leases, licenses, or permits for new uses without recognition of existing uses could result in incompatible adjacent land uses, such as a noise-generating land use next to a noise-sensitive land use. Additionally, building modifications or new construction could have a negative effect on existing resources or be incompatible with existing land uses. For example, constructing parking facilities to support an interim use could conflict with existing land uses or biological resources.

The compatibility of proposed interim uses and associated building or ground modifications with existing remediation activities and existing/proposed adjacent uses could be considered on a case-by-case basis to ensure land use compatibility. The remedial investigation/feasibility study will consider compatibility of the construction activities during remediation with adjacent land uses.

5.2.3.2 Ground-Disturbing Activities

Minor ground-disturbing activities could be associated with preparing lands and facilities for interim use and conducting the interim use. Ground disturbance could result from modifying utility connections, installing meters, and changing access and parking to interim uses separate from Army uses. Grazing uses could continue in the open undeveloped portions of the installation. Construction and modification activities on undisturbed ground could have impacts similar to the impacts described in detail for the reuse alternatives in Volume II. Interim leases would be limited to uses that are compatible with existing structures and facilities without significant disturbance of undisturbed ground or disturbance of facility assets.

5.2.3.3 Public Service System and Infrastructure Modifications

Interim use could result in inadequate provision and maintenance of services, effects on available utilities, potential modifications to present utility systems, need for new utility systems or connections to utilities outside Fort Ord.

Public service infrastructure would remain intact during interim uses. The infrastructure would be maintained through interim use and would not deteriorate in those buildings and areas that have been leased by the Army. If the Army were to lease substantial amounts of the developed portion of the installation, the infrastructure would continue to be used and reduce operation and maintenance costs. The existing infrastructure, except for the existing Fort Ord telephone system, would be adequate to provide services to most of the potential interim uses. This telephone system could be inadequate to provide service to interim uses because of the system's poor condition.

In some cases, tenants may be required to supply their own utilities. This could occur with the Army metering available utilities from existing systems, or by the tenants arranging for municipal and commercial utilities. Construction and modification of utilities could have impacts similar to the impacts described in detail for the reuse alternatives in Volume II.

In areas that have not been leased or outgranted, the infrastructure could deteriorate from lack of use and periodic maintenance. The lack of use of portions of the water distribution system may result in water quality problems. The water remaining in unused portions of the system could stagnate in these distribution lines and lead to water quality problems if these lines are used again for reuse.

A utilities study is currently being conducted to identify the problems of abandoning or modifying services and related infrastructure to serve the POM annex. This study will also look at the existing infrastructure and systems to determine whether these systems could continue to provide services to interim uses as well as eventual reuse with the current system configuration.

To mitigate these effects, the telephone facilities could be upgraded or replaced as needed to provide adequate telephone service for interim uses.

5.2.3.4 Need for Public Safety and Emergency Services

The Army provides law enforcement, emergency medical services, and fire protection for the entire installation. These services will be downsized dramatically, increasing the potential for trespassing and vandalism and the need for law enforcement and fire protection for the interim uses.

Law enforcement, emergency medical services and fire protection for interim use could be provided by maintaining security patrols in all areas supporting interim uses until the property is transferred to non-Army entities; arranging for municipal or contract provision of these services; or establishing cooperative

or mutual-aid agreements with local jurisdictions, until the land is disposed. Conditions for law enforcement, emergency medical services, and fire protection should be considered and written into the lease. Additionally, abandoned buildings could be sealed and appropriate signs posted to discourage access.

5.2.3.5 Traffic Accessibility and Security Conflict

Security and accessibility conflicts could occur from the need to provide security for continuing Army (POM annex) uses and the need to provide convenient access to interim civilian uses. Closing or blocking access points and roadways could result in inaccessibility to interim uses and circulation problems at and around the interim uses.

There would be a need to define which access points and roadways would be abandoned or blocked to prevent unwanted encroachment, determine which access points and roadways would be required to serve the interim uses, and to ensure that no direct conflicts occur.

5.2.3.6 Air Quality Effects

Minor amounts of air emissions would be associated with the preparation of real estate for interim use. Operation of interim uses and related traffic would also result in air emissions, although the extent would be less than under existing conditions. Some permitted air emission sources may not be required during interim periods. Traffic and population levels would be lower and would result in temporarily lower emissions as lands are being made ready for transfer and long term reuse.

5.2.3.7 Noise Effects

Continued use of the firing and training areas could occur on an interim basis from other DOD, other federal, state, and local agencies and organizations, such as local law enforcement agencies. Noise impacts would be similar to existing conditions but frequency of events would be much less than under Army use. Noise would also be associated with traffic and construction activities related to the interim uses.

5.2.3.8 Socioeconomic Effects

Beneficial effects would occur as a result of employment and business activities related to interim uses, facilities made available to public and private interests, and vacant housing units used by non-Army residents. Interim use would have some economic benefit to the military and surrounding communities because the property would be used, and some employment and income could be generated by interim uses. The cost to the Army for maintenance and operation of vacant facilities would be reduced by having tenants provide some of these requirements or participate in paying for these costs. The lands would remain off the local tax roles and no real property taxes would be generated.

5.2.3.9 Cultural Resources Effects

Effects to potentially eligible National Register historic buildings, archeological resources, and Native American traditional cultural properties could occur through the inappropriate use or maintenance of these properties during this interim period.

Effects to National Register-eligible buildings could be avoided or minimized by providing appropriate levels of maintenance during the interim period, or by leasing the structures with appropriate clauses to ensure the continued maintenance of the historic character and materials. Recordation of structures to document the historic character may be used as a partial mitigation of effects to historic buildings (PA Stipulation V and Attachment 4).

Effects to potentially eligible archeological sites could be minimized through preservation covenants on deeds or leases or partial data recovery. Appropriate measures to take into account the effects of these actions will be developed in consultation with the California SHPO, the Advisory Council, and appropriate other interested persons during the Section 106 consultation process.

Effects to sites important to Native American groups could be avoided or minimized through consultation with the affected groups. Efforts to determine if such sites exist on Fort Ord are in progress.

5.2.3.10 Effects on Monterey Bay National Marine Sanctuary

The impacts to the sanctuary as a result of interim use would be similar to those identified for caretaker. However, increased interim use populations will contribute to heavier urban pollutant loadings in stormwater runoff that may affect the sanctuary. In addition, the potential increase in interim population may result in an increase in wastewater generation, resulting in an increase in the wastewater discharge into the sanctuary. The Monterey Regional Water Pollution Control Agency's (MRWPCA's) treatment plant in Marina currently discharges into the Monterey Bay as part of an national pollutant discharge elimination system (NPDES) Permit obtained from the State Water Resources Control Board (SWRCB). This permit may be revised based on sanctuary Management Plan regulations, but protocols are not yet in place between the state board and the National Oceanic and Atmospheric Administration (NOAA). During the interim period, the wastewater discharge into the Monterey Bay may increase if the population on the installation increases beyond existing levels.

5.3 DISPOSAL PROCESS

Disposal of Fort Ord property would entail the transfer of land and the change from exclusive federal legislative jurisdiction to state and local jurisdiction. For interim uses and leases, concurrent legislative jurisdiction may be used until the segment of Fort Ord that includes these lease and outgrant areas are permanently disposed, and state and local legislative jurisdiction is established.

Disposal could result in the following effects:

- public service infrastructure modifications,
- need for public safety and emergency services,
- traffic accessibility and security conflict,
- hazardous and toxic waste remediation effects,
- biological resources effects,
- visual effects,
- socioeconomic effects, and
- cultural resources effects.

5.3.1 Public Service Infrastructure Modifications

Disposal could result in public service systems and infrastructure effects, including inadequate provision and maintenance of services, effects on available utilities, potential modifications to present utility systems, and need for new utility systems or connections to utilities outside Fort Ord.

Disposal has the potential to adversely affect public service systems and infrastructure by creating inadequate access to maintain facilities and the need to expand local services and utility systems. The Army will provide for public utilities easements and is working with local communities and service providers to prepare for reuse of lands being disposed. Refer to Section 5.6, "Reuse Preliminary Final EIS Alternatives", and Volume II, "Public Services and Utilities."

5.3.2 Need for Public Safety and Emergency Services

The burden of providing services (e.g., law enforcement, fire protection, and emergency medical services) would become the responsibility of the state and local agencies. The impacts and mitigation for these potential impacts are described under the reuse impact descriptions. Refer to Section 5.6, "Reuse Alternatives", and Volume II, "Public Health and Safety".

5.3.3 Traffic Accessibility and Security Conflict

Disposal has the potential to change existing traffic and circulation by making portions of Fort Ord that are now restricted to entry as part of the security for the closed post, open to use by new owners and the public. A comprehensive safety, security, and access study could address these issues after the configuration of the POM annex is available.

5.3.4 Hazardous and Toxic Waste Remediation Effects

The investigation and remediation of hazardous and toxic material sites or ordnance explosive waste is an ongoing activity at Fort Ord that will continue after the installation is closed as an active installation and placed into a caretaker status. In some locations, the activity will continue up to and beyond disposal of property.

Toxic and hazardous materials cleanup may be required beyond the remediation appropriate to protect the human health and the environment under caretaker status where the Army chooses to dispose of property for non-Army uses. The remedial investigation/feasibility study process will identify specific alternatives for clean up and will include impact analyses and a public involvement program.

Air quality may be temporarily affected by remedial actions leading to disposal. Asbestos emissions during demolition and emissions of particulate matter less than or equal to 10 microns in diameter (PM₁₀) and hazardous air pollutants are possible. These impacts would be avoided or mitigated by implementing EPA asbestos cleanup procedures to limit public exposure to asbestos and by implementing dust-reducing measures during preparations for disposal to limit PM₁₀ emissions.

Portions of the installation would remain in a caretaker status while remediation actions are completed for them and other portions of the installation are available for disposal. The potential incompatibility of remediation action with leases of property or with adjacent property to remediation sites would be considered in determining the appropriate parcels to be made available for disposal and the sequence of actions needed to complete the remediation of all sites and disposal of the lands in excess of DOD requirements. Disposal may result in parcels being used by people who would be subjected to air and noise impacts from nearby construction and remediation actions. Implementing the remediation actions will include consideration of noise-reducing practices that could be used to avoid remediation-related noise impacts, including the following:

- Determine noise levels generated by remediation activities and establish minimum operating distances between remediation activities and noise-sensitive land uses. The minimum operating distance should be defined as the distance the activity must be so that noise from the activity is equal to the existing ambient noise level.
- Restrict noise-generating remediation activities located in the minimum operating distance of residences to daytime hours. No remediation activities should be performed within the minimum operating distance of an occupied dwelling unit on Sundays or legal holidays, or after 8:00 p.m. and before 8:00 a.m. on other days.

- Require equipment to have sound-control devices no less effective than those provided on the original equipment. No internal combustion engine should have an unmuffled exhaust.
- Require equipment to comply with pertinent equipment noise standards set by federal, state, and local agencies.
- Require the remediation contractor to implement appropriate additional noise mitigation measures, including changing the location of stationary equipment, shutting off motors or idling equipment, rescheduling the remediation activity, notifying adjacent residents before remediation work, installing acoustic barriers around stationary remediation noise sources, or rerouting circulation patterns of heavy trucks to avoid roads with nearby noise-sensitive land uses.

The federal government will retain responsibility for any hazardous toxic waste or ordnance explosive waste remediation that was caused by military use of the property even if it is not discovered by the intensive investigation and remediation actions and is discovered after disposal.

5.3.5 Biological Resources Effects

Disposal could result in the loss of federal protection for biological resources. The Army could develop cooperative agreements among the Army, local governments, resource agencies, and the future land managers or include reservations in the real estate transfer documents in the format of an HMP to avoid and mitigate these effects. Refer to Section 5.6, "Reuse Alternatives", and Volume II, "Vegetation, Wildlife, and Wetland Resources".

5.3.6 Socioeconomic Effects

Positive effects of disposal on the local communities could include placing real estate disposed to private interests into the state and local tax base. A substantial temporary increase would result in economic activity during the hazardous toxic waste remediation actions in the area by the direct expenditures for the contracts for remediation actions and remediation crews spending money on lodging, meals, recreation, and other services, which would lessen the adverse economic impacts. The construction of the infrastructure changes needed for disposal would also have positive effects on the local economy.

The disposal of large areas of land would have the potential negative effect on the local economy of placing real estate on the market in greater quantities than the market could absorb or at rates that may temporarily saturate some segments of the local market and temporarily reduce sale prices. The Army real estate disposal plan will consider these factors in determining how to dispose of Fort Ord property.

The disposal could result in the loss of Monterey Peninsula College's lower division general education program facilities. To avoid or mitigate these impacts, the Army could assist Monterey Peninsula College in relocating their programs.

5.3.7 Cultural Resources Effects

Effects to potentially eligible National Register historic buildings, archeological resources, and Native American traditional cultural properties could occur through the loss of federal protection when buildings and lands are sold and by splitting of proposed National Register districts. However, if lands possessing National Register-eligible properties are transferred to other federal agencies, these agencies will have the same obligation as the Army to be responsible stewards of these properties.

Effects to National Register-eligible buildings could be avoided or minimized by documenting the buildings and by working with all parties concerned, including the recipients, to develop appropriate reuse

scenarios that will preserve the historic character of the area. Such measures may include preservation covenants on deeds, leases, and articles of transfer or development of preservation plans to provide guidelines for compatible redevelopment.

Effects to any National Register-eligible archeological sites located during the inventory could be avoided, minimized, or mitigated in a number of ways, including preservation covenants, redesign, or data recovery. Appropriate treatment will be determined through the Section 106 consultation process.

If any Native American traditional or sacred properties are identified, effects could be avoided or minimized through cooperation with the affected Native American groups and other interested parties.

5.4 ESTABLISHMENT OF PRESIDIO OF MONTEREY ANNEX

Establishing a POM annex would require approximately 1,500 of the approximately 28,000 acres of Fort Ord land. This annex would provide support services for the Presidio of Monterey and the Defense Language Institute (DLI), as well as for other military facilities and other active-duty and retired military personnel in the region. The specific requirements of the POM annex are described in Section 2.0, "Proposed Action".

5.4.1 Army's Presidio of Monterey Annex

The Army's proposed POM annex is illustrated in Figure 2-8 in Section 2.0, "Proposed Action". The Army's proposed POM annex would employ approximately 1,000 civilian employees. This would include a caretaker force of approximately 100 persons, with functions similar to the present Directorate of Engineering and Housing. Approximately 400 persons in administrative support positions would occupy offices in the POM annex. Approximately 500 other people would be employed at the POM annex, including a few military personnel. Most of these would be Army Air Forces Exchange Service and Non-Appropriated Fund employees operating the commissary, post exchange, child care center, and other facilities at the POM Annex.

Establishing the Army's proposed POM annex would not require new construction or new development in currently undeveloped areas. Major effects of establishing the annex would be:

- building modifications,
- socioeconomic effects,
- public service infrastructure modifications,
- need for public safety and emergency services,
- traffic accessibility and security conflicts,
- air quality effects,
- noise effects,
- visual effects,
- cultural resources effects,
- effects on coastal zone resources, and
- effects on Monterey Bay National Marine Sanctuary.

5.4.1.1 Building Modifications

Although no new buildings are proposed for the POM annex, building modifications and renovations to 14 buildings would occur to upgrade buildings and accommodate other uses (i.e., classrooms). The buildings to be renovated include existing battalion classrooms, battalion headquarters, regimental headquarters, operations-supply, warehouses, and maintenance shops.

The following 14 buildings are to be renovated: 4463, 4481, 4489, 4488, 4499, 4499A, 4512A, 4512B, 4418, 4448, 4490, 4491, 4423, and 4450. These buildings range in size from 1,883 to 19,354 square feet, totaling 134,400 square feet. Major effects of building modification activities, such as demolition and construction, could include generation of noise, air emissions, and hazardous waste.

5.4.1.2 Socioeconomic Effects

The POM annex would employ approximately 1,000 persons in administrative, operations and maintenance, law enforcement, emergency medical and firefighting, and service positions. The 1,590 housing units would house a population of approximately 4,800 persons. The DLI would have space for approximately 500 students within the POM Annex and have a teaching and support staff of approximately 100 persons. Direct employment of approximately 1,000 persons with a payroll of approximately \$4 million would be attributed to the POM annex.

Approximately 1,100 students from the housing units would attend local schools. Local services would be required to support the population within the POM annex, but the extent of these services would be less than existing amounts.

The renovation of 14 buildings and the modifications in the infrastructure to support the POM annex will include expenditures of several million dollars.

5.4.1.3 Public Service System and Infrastructure Modifications

With establishment of the POM annex, the Army's demand for public services and utilities would be substantially less than at present. Excess utility capacity could be transferred to new users or sold by the Army. Service providers would continue to provide necessary services. Table 5-1 presents information on the capacity, existing usage, and requirements for water, wastewater, stormwater, and other major elements of the infrastructure to support the POM annex.

Infrastructure data from three ongoing studies will be used to refine the EIS discussion as the new information becomes available. These studies will identify the services and infrastructure required to serve the POM annex. The studies are evaluating those utility systems and will evaluate how utilities should be provided to the POM annex. The Army may retain existing wells, water treatment and distribution systems, and other utility systems. The potential to obtain needed utilities from municipalities, special service districts, and private suppliers will also be evaluated. Overall, the decreased demand for public services and utilities would be a beneficial effect. There would be less demand for potable water, which is a limited resource in the region. Water demand for the Army's proposed POM annex was estimated at approximately 3,300 acre-feet per year including nonpotable water used for irrigation, or about 50% of existing water use.

There could be a need to modify the existing infrastructure facilities because of substandard conditions from age and because of the need to accommodate the decreased demand. Additionally, the decreased demand would result in less use of some infrastructure systems. The lack of use could have adverse effects on these systems, causing the infrastructure to rust and deteriorate. Infrastructure modification could generate noise, air emissions, and hazardous materials which were discussed previously in this section under "Building Modifications".

The infrastructure modifications determined as necessary by the infrastructure study and water study could be implemented to minimize adverse effects. The results of these ongoing studies will be incorporated into the final EIS.

Table 5-1 Infrastructure and Utilities Required to Serve the Presidio of Monterey Annex

Public Service or Utility	Existing Fort Ord Usage ^a	Estimate of Future Presidio of Monterey Annex Usage ^b
Water		
Supply system (potable)	6,600 acre-feet per year	Approximately 3,300 acre-feet per year
Active wells	3	3
Reservoir/trunks	13 (10.3 million gallons per day)	13 (10.3 million gallons per day)
Pump stations	6 (9,100 gallons per minute)	6 (9,100 gallons per minute)
Supply system (nonpotable)	400 acre-feet per year	400 acre-feet per year
Active well	1	1
Reservoir/trunks	1 (2 million gallons)	1 (2 million gallons)
Wastewater		
Treatment systems		
East Garrison (onsite)	30,000 gallons per day	0
Main Garrison (MRWPCA)	3,500 acre-feet per year (3.3 million gallon per day allowance)	1,800 acre-feet per year (3.3 million gallon per day allowance)
Storm Sewer		
Monterey Bay outfalls	4 outfalls	4 outfalls
Dune and beach outfalls	3 outfalls	3 outfalls
Salinas River area outfalls	3 outfalls	0 outfalls
Electricity		
Supply system	105,000 megawatts	Approximately 40,000 megawatts
Main transformer	60-kilovolt system	60-kilovolt system
Distribution system	PG&E owned	PG&E owned
	12-kilovolt system	12-kilovolt system
Natural Gas		
	146 thousand cubic feet per hour	Approximately 70 thousand cubic feet per hour
Telephone Service		
Trunk lines (Seaside)	405 miles of cable	Retain existing Army telephone system
Solid Waste		
Disposal	94 tons	Approximately 45 tons
Collection	94 tons	Approximately 45 tons
Cable Television		
	Approximately 6,500 customers	Approximately 1,600 customers

^a Includes all of Fort Ord, including areas outside the Presidio of Monterey annex.

^b These are approximate infrastructure and utility requirements and measures to provide infrastructure and supply utilities, based on information provided by Fort Ord. Ongoing studies are being conducted, and additional information will be included in the final EIS.

5.4.1.4 Need for Public Safety and Emergency Services

Law enforcement and fire protection services would continue to be provided within the POM annex. There would be a requirement for approximately 41 law enforcement personnel. Approximately five fire-fighters and emergency medical personnel would also be needed as part of the employees to be stationed at the POM annex. Approximately 140 fire calls and 70 emergency medical calls from the POM annex annually are anticipated. People in the POM annex would continue to be subjected to risks from seismic events.

Hazardous materials including asbestos and lead-based paint may exist in the buildings to be renovated for the POM annex. Building debris also could be classified as hazardous waste. Generation and disposal of hazardous waste would need to comply with federal laws and regulations to avoid public health impacts.

5.4.1.5 Traffic Accessibility and Security Conflict

The POM annex will need to retain access, as it will support the following traffic-generating populations:

- 1,000 civilian employees not living on the installation;
- 100 DLI teachers not living on the installation;
- 500 DLI students living on the installation;
- the residents of 1,590 family housing units most of whom would work off the installation;
- active-duty military, dependents, and military retirees who would use the commissary and post exchange; and
- two 18-hole golf course for use by active military, dependents, and retirees.

These uses are estimated to generate approximately 20,000 daily trips, 2,900 of which would occur during the p.m. peak hour. Light Fighter Drive currently has only two lanes in each direction past the guard station, providing a peak-hour capacity of approximately 3,000 vehicles in each direction. Light Fighter Drive could carry approximately 2,400 vehicles at level of service (LOS) C. Because the trips from the housing units would be inbound during the p.m. peak hour and the trips from on-installation employees would be outbound, approximately 1,600 trips would be inbound and 1,300 outbound. There would, therefore, be enough capacity to satisfy this demand at LOS C. This analysis does not consider the constraint to the entrance capacity that may occur at the intersection of Light Fighter Drive and 1st Avenue, which is signalized. No mitigation is necessary. Light Fighter Drive does not have a great deal more capacity than would be needed to support the POM annex at LOS C, and access to other portions of Fort Ord may need to be from other entrances or from additional roadway capacity established for other than POM annex traffic.

There would remain a need for more than one access route for the POM annex. Light Fighter Drive would serve as the main access route for the POM annex. The provision of a second access is needed to ensure that police, fire, and other emergency vehicles would have access to the POM annex in the event that Light Fighter Drive becomes inaccessible. The Army could undertake a study to determine the best possible second access route for the POM annex. This could be done as part of a comprehensive safety, security, and access study that needs to be undertaken once the final configuration of the POM annex is available. Candidates for a second route would include existing access points such as the 12th Street, Coe Avenue, and Broadway gates.

The need for traffic accessibility and the need for security at the POM annex could cause a conflict. The POM annex may need to be secured from open public access; however, military retirees and personnel from the Presidio of Monterey and other military facilities in the region would need to access the POM annex to use the post exchange, commissary, and other support services. The need to provide adequate access

to the POM annex versus the need to ensure security should be considered in establishing interim uses in the POM annex or uses requiring access via the annex. Measures could include establishing security gates at the POM annex, where a guard would allow only people with passes or permits to enter; establishing automated security gates with electronic cards as passes; or limiting the hours that entrances would be open if general public access without security checkpoints is desired.

The Army's proposed POM annex does not include the housing area (kidney shaped), which is located immediately south of the post exchange, commissary, and noncommissioned officers' club and north of Stilwell School. However, the configuration of the POM annex would result in no access to the housing area other than through the POM annex.

5.4.1.6 Air Quality Effects

Minor amounts of air emissions would be generated, primarily PM₁₀ dust and possibly ozone precursors if heavy-duty construction equipment is used during the renovations. The measures described for reuse could be used. Refer to Section 5.6, "Reuse Alternatives", and Volume II, "Public Services and Utilities."

5.4.1.7 Noise Effects

Noise impacts would occur from renovation near noise-sensitive land uses such as the hospital, offices, and residential areas. The noise-reducing measures described for reuse could be used, especially during late evening and at night. Refer to Section 5.6, "Reuse Alternatives", and Volume II, "Public Services and Utilities."

5.4.1.8 Visual Effects

Substantial renovation of buildings and modification of infrastructure could produce short-term visual impacts. These impacts would occur from construction activities, including development of equipment storage areas and removal of vegetation. Long-term visual impacts could occur from vegetation removal and alteration of the appearances of buildings.

5.4.1.9 Cultural Resources Effects

None of the buildings proposed for renovation as part of the POM annex are considered to be eligible for listing in the National Register. Lands within the cantonment area are generally considered to be highly disturbed and are not recommended for archeological survey.

5.4.1.10 Effects on Coastal Zone Resources

Establishing the Army's POM annex could result in degradation of water quality from release of hazardous materials during construction. Water quality could also be degraded by increased urban runoff.

5.4.1.11 Effects on Monterey Bay National Marine Sanctuary

The establishment the Army's POM annex would not have any significant impacts on the sanctuary. However, the population size and the intensity of the use Army's POM annex would result in a proportionate amount of pollutant load levels with increased runoff and wastewater discharge.

5.4.2 City of Seaside's Recommended Presidio of Monterey Annex

As described in Section 2.0, "Proposed Action", the City of Seaside has proposed an alternative to the Army's proposed POM annex (Figure 3-3 in Section 3.0 "Alternatives"). Seaside's proposal would relocate the military enclave to a contiguous area east of North-South Road. This area includes some lands proposed by the Army for military enclave and other lands that the Army intends to declare excess. Seaside would assume ownership of the lands west of North-South Road, remove most of the existing structures, and redevelop the area. Funds for redevelopment would be used to construct replacement facilities for the Army, including military family housing, the commissary, post exchange, and other facilities. Seaside would retain a master developer to design and develop the area. The development of new facilities for the Army would occur over approximately 15 years in a phased transition. Approximately 700 acres of undeveloped land would be modified in the process.

Establishing Seaside's recommended POM annex would require new construction and new development in currently undeveloped areas. Major effects of establishing the annex would be:

- socioeconomic effects,
- public service infrastructure modifications,
- need for public safety and emergency services,
- traffic accessibility and security conflict,
- air quality effects,
- noise effects,
- biological resources effects,
- visual effects,
- soils, geologic, and seismic effects,
- recreation effects,
- cultural resources effects,
- effects of coastal zone resources, and
- effects on Monterey Bay National Marine Sanctuary.

5.4.2.1 Socioeconomic Effects

The number of people employed and the number of families and students housed in the POM annex would not change from the Army's proposal; only the locations would change. Also, the need to renovate existing structures to support the POM annex students would remain. Therefore, the economic implications would be similar. The principal difference would be that the construction of new facilities and demolition of old Army structures would provide a number of additional local jobs during the POM annex development phase. This effect is beneficial.

5.4.2.2 Public Service System and Infrastructure Modifications

Establishment of Seaside's recommended POM annex would reduce the demand for most local services as described for the Army's proposed annex. Existing systems would likely need modification because of the smaller size and altered configuration of the military annex. The biggest difference between the Army and Seaside proposals is that the Seaside plan requires an extension of all infrastructure into undeveloped land. The extension of sewer, water, gas, electrical, and telephone systems could have major implications because these systems would be extended into an undeveloped area. There would also be impacts from trying to connect older systems to newer ones. The feasibility of extending these older systems has not been investigated.

Another significant problem could arise as individual parcels of Army land west of North-South Road are turned over to Seaside through the phased transition process. This transition of ownership would also require a transition of infrastructure provision, operation, and maintenance. Without careful planning, the

potential for interrupted or inefficient service due to a checkerboard pattern of responsibility would exist. The Army's ongoing studies of providing service to the POM annex are not considering solutions to the Seaside's recommended POM annex configuration.

Water demand for Seaside's recommended POM annex would be less than the 3,300 acre-feet predicted for the Army POM annex because the golf courses would no longer be a part of the annex. This change would reduce the Army's demand by about 400 acre-feet annually (this demand is for nonpotable water only). The regional demand would not be altered, however, because the City of Seaside would continue to irrigate the golf courses.

The potential for infrastructure problems as Seaside's recommended POM annex is established could be reduced by conducting a thorough facilities master planning effort. Detailed information on the condition of existing Army infrastructure would need to be collected and the long-term needs of both the Army and the surrounding communities would have to be addressed. This study would have to be undertaken by the City of Seaside.

5.4.2.3 Need for Public Safety and Emergency Services

Seaside's recommended POM annex would generate the same general level of demand for public safety and emergency services as would the Army's annex, including police and fire protection and emergency medical services. The location of the demand would be slightly different, and the military community might be slightly more fragmented during the phased transition from its current configuration to the Seaside configuration. The fragmentation might cause occasional confusion over responsibility for responding to emergency calls.

The construction of new homes and service facilities further to the east in steeper terrain creates a similar risk of fire damage than would exist for the Army's proposed POM annex. The coastal oak woodland and coastal scrub vegetation on this portion of the installation would create a significant fire hazard, especially in areas of steep slopes.

Establishment of Seaside's recommended POM annex would involve construction in previously developed areas of the installation with known land use and hazardous waste histories and in areas that have been investigated as part of the Superfund cleanup process. Construction also would occur in undeveloped areas or areas that may not have been characterized as part of the Superfund cleanup process at Fort Ord. The potential for development on unidentified hazardous waste or unexploded ordnance in these areas would be slight because of the cleanup and certification process required by the Army and EPA for land transfer.

Establishment of Seaside's recommended POM annex also would involve modifying existing structures and demolishing of numerous other structures. The majority of buildings at Fort Ord contain asbestos; some buildings may contain lead-based paint and other potentially hazardous materials. Infrastructure and building modifications necessary to establish the Seaside's recommended POM annex might release asbestos into the environment; building debris from these modifications could be classified as hazardous waste.

Generation and disposal of hazardous waste during building demolition would require compliance with federal and state laws and regulations regarding the handling of hazardous wastes and materials. In response to the additional fire hazard to residents along the eastern portion of the annex, the Army would have to retain structural and wildland fire fighting capabilities within the POM annex or develop cooperative agreements with existing or new fire districts to provide this protection.

5.4.2.4 Traffic Accessibility and Security Conflict

The establishment of Seaside's annex would have traffic generation impacts similar to those described above for the Army's proposed POM annex. The significant difference would be that the Seaside's recommended POM annex would be more removed from the existing Light Fighter Drive and Broadway access points. This circumstance would require additional planning to ensure adequate access for Seaside's recommended POM annex employees; it would also require different security measures to ensure at least two access and egress points for Seaside's recommended POM annex in case of fire or other emergency evacuation situations.

The current circulation system would require modification to provide access to the new construction areas east of North-South Road. Street capacities and geometrics would have to be analyzed to ensure that the new and existing systems would be compatible.

During the phased construction of the new portions of Seaside's recommended POM annex, there may be dislocations of facilities that make travel within the annex less efficient for military personnel and retirees. The checkerboard pattern of Seaside and Army property west of North-South Road will also make it more difficult and less efficient to provide security for both military and civilian residents.

It would be necessary to prepare an access, security, circulation and safety plan to anticipate the various concerns described above for establishment of Seaside's recommended POM annex. The infrastructure study recently prepared for the Army's proposed POM annex did not address the special transportation and security needs of the Seaside configuration.

5.4.2.5 Air Quality Effects

Air quality effects related to building modification would be essentially the same for Seaside's recommended and Army's proposed POM annexes. Land grading associated with new building construction, and demolition of older structures, however, would create additional impacts for the Seaside proposal. The increase in local particulate levels and ozone precursors would be greater under this option. This situation would continue throughout the 15-year transition period.

Standard construction and demolition mitigation measures designed to control dust and internal combustion engine emissions would need to be implemented to minimize air quality impacts.

5.4.2.6 Noise Effects

Noise effects associated with establishing Seaside's recommended POM annex would be substantially greater than those of establishing the Army's proposed POM annex. Construction of new buildings and demolition of old structures would create short-term impacts in the vicinity of the activity. Noise-sensitive land uses that would be affected include the golf courses, the hospital, residential areas, and possibly newly established classrooms serving DLJ students. Several schools may also be affected.

Construction and demolition specifications for work on Seaside's recommended POM annex would have to include design and construction methods that reduce sound transmission. Types of equipment, hours of operation, use of temporary sound barriers, and preservation of buffer areas could be specified for areas adjacent to noise-sensitive activities.

5.4.2.7 Biological Resources Effects

Establishing Seaside's recommended POM annex would have negative effects on vegetation and wildlife resources because new construction would be required in undeveloped open space. No such open space development is required for the Army's proposed POM annex. The size of the area affected is

relatively small however, totaling approximately 700 acres. Buildout of this annex would result in the loss of coastal coast live oak woodland and coastal scrub habitats. Occupied habitat of Monterey spineflower would also be lost. Should the Monterey spineflower become listed as threatened or endangered, the loss of individuals or populations would violate the federal Endangered Species Act.

Construction for Seaside's recommended POM annex would not affect any federally listed or proposed wildlife species; however, several federal candidate wildlife species, California species of special concern, and special-interest wildlife species would be adversely affected by habitat losses and potential direct mortality during construction. Species potentially affected include the Monterey ornate shrew, Monterey dusky-footed woodrat, black legless lizard, coast horned lizard, and Salinas harvest mouse.

Construction for Seaside's recommended POM annex would also result in the loss of occupied habitat of plant species that are candidates (Category 1 or 2) for federal listing as threatened or endangered, or species for which listing packages are in preparation: sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, and wedge-leaved horkelia. Loss of habitat would also occur for two other special-status plant species: Hooker's manzanita (California Native Plant Society [CNPS] List 1b) and virgate eriastrum (CNPS List 4). Plant preserve 3 occurs near the east boundary of Seaside's recommended POM annex and could be removed under buildout. A small portion of habitat in significant natural area 040 may be lost. No wetlands would be affected by buildout of Seaside's recommended POM annex.

Mitigation for loss of vegetation and wildlife resources is described in detail in the reuse portion of this section and in Volume II, "Vegetation, Wildlife, and Wetland Resources". The City of Seaside would need to participate in a multi-species HMP to minimize impacts to sensitive plants and animals that occupy the eastern portion of the proposed annex. Loss of the oak woodland and coastal scrub habitats could be minimized through design of the newly developed area; islands of habitat could be preserved where feasible and replacement implemented as dictated by the HMP.

5.4.2.8 Visual Effects

Establishing an approximately 1,500-acre Seaside recommended POM annex east and south of the installation's main entrance could reduce the visual quality of some highly sensitive views from State Route 1, which is proposed as a state-designated scenic highway and is heavily used by recreationists and tourists. Some of the proposed annex area is visible from Monterey Bay, which receives heavy use by recreationists. Although most of the area designated for Seaside's recommended POM annex is classified as low visual quality, most of it is highly visible from important visitor-use areas and has high visual unity based on generally consistent architectural styles for buildings located there.

Specific building footprints were not included in the proposal. Creating Seaside's recommended POM annex may require construction of a substantial number of buildings, renovation of existing buildings, and modification of infrastructure. These activities would produce short-term visual impacts and could produce long-term visual impacts. Short-term visual impacts would occur from construction activities, including location of equipment storage areas, removal of vegetation, and infrastructure modifications. Long-term visual impacts could occur from removal of vegetation; construction of new buildings; alteration of the appearances of buildings and other structures; and construction of improvements such as recreation facilities, parking areas, lighting standards, and fences.

The activities described above could result in a substantial reduction in visual unity and intactness for some visually sensitive areas for views from State Route 1 and other important visitor use areas in and around Monterey Bay, which could be inconsistent with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of coastal areas.

Visual resource management standards should be developed for the portions of Fort Ord clearly visible from State Route 1 and other major public access points in the Monterey Bay area before development proceeds in the upland portions of the Seaside's recommended POM annex.

5.4.2.9 Soils, Geologic, and Seismic Effects

Implementation of Seaside's recommended POM annex proposal would create soils and geologic concerns not present with the Army's proposed POM annex. Construction of replacement buildings and infrastructure east of the existing developed Garrison area would destabilize soils and slopes in an area of relatively steep slopes (10-30%). Wind and water erosion would increase, as would resulting sedimentation in local drainages. The soil resource that supports the limited areas of coastal oak and scrub vegetation in the Monterey Bay area would also be permanently diminished. Housing construction on the steeper terrain of Fort Ord would increase the risk of property damage and create a greater public safety hazard when compared to the Army's proposed POM annex proposal.

Damage to and loss of soils and increased risk of property damage could be reduced by minimizing construction on the steeper slopes in the new construction area. Where steeper slopes are modified, significant erosion control measures should be written into construction specifications. A non-point-source pollution control permit under Section 401 of the Clean Water Act will be needed to implement the construction project. Erosion and sediment control measures must be specified in this permit.

5.4.2.10 Recreation Effects

Establishing Seaside's recommended POM annex rather than the Army's proposed POM annex would remove the two existing golf courses from Army control and, therefore, from exclusive access by military personnel. This loss of recreation opportunity is considered a significant factor by the Army. Other developed recreation facilities lost by switching to Seaside's recommended POM annex would eventually be replaced in the new construction area by the City of Seaside. These facilities include the football stadium, bowling alley, theaters, and noncommissioned officers' club.

An agreement between the Army and the City of Seaside for continued access to the golf courses by military personnel could be worked out before transfer to limit the loss of recreational opportunity for military personnel and retirees.

5.4.2.11 Cultural Resources Effects

Effects to archeological resources could occur with implementation of Seaside's POM annex. Archeological surveys may be necessary if construction projects fall within the area of moderate to high sensitivity as defined by the archeological research design that will be reviewed by appropriate agencies and tested during the BRAC process.

5.4.2.12 Effects on Coastal Zone Resources

Establishing Seaside's recommended POM annex could result in degradation of water quality from release of hazardous materials during construction. Water quality could also be degraded by increased urban runoff.

5.4.2.13 Effects on Monterey Bay National Marine Sanctuary

Establishing Seaside's recommended POM annex would not have any significant impacts on the sanctuary. However, the population size and the intensity of the use of Seaside's POM annex would result in a proportionate amount of pollutant load levels with increased runoff and wastewater discharge.

5.4.3 No Presidio of Monterey Annex

If no POM annex is established, the approximately 1,500-acre area would remain. The implications are described under Section 5.2.1 "Caretaker". Eventually, the land. There would no longer be adequate support services for the Presidio of Monterey and its facilities, and other active-duty and retired military personnel in the region.

The beneficial effects of having no POM annex would include a substantial reduction in demand for public services and utilities (i.e., 3,300 acre-feet per year less demand for water). The estimated requirements to serve the POM annex and, therefore, the amount of demand with no POM annex.

5.5 RETENTION OF RESERVE CENTER

The Army would retain the approximately 12-acre reserve center located on Reservation Road. Although it would be north of and separate from the proposed POM annex, the center would remain under military control and continue its current use. The center is authorized to participate in the reserve program is 340; however, only a portion of the reserve center at any given time.

No new structures are proposed at the reserve center. Minor utility modifications may be required as the adjacent lands are disposed. Major effects at the reserve center could include land use incompatibilities resulting from activity at the reserve center or to modify the existing public service systems or infrastructure because of substandard or to acquire public services from an outside entity because the reserve center would be separate from the POM annex. Because of the proximity of the reserve center to Reservation Road, infrastructure could be located in the road right-of-way.

The infrastructure needs of the reserve center will be defined in three ongoing studies previously in this section under "Establishment of Presidio of Monterey Annex". The infrastructure needs of the reserve center, which could then be incorporated into the final EIS.

5.6 REUSE ALTERNATIVES

This section describes the impacts or consequences of reusing Fort Ord. The reuse alternatives analyzed in this EIS inherently includes the Army's proposed POM annex. This section provides the cumulative effects of the Army's action with total buildout of each reuse alternative.

This document analyzes the impacts of the following six reuse alternatives as described in Section 3.0, "Alternatives", not all of the reuse alternatives include

- Alternative 1: High-Intensity Mixed Use
 - Subalternative A: No Presidio of Monterey Annex/No Reserve Center
 - Subalternative B: Seaside's Recommended Presidio of Monterey Annex
 - Subalternative C: Partial Variation of High-Intensity Mixed Use

- Alternative 2: Medium-Intensity Mixed Use
 - Subalternative A: No Presidio of Monterey Annex/No Reserve Center
 - Subalternative B: Seaside's Recommended Presidio of Monterey Annex

- Alternative 3: Low-Intensity Mixed Use
- Alternative 4: Institutional Use
- Alternative 5: Open Space
 - Subalternative A: No Presidio of Monterey Annex/No Reserve Center
- Alternative 6: Anticipated Reuse (Revised)

The impact analysis is organized by reuse alternative and by issue area within each alternative so that the impacts of each reuse alternative can be evaluated individually.

Following the discussion of each alternative is a discussion of the applicable subalternatives. A summary of impacts and conclusions per alternative by resource area is presented at the end of each reuse alternative.

The final EIS identifies each mitigation commitment of the Army for revised Alternative 6. These commitments are summarized in Section 5.6.7.17. Mitigation commitments have not been identified for Alternatives 1-6 because as a result of comments received on the draft EIS, these reuse alternatives were eliminated from further consideration because they would result in significant environmental or socioeconomic impacts if implemented as formulated. Therefore, no new additional analysis has been conducted or mitigation commitments identified for the final EIS.

Mitigation commitment of the Army is identified by the use of "will" in Section 5.6.7.17. Mitigation that would avoid or substantially reduce significant environmental impacts is identified by the use of "could". These measures are generally the responsibility of other federal, state, and local agencies and private entities responsible for development and are described in Section 6.0 for Alternative 6R and in Volume II, "Detailed Analysis of Disposal and Reuse". Mitigation commitment of the Army will be included in the record of decision (ROD).

A summary table is provided that quantifies the impacts of each reuse alternative and its subalternatives is provided by resource area. Although the summary table is referred to in each reuse alternative discussion, the table appears only after the first reference to it under Alternative 1. All of the other alternatives and subalternatives reference that table; the table is not duplicated within each reuse alternative.

Criteria used in determining the significance of impacts for each resource area are described in Table 5-2. The methods of comparison for the discussions of air quality and noise impacts are described under Alternative 1. However, this methodology applies to all the alternatives and subalternatives.

The summary table located at the end of this section lists all the impacts by reuse alternative for each issue area. The detailed analysis by issue area is contained in Volume II, "Detailed Analysis of Disposal and Reuse". However, the detailed analysis by issue area for the revised Alternative 6 (6R) analysis is contained in Section 6.0 of this document.

5.6.1 Alternative 1: High-Intensity Mixed Use

5.6.1.1 Land Use

Of the six reuse alternatives, the most intensive reuse of the installation is proposed under Alternative 1. Approximately 65% of the currently undeveloped portion of the installation is proposed for development under Alternative 1. The major land use impacts of Alternative 1 relate to incompatibilities between proposed and existing land uses, incompatibilities between proposed land uses, and inconsistencies with relevant state and local plans and policies.

Table 5-2. Criteria Used in Determining Significance of Impacts

Issue Area	Significance Criteria
Land Use	<ul style="list-style-type: none"> ■ Substantial conflicts between proposed land uses or ■ substantial conflicts between proposed and existing adjacent land uses.
Socioeconomics	
Population	<ul style="list-style-type: none"> ■ Substantial change in population (increases or decreases).
Schools	<ul style="list-style-type: none"> ■ The need for the expansion or substantial alteration of the existing school system.
Recreation	<ul style="list-style-type: none"> ■ The need for substantial additional developed parks to conform to acceptable local standards or ■ a substantially decreased quality or quantity of existing recreational opportunities.
Soils, Geology, Topography, and Seismicity	<ul style="list-style-type: none"> ■ Destruction of any unique soil type or geologic feature, ■ decreased permeability and increased runoff substantially accelerating water-induced soil erosion on land surfaces and in stream channels, ■ substantial construction in a zone of high beach or coastal erosion, ■ substantial accelerated sedimentation of water bodies or land by transported sediment, ■ substantial degradation of a soil type that is an ecosystem component of a critical or sensitive natural habitat, or ■ substantial increased landscape instability or landslides through topographical or slope alterations.
Public Services and Utilities	
Wastewater	<ul style="list-style-type: none"> ■ Need for substantial expansion of wastewater treatment plant and collection capacity or alteration of the existing system; ■ substantial disruption to existing wastewater service; or ■ violation of national, state, or local wastewater standards.
Solid Waste	<ul style="list-style-type: none"> ■ Generation of a substantial amount of additional solid waste or ■ substantial decrease in landfill life.
Telephone System	<ul style="list-style-type: none"> ■ None.

Table 5-2. Continued

Issue Area	Significance Criteria
Gas or Electrical System	<ul style="list-style-type: none"> ■ Substantial increase in energy consumption or energy waste.
Cable Television	<ul style="list-style-type: none"> ■ None.
Storm Drainage System	<ul style="list-style-type: none"> ■ Substantial increased runoff peaks over existing conditions because any increase in site runoff could exacerbate local or downstream flood-prone areas or ■ location of any structures in the Federal Emergency Management Area-approved 100-year floodplain.
Water Distribution Infrastructure	<ul style="list-style-type: none"> ■ None.
Water Resources	
Hydrology and Water Quality	<ul style="list-style-type: none"> ■ Substantial degradation of water quality such that it would not meet water quality criteria or objectives identified in the basin plans of the Central Coast Regional Water Quality Control Board's Water Quality Control Plan; ■ any substantial alteration of surface waters on the installation and in Monterey Bay, including temperature, dissolved oxygen, or turbidity, that would cause conflicts with standards as identified in federal or state law; or ■ disturbance of existing channel banks and channel beds to the extent that erosion and siltation could occur upstream or downstream.
Water Supply and Demand	<ul style="list-style-type: none"> ■ Substantial interference with groundwater recharge or potential depletion of groundwater resources used for other beneficial uses.
Public Health and Safety	
Law Enforcement	<ul style="list-style-type: none"> ■ Need for substantial additional law enforcement staff and equipment to maintain acceptable service ratios.
Fire Protection	<ul style="list-style-type: none"> ■ Substantially intensified fire hazard or ■ need for substantial additional fire protection staff and equipment to maintain acceptable service standards.
Medical Services	<ul style="list-style-type: none"> ■ Need for substantial expansion of or substantial alteration to the medical services system or substantial disruption of medical services.
Emergency Medical Services	<ul style="list-style-type: none"> ■ Need for substantial expansion of or substantial alteration to the emergency medical services system, or ■ substantial disruption of existing services.

Table 5-2. Continued

Issue Area	Significance Criteria
Seismic Safety	<ul style="list-style-type: none"> ■ None.
Traffic and Circulation	<ul style="list-style-type: none"> ■ Generation of traffic levels requiring the expansion of existing roadways or construction of new facilities.
Air Quality	<ul style="list-style-type: none"> ■ Violation of any ambient air quality standard, contributes substantially to an existing or projected air quality violation, or exposed sensitive receptors to substantial pollutant concentrations; ■ generation of emissions exceeding levels in the MBUAPCD emission thresholds contained in the 1991 MBUAPCD Air Quality Management Plan of 150 pounds per day for ROG and NO_x, and 86 pounds per day for PM₁₀ (Monterey Bay Unified Air Pollution Control District 1991; Monterey Bay Air Pollution Control District pers. comm.); or ■ conflict with the federal Clean Air Act amendments of 1990; the California Clean Air Act of 1988; or federal, state, or local air quality plans or associated guidance.
Noise	<ul style="list-style-type: none"> ■ Generation of noise that would conflict with applicable noise regulations, ■ exposure of people to severe noise levels, or ■ land uses that are incompatible because of noise.
Hazardous and Toxic Waste Site Remediation	<ul style="list-style-type: none"> ■ None.
Vegetation, Wildlife, and Wetland Resources	<ul style="list-style-type: none"> ■ The reduction of a fish or wildlife population dropping below self-sustaining levels; ■ possible elimination of a plant or animal community; ■ substantial affect on reduction of the number, or restriction of the range of unique, rare, or endangered species of animals or plants, or the habitat of the species; ■ substantial interference with the movement of any resident or migratory fish or wildlife species; ■ introduction of new species of plants or animals into an area or introduce a barrier to the normal replenishment of existing species;

Table 5-2. Continued

Issue Area	Significance Criteria
Vegetation, Wildlife, and Wetland Resources (Continued)	<ul style="list-style-type: none"> ■ adverse effect on riparian habitat, wetlands, or other special-status biological communities; ■ conflict with federal or state policies, such as those regarding wetlands and oak woodland; ■ substantial conflict with special ecological areas; or ■ substantial conflict with special-status species as defined as follows: <ul style="list-style-type: none"> - plants and animals listed or proposed for listing under the federal Endangered Species Act (50 CFR 17.12 [listed plants] and 50 CFR 17.11 [listed animals] and various notices in the Federal Register [proposed species]); - plants and animals that are Category 1 or 2 candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (55 FR 6184, February 21, 1990, for plants and 54 FR 554, January 6, 1989, for animals); or - plants and animals listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 CFR 670.5).
Visual Resources	<ul style="list-style-type: none"> ■ None.
Cultural Resources	<ul style="list-style-type: none"> ■ Adverse effect on properties that are on or considered eligible for the National Register of Historic Places or ■ adverse effect on Native American traditional cultural properties.
Coastal Resources Zone	<ul style="list-style-type: none"> ■ Inconsistency with the California Coastal Act of 1976.
Monterey Bay National Marine Sanctuary	<ul style="list-style-type: none"> ■ Activities that are clearly capable of generating conflicts that could harm the resources of the Marine area (e.g., oil and gas development, dredged soil disposal, discharges of pollutants).

Several land uses are proposed that would be incompatible with existing land uses in the area. Residential areas are proposed adjacent to agricultural lands in the eastern and southeastern portions of the installation. These agricultural lands are of all classifications, including prime agricultural land, the highest classification of agricultural land.

Several land uses are also proposed that would be incompatible with other proposed land uses. These include placement of a light-industrial use adjacent to a recreational vehicle park/campground, a university, and a community park. Additional land use incompatibilities include conflicts between a proposed amphitheater and a proposed residential area, and conflicts between a proposed office park and a proposed natural area expansion.

Development patterns that would be inconsistent with relevant state and local plans and policies are also proposed under Alternative 1. These inconsistencies include creation of development patterns that are not consistent with the 1982 State Implementation Plan or the 1991 Air Quality Management Plan (AQMP); the expansion of development in areas without adequate infrastructure; development in areas not designated for growth; disregard for infill; inadequate provision of open space; land use incompatibilities; inadequate protection of sensitive environments and habitats; development in areas of 30% or greater slope; and inconsistencies with policies that relate to groundwater resources and preservation of visual resources.

5.6.1.2 Socioeconomics

Population and Housing. Implementation of Alternative 1 would directly increase the population and housing stocks of Monterey County and the Cities of Marina and Seaside. As shown in Table 5-3, the countywide population would increase by an estimated 212,200 (59%), and the housing stock would grow by 67,600 units (56%). This growth, when annualized over the assumed 50-year buildout period, would not exceed significance thresholds established for population and housing effects.

After accounting for the effects of closure, Marina's population would increase by approximately 3,000 residents, and its housing stock would increase by 1,350 units. Seaside's population would grow by about 32,000 residents, and its housing stock would increase by 8,500 units under this alternative.

The ratio of jobs to housing within Monterey County would incrementally decrease from 1.36 to 1.10. This effect is considered beneficial because it would bring the jobs/housing ratio within the 0.75-1.25 range that is generally considered to be optimal.

Regional Economy. Implementation of Alternative 1 would result in the development of employment-generating land uses that would create an estimated 69,700 direct jobs and 46,300 secondary jobs within Monterey County. Subtracting the effects of closure would result in a net increase of approximately 89,000 jobs (Table 5-3), representing a 54% increase in countywide employment. An estimated 13,000 of the direct jobs would be located in Marina, and 20,000 jobs would be located in Seaside.

After accounting for closure reductions, total output in Monterey County is estimated to increase by \$7.2 billion, a 59% increase over baseline conditions. Similarly, personal income is estimated to increase by \$2.4 billion in Monterey County, a 50% increase over baseline conditions.

Social Services. Economic activity generated by implementation of Alternative 1 could benefit social services programs provided by Monterey County and nonprofit organizations, including welfare services and jobs training and placement programs, by increasing employment opportunities, decreasing unemployment, and generating increased income in the county.

As currently defined, Alternative 1 would result in no housing set aside for the homeless. Based on the current need for housing for the homeless in Monterey County, implementation of Alternative 1 would increase the need for housing for the homeless and lower income households.

Table 5-3 Comparison of Net, Incremental Socioeconomic Changes at Buildout by Reuse Alternative

Reuse Alternative	Population ^a	Housing Units ^b	Jobs/ Housing Ratio ^c	Employment ^d	Output (millions of 1991 dollars) ^e	Personal Income (millions of 1991 dollars) ^f
Alternative 1	212,200	67,600	1.10	89,000	\$7,170	\$2,390
Subalternative A	226,900	71,000	1.08	88,000	7,230	2,430
Subalternative B	212,800	67,700	1.33	150,500	11,300	4,170
Subalternative C	252,700	79,600	1.31	167,000	12,590	4,680
Alternative 2	78,000	22,200	1.52	107,500	7,880	2,840
Subalternative A	93,600	25,800	1.50	109,400	8,130	2,934
Subalternative B	87,600	25,400	1.40	86,600	6,930	2,460
Alternative 3	48,200	14,700	1.31	35,100	3,260	860
Alternative 4	(3,770)	(1,500)	1.43	22,800	1,800	280
Alternative 5	(30,000)	(13,900)	1.32	(22,900)	(290)	(510)
Subalternative A	(30,000)	(13,900)	1.29	(26,800)	(400)	(540)
Alternative 6R	(7,000)	(4,000)	1.57	26,649	1,705	152

Notes: () denotes a net, incremental decrease.

^a Represents the direct, incremental change in population less closure effects. Monterey County population totaled 361,560 in 1991.

^b Represents the direct, incremental change in housing units less closure effects. Monterey County's housing stock totaled 121,224 housing units in 1991.

^c Represents the ratio of jobs to housing units within Monterey County with additions of jobs and housing under the reuse alternatives less closure effects. The estimated 1991 jobs/housing ratio in the county was 1.36.

^d Represents the net, incremental change in direct and secondary employment less closure effects. Estimated employment in Monterey County totaled 164,900 in 1991.

^e Represents the net, incremental change in direct and secondary industrial output less closure effects. Estimated baseline output totaled \$12,250 million in Monterey County.

^f Represents the net, incremental change in direct and secondary personal income less closure effects. Estimated baseline personal income totaled \$4.8 billion in Monterey County. Please note that future reuse estimates are based on output from the IMPLAN model that incorporates national labor productivity data for individual industrial sectors. Local data was used for existing Monterey County conditions, which may have higher per capita income than the national averages indicate. The comparison of existing per capita income with reuse estimates tends to indicate a slight underestimate of reuse personal income estimates.

The availability of healthcare services for military retirees and their family members would likely be reduced under Alternative 1 with the closure of Silas B. Hays Army Community Hospital. The regional medical center developed under this alternative would presumably not be a Civilian Health and Medical Program of the Uniformed Services (CHAMPUS)-contract hospital. Population growth generated by development under Alternative 1 would increase the regional demand and competition for healthcare services in Monterey County. Military retirees and their family members could use the new medical center and other facilities in the region and could apply for partial reimbursement of costs through CHAMPUS or Medicare; however, out-of-pocket costs, and possibly travel costs, to receive healthcare would increase for military retirees and their family members.

Schools. Alternative 1 would generate the need for additional school capacity for up to approximately 54,200 students in kindergarten through 12th grade (Table 5-4). This would result in a demand for additional school facilities and staff.

Recreation. Alternative 1 proposes 2,885 acres of land for undeveloped recreational opportunities and 3,900 acres for developed recreational opportunities (Table 5-4). This would result in the loss of approximately 12,000 acres of land available for undeveloped recreational activities, including fishing and hunting. Alternative 1 would, however, result in an additional 3,400 acres of developed recreational opportunities, including parks and sports facilities.

5.6.1.3 Soils, Geology, Topography, and Seismicity

The extensive development of natural areas proposed under Alternative 1 would result in the nearly complete destruction of the soil component of the natural ecosystem. The unusual characteristics of the soil substrate covering most of Fort Ord support rare plant communities and threatened and endangered plant species. Habitats affected would be most of those formed on ancient lagoonal deposits, the Aromas formation areas, and nearly all the recent and relict sand dune areas.

Of equally severe impact would be the acceleration of existing coastal, wind, and water erosion, further affecting the natural ecosystem and threatening proposed developments. Construction of new facilities near a rapidly eroding shoreline would subject these facilities to future loss. Further development of the coastal sand dunes would be subject to wind erosion once the protective vegetation and surface soil horizon are disturbed by development activities. Water erosion could form badland-like features on the Arnold and Xerorthent soils on the steep slopes of the Aromas formation if the soils are disturbed by development and runoff is redirected and concentrated. This process would result in severe gulying in the Santa Ynez and Diablo soils on the Paso Robles formation. The latter area is also prone to landslides and is a source of sedimentation that affects Toro Creek, causing an increased flooding hazard.

Severe limitations would be encountered in the use of inappropriate soil types for engineering or agricultural and horticultural purposes. Santa Ynez and Diablo soils have severe limitations because of low strength and high shrink-swell properties. Oceano, Baywood, and Arnold soils have limitations of excavation caving, embankment piping potential, and very high water infiltration rates. Use of the same soil types for agricultural or horticultural purposes could result in increased erosion and non-point-source water pollution.

New development would increase the exposure of people and property to various seismic hazards, such as ground shaking, landslides, and liquefaction.

Table 5-4 Schools and Recreation Impacts by Reuse Alternative

Reuse Alternative	Schools	Recreational Opportunities
Alternative 1	Need for additional school capacity for approximately 54,200 students	Loss of approximately 12,000 acres of land available for undeveloped recreational opportunities. Increase of approximately 3,400 acres of developed recreational opportunities
Subalternative A	Need for additional school capacity for approximately 57,960 students	Loss of approximately 12,000 acres of land available for undeveloped recreational opportunities. Increase of approximately 3,400 acres of developed recreational opportunities
Subalternative B	Need for additional school capacity for approximately 54,600 students	Loss of approximately 12,000 acres of land available for undeveloped recreational opportunities. Increase of approximately 3,400 acres of developed recreational opportunities
Subalternative C	Need for additional school capacity for approximately 65,000 students	Loss of approximately 12,400 acres of land available for undeveloped recreational opportunities. Increase of approximately 3,500 acres of developed recreational opportunities
Alternative 2	Need for additional school capacity for approximately 19,500 students	Loss of approximately 1,930 acres of land available for undeveloped recreational opportunities. Increase of approximately 1,500 acres of developed recreational opportunities
Subalternative A	Need for additional school capacity for approximately 24,060 students	Loss of approximately 1,930 acres of land available for undeveloped recreational opportunities. Increase of approximately 1,500 acres of developed recreational opportunities
Subalternative B	Need for additional school capacity for approximately 22,440 students	Loss of approximately 1,930 acres of land available for undeveloped recreational opportunities. Increase of approximately 1,500 acres of developed recreational opportunities
Alternative 3	Need for additional school capacity for approximately 7,100 students	Increase of approximately 2,800 acres of land available for undeveloped recreational opportunities and 1,500 acres of developed recreational opportunities
Alternative 4	Need for additional school capacity for approximately 9,700 students	Loss of approximately 450 acres of land available for undeveloped recreational opportunities. Increase of approximately 1,500 acres of developed recreational opportunities
Alternative 5	No impact	Increase of approximately 4,200 acres of land available for undeveloped recreational opportunities and 1,000 acres of developed recreational opportunities
Subalternative A	No impact	Increase of approximately 4,200 acres of land available for undeveloped recreational opportunities and 440 acres of developed recreational opportunities
Alternative 6R	Need for additional school capacity for approximately 4,300 students	Increase of approximately 3,400 acres of land available for undeveloped recreational opportunities and 500 acres of developed recreational opportunities

Table 5-5 Public Services and Utilities Impacts by Reuse Alternative

Reuse Alternative	Wastewater	Solid Waste	Telephone Service	Gas Service	Electric Service	Cable Television	Water Distribution System
Alternative 1	Increased wastewater to 19.5 mgd (712%)	Increased solid waste to 1,010 tons per day (974%) Reduce landfill life by 48 yrs	Expanded existing service by 21,400 acres (425%)	Increased demand of 5,650 MCFH (3,900%)	Increased demand of 545 MW (3,100%)	Expanded existing service by 21,400 acres (425%)	Expanded existing infrastructure by 21,400 acres (425%)
Subalternative A	Increased wastewater to 18.9 mgd (686%)	Increased solid waste to 1,070 tons per day (1,038%) Reduce landfill life by 50 yrs	Expanded existing service by 21,860 acres (435%)	Increased demand of 5,850 MCFH (4,000%)	Increased demand of 550 MW (3,100%)	Expanded existing service by 21,860 acres (435%)	Expanded existing infrastructure by 21,860 acres (435%)
Subalternative B	Increased wastewater to 19.3 mgd (704%)	Increased solid waste to 1,016 tons per day (981%) Reduce landfill life by 48 yrs	Expanded existing service by 21,170 acres (420%)	Increased demand of 3,950 MCFH (2,700%)	Increased demand of 440 MW (2,500%)	Expanded existing service by 21,170 acres (420%)	Expanded existing infrastructure by 21,170 acres (420%)
Subalternative C	Increased wastewater to 19.9 mgd (730%)	Increased solid waste to 1,180 tons per day (1,156%) Reduce landfill life by 53 yrs	Expanded existing service by 22,000 acres (435%)	Increased demand of 4,120 MCFH (2,800%)	Increased demand of 440 MW (2,500%)	Expanded existing service by 22,000 acres (435%)	Expanded existing infrastructure by 22,000 acres (435%)
Alternative 2	Increased wastewater to 13.1 mgd (445%)	Increased solid waste to 460 tons per day (389%) Reduce landfill life by 27 years	Expanded existing service by 18,760 acres (370%)	Increased demand of 3,695 MCFH (2,500%)	Increased demand of 392 MW (2,200%)	Expanded existing service by 18,760 acres (370%)	Expanded existing infrastructure by 18,760 acres (370%)

Table 5-5 Continued

Reuse Alternative	Wastewater	Solid Waste	Telephone Service	Gas Service	Electric Service	Cable Television	Water Distribution System
Alternative 2 (continued)							
Subalternative A	Increased wastewater to 12.6 mgd (425%)	Increased solid waste to 527 tons per day (460%) Reduce landfill life by 31 years	Expanded existing service by 19,400 acres (385%)	Increased demand of 3,885 MCFH (2,650%)	Increased demand of 402 MW (2,250%)	Expanded existing service by 19,400 acres (385%)	Expanded existing infrastructure by 19,400 acres (385%)
Subalternative B	Increased wastewater to 13.1 mgd (445%)	Increased solid waste to 501 tons per day (433%) Reduce landfill life by 29 yrs	Expanded existing service by 18,530 acres (370%)	Increased demand of 3,730 MCFH (2,550%)	Increased demand of 366 MW (2,050%)	Expanded existing service by 18,530 acres (370%)	Expanded existing infrastructure by 18,530 acres (370%)
Alternative 3	Increased wastewater to 8.9 mgd (240%)	Increased solid waste to 252 tons per day (168%) Reduce landfill life by 14 yrs	Expanded existing service by 8,120 acres (160%)	Increased demand of 1,278 MCFH (875%)	Increased demand of 130 MW (730%)	Expanded existing service by 8,120 acres (160%)	Expanded existing infrastructure by 8,120 acres (160%)
Alternative 4	Increased wastewater to 7.7 mgd (220%)	Decreased solid waste to 132 tons per day (-41%) Reduce landfill life by 4 yrs	Expanded existing service by 9,830 acres (195%)	Increased demand of 807 MCFH (550%)	Increased demand of 141 MW (790%)	Expanded existing service by 9,830 acres (195%)	Expanded existing infrastructure by 9,830 acres (195%)
Alternative 5	Decreased wastewater to 1.7 mgd (-29%)	Decreased solid waste to 19 tons per day (-80%)	Deterioration of infrastructure	Deterioration of infrastructure	Deterioration of infrastructure	Deterioration of infrastructure	Deterioration of infrastructure

Table 5-5 Continued

Reuse Alternative	Wastewater	Solid Waste	Telephone Service	Gas Service	Electric Service	Cable Television	Water Distribution System
Alternative 5 (continued)		Extend landfill life by 8 yrs					
Subalternative A	Decreased wastewater to 0.02 mgd (-99%)	No impact	No impact	95% reduction of demand	96% reduction of demand	No impact	No impact
Alternative 6R	Increased wastewater to 5.0 mgd (100%)	Increased solid waste to 96 tons per day (2%) Reduce landfill life by 1 year	Reduce existing service by 240 acres (-5%)	Increased demand of 740 MCFH (507%)	Increased demand of 87 MW (483%)	Reduce existing service by 1,660 acres (-32%)	Expanded existing infrastructure by 2,500 acres (50%)

Note: (%) indicates percent increase or decrease from existing conditions.

5.6.1.4 Public Services and Utilities

Table 5-5 quantifies public service and utility impacts for Alternative 1.

Wastewater. The development proposed under Alternative 1 would generate 18.6 mgd of wastewater. This 712% increase over the existing 2.4 mgd would require 16.2 mgd of additional treatment capacity to accommodate the proposed development.

The consistency of the reuse alternatives with the air quality management plan for the region is discussed in Section 5.6.1.8., "Air Quality". If a project is inconsistent with the plan, treatment allocation cannot be approved.

Solid Waste. Alternative 1 would generate up to 1,010 tons per day (tpd) of solid waste, an increase from the existing generation rate of 94 tons per day. This amount of solid waste would reduce the life of the Marina Landfill by approximately 48 years.

Telephone Service. Telephone service exists only in the developed area. Alternative 1 would require additional or upgraded infrastructure to serve future development. This would require the expansion of telephone service to approximately 21,400 acres, a 425% increase in service area.

Gas and Electric Service. Gas and electric service exists only in the developed area. Alternative 1 would result in the demand for approximately 5,650 MCFH of gas and 545 megawatts (MW) of electric service, an increase of 3,900% more gas and 3,900% more electricity than existing levels.

Cable Television. Cable television service exists only in the developed area. Alternative 1 would result in the need for additional cable television service to approximately 21,400 acres, a 425% increase in service area.

Storm Drainage System. Alternative 1 would require new storm drainage systems for approximately 24,810 acres, in addition to upgrades and expansions to existing systems that may continue to be used with the new systems.

Water Distribution Infrastructure. Alternative 1 would require additional water distribution infrastructure be upgraded or expanded to provide service to approximately 21,400 acres in service area.

5.6.1.5 Water Resources

Hydrology and Water Quality. Alternative 1 would convert 24,810 acres of open space to urban land uses, which would result in an increase in watershed runoff and peak floodflow over existing conditions.

Alternative 1 would not only increase watershed runoff but would also result in water quality degradation due to the generation of additional urban pollutants as runoff containing urban pollutants would contribute to water quality degradation in Monterey Bay (Table 5-6).

Water Supply and Demand. Total water demand under Alternative 1 is 1,010 acre-feet per year (Table 5-6). This is over six times greater than existing water demand and exceeds the safe yield of the groundwater system in the vicinity of Fort Ord.

Table 5-6 Summary of Estimated Water Demand
for Each Reuse Alternative

Reuse Alternative	Water Demand ^a (acre-feet per year)				Total
	Seaside	Marina	County	Presidio of Monterey Annex/ Reserve Center ^b	
Alternative 1	7,300	7,700	18,400	3,200	36,600
Subalternative A	9,700	7,700	18,000	0	35,400
Subalternative B	8,700	7,700	17,400	2,900	36,600
Subalternative C	9,300	7,700	20,800	0	37,700
Alternative 2	5,600	6,700	7,400	3,200	23,000
Subalternative A	7,800	6,700	7,400	0	22,000
Subalternative B	6,600	6,700	7,100	2,900	23,400
Alternative 3	2,900	7,600	3,800	3,200	17,600
Alternative 4	1,300	5,600	3,200	3,200	13,400
Alternative 5	0	0	0	3,200	3,400
Subalternative A	0	0	0	0	100
Alternative 6R	1,300	1,500	6,000	3,200	12,000

^a Water demand estimates are in acre-feet per year (af/yr) and are subtotaled by geographic area. Totals may not add because of rounding.

^b The estimated water demand for the Presidio of Monterey (POM) annex and reserve center was provided by Fort Ord. Supporting documentation is contained in Appendix K (Volume III, with revisions in Volume IV, Section 6.0)

5.6.1.6 Public Health and Safety

Table 5-7 quantifies the impacts of this alternative on the following services:

Law Enforcement. Alternative 1 would require up to 495 law enforcement officers and equipment to provide service to the proposed uses. This is a 244% increase over the existing Fort Ord law enforcement staff of 144.

Fire Protection. Alternative 1 would require up to 247 firefighters and equipment and approximately 62 firefighting companies to provide service to the proposed land uses. This is a 517% increase over the existing Fort Ord fire protection staff of 40.

Medical Services. Alternative 1 would result in the need for additional medical services for approximately 70,000 residents.

Emergency Medical Services. Alternative 1 would result in the need for additional emergency medical services for approximately 160,000 residents.

Seismic Safety. Alternative 1 would expose approximately 283,000 people to potential seismic events and expose coastline development to potential damage caused by tsunamis in Monterey Bay.

5.6.1.7 Traffic and Circulation

Implementation of Alternative 1 would generate approximately 1.1 million daily trips at full buildout (Table 5-8). This alternative would also generate travel demand of:

- approximately 750,000 trips between Fort Ord and the surrounding communities, creating the need for between 47 and 125 lanes of roadway;
- approximately 218,000 vehicle trips in the north-south direction on the installation, creating the need for between 14 and 36 lanes of roadway; and
- and approximately 270,000 vehicle trips in the east-west direction on and through the installation, creating the need for between 17 and 45 lanes of roadway.

By providing transit service and implementing aggressive measures to reduce single-occupant driving, the need for roadways could be reduced approximately 10%. To describe the number of lanes of roadway that would be needed to fulfill the travel demand created by this alternative, ranges are presented rather than a single number. The lower end of the range describes the number of freeway lanes needed to meet the demand, and the upper end describes the number of lanes, including arterial roadways. In reality, the capacity would likely be provided by an unknown combination of freeways, arterials, collector streets, and transit facilities.

The roadway and transit improvements needed to support Alternative 1 are not proposed in local general plans. This situation could be resolved by updating local general plans to include the roadway and transit improvements needed to accommodate the proposed reuse of Fort Ord.

Table 5-7 Public Health and Safety Impacts by Reuse Alternative

Reuse Alternative	Law Enforcement	Fire Protection	Medical Services	Emergency Medical Services	Seismic Safety
Alternative 1	Demand for up to 495 officers (244%)	Demand for up to 247 firefighters (517%)	Demand for services for 70,000 residents	Demand for additional service to 160,000 residents	Exposure of up to 283,000 people to seismic events and tsunamis
Subalternative A	Demand for up to 515 officers (257%)	Demand for up to 257 firefighters (542%)	Demand for services for 99,500 residents	Demand for additional service to 189,500 residents	Exposure of up to 250,000 people to seismic events and tsunamis
Subalternative B	Demand for up to 496 officers (244%)	Demand for up to 248 firefighters (519%)	Demand for services for 157,800 residents	Demand for additional service to 247,800 residents	Exposure of up to 240,000 people to seismic events and tsunamis
Subalternative C	Demand for up to 566 officers (293%)	Demand for up to 283 firefighters (606%)	Demand for services for 127,500 residents	Demand for additional service to 217,500 residents	Exposure of up to 275,000 people to seismic events and tsunamis
Alternative 2	Demand for up to 228 officers (58%)	Demand for up to 113 firefighters (182%)	Surplus services for 64,000 residents	Demand for additional service to 26,000 residents	Exposure of up to 124,000 people to seismic events
Subalternative A	Demand for up to 249 officers (73%)	Demand for up to 124 firefighters (209%)	Surplus services for 31,600 residents	Demand for additional service to 58,400 residents	Exposure of up to 125,000 people to seismic events
Subalternative B	Demand for up to 246 officers (71%)	Demand for up to 122 firefighters (206%)	Surplus services for 33,000 residents	Demand for additional service to 52,000 residents	Exposure of up to 120,000 people to seismic events
Alternative 3	Demand for up to 170 officers (18%)	Demand for up to 83 firefighters (107%)	Surplus services for 94,000 residents	Surplus service available for 28,000 residents	Exposure of up to 83,000 people to seismic events
Alternative 4	Demand for 65 officers (-55%)	Demand for 31 firefighters (-22%)	Surplus services for 56,000 residents	Demand for additional service to 31,000 residents	Exposure of up to 31,000 people to seismic events
Alternative 5	Demand for 13 officers (-91%)	Demand for 5 firefighters (-89%)	No impact	No impact	No impact
Subalternative A	Demand for up to 4 officers (-97%)	No impact	No impact	No impact	No impact
Alternative 6R	Demand for up to 39 officers (-73%)	Demand for up to 18 firefighters (-52%)	No impact	No impact	Exposure of up to 44,500 people to seismic events

Note: (%) indicates percent increase or decrease from existing conditions.

Table 5-8 Comparison of Traffic Impacts by Reuse Alternative

	Existing Daily Trips	Alternative 1		Alternative 2		Alternative 3	
		Daily Trips	Number of Lanes Required ^a	Daily Trips	Number of Lanes Required ^a	Daily Trips	Number of Lanes Required ^a
Daily Trips Generated	--	1,100,000	--	570,000	--	305,000	--
North-South Screenline	--	218,000	14-36	81,000	5-14	32,000	2-6
East-West Screenline	--	270,000	17-45	103,000	7-17	93,000	6-16
Encircling Screenline ^b	58,000	750,000	47-125	307,000	19-51	285,000	18-48

	Existing Daily Trips	Alternative 4		Alternative 5		Alternative 6R	
		Daily Trips	Number of Lanes Required ^a	Daily Trips	Number of Lanes Required ^a	Daily Trips	Number of Lanes Required ^a
Daily Trips Generated	--	172,000	--	15,000	--	228,000	--
North-South Screenline	--	16,000	1-3	6,000	1-2	40,000	3-7
East-West Screenline	--	50,000	3-9	24,000	2-4	22,000	2-46
Encircling Screenline ^b	58,000	188,000	12-31	48,000	12-31	131,000	9-22

Note: -- == data not appropriate.

^a Lanes required to achieve LOS C.

^b Measures travel to and from Fort Ord.

5.6.1.8 Air Quality

The air quality analysis compares each reuse alternative using the following four methods (Table 5-9):

- **Construction emissions exceeding thresholds.** Construction emissions are a function of the acreage that would be actively disturbed by construction equipment. Construction equipment emission estimates assume that full buildout of each alternative would be completed by 2010 and that a uniform rate of construction would occur between 1995 and 2010. Emissions of reactive organic compounds, nitrogen oxide (NO_x), carbon monoxide (CO), and PM₁₀ were estimated to determine whether they exceeded thresholds established by the Monterey Bay Unified Air Pollution Control District (MBUAPCD).
- **Operational emissions exceeding thresholds.** Operational emissions would be produced by motor vehicles, area sources, and stationary sources. Operational emission estimates assume that full buildout would occur by 2010. For each alternative, emissions of PM₁₀, NO_x, and volatile organic compounds were compared to existing Fort Ord emissions to determine emission increases. These net emission increases (compared to existing emissions) were then compared to the MBUAPCD thresholds.
- **CO concentrations exceeding state and federal ambient standards.** For each alternative, operational emissions of CO produced by motor vehicles were modeled to determine ambient concentrations at sensitive receptors. Those concentrations were then compared to the state and federal 1-hour and 8-hour ambient CO standards.
- **Consistency with the MBUAPCD 1991 Air Quality Management Plan and the 1982 State Implementation Plan.** The population increases associated with each alternative were compared to the population forecasts used to prepare the 1991 AQMP and the 1982 State Implementation Plan (SIP) developed jointly by the MBUAPCD and the Association of Monterey Bay Area Governments (AMBAG). Alternatives were considered consistent with the respective plans if their associated population growth was less than or equal to the population estimates used to prepare the 1991 AQMP and the 1982 SIP. Values for each comparison method under each alternative are summarized in Table 5-9.

Alternative 1 includes the construction and use of 78,751 residential units and 15,128 acres of commercial, industrial, recreational, and institutional development. Both construction and operation of these land uses would generate air emissions.

The air quality analysis assumes that construction would occur from 1995 through 2010 and that by 2010, all land uses would be fully developed. The operational emissions estimates, which assume buildout by 2010, focus on motor vehicle and residential area emission sources.

Construction and operation of Alternative 1 would result in substantial increases in PM₁₀, CO, and ozone precursors. These increases would exceed the MBUAPCD's emission thresholds for PM₁₀ and ozone precursors (reactive organic gases [ROG] and NO_x) and would contribute to violations of the CO ambient standards near congested intersections.

Alternative 1 is inconsistent with the MBUAPCD's 1991 AQMP (designed to meet California's ambient ozone standards) and the MBUAPCD and AMBAG's 1982 SIP (designed to meet federal ozone standards). This inconsistency results because population growth associated with Alternative 1 exceeds the population forecasts used to prepare the respective air plans.

Table 5-9 Comparison of Air Emissions by Reuse Alternative

Reuse Alternative	Construction Emissions (lbs/day)				Operational Emissions (Compared to Existing) (lbs/day)			Maximum Predicted CO Concentrations above Standards	Consistent with Air Quality Plans?	
	ROG	NO _x	CO	PM ₁₀	ROG	NO _x	PM ₁₀		1991 AQMP	1982 SIP
Alternative 1	36	486	175	256	6,844	6,660	3,357	Yes	No	No
Subalternative A	35	463	166	243	7,661	7,215	3,569	Yes	No	No
Subalternative B	36	478	172	252	7,147	7,098	3,531	Yes	No	No
Subalternative C	36	471	169	247	8,578	7,186	3,531	Yes	No	No
Alternative 2	28	368	132	194	-818	729	1,209	No	No	Yes
Subalternative A	27	353	127	186	-21	1,142	1,366	No	No	Yes
Subalternative B	28	368	132	194	-327	993	1,312	No	No	Yes
Alternative 3	16	212	76	111	-4,344	-2,806	-31	No	No	Yes
Alternative 4	16	212	76	111	-7,353	-4,129	-506	No	Yes	Yes
Alternative 5	3	39	14	21	-8,135	-5,698	-1,094	No	Yes	Yes
Subalternative A	1	8	3	4	-8,229	-5,997	-1,156	No	Yes	Yes
Alternative 6R	12	157	56	83	-6,471	-2,702	-55	No	Yes	Yes

5.6.1.9 Noise

Noise-related issues for each reuse alternative are compared using aggregate comparison parameters. The following is a discussion of each comparison parameter used.

- **Acres of Construction-Related Land Disturbance.** Although the types of construction-related impacts would generally be the same for each alternative, this parameter is an indicator of the duration and extent of construction-related noise impacts.
- **Logarithmic Sum in Decibels of Calculated Day-Night Average Sound Level Values for 30 Existing Roadway Segments.** This parameter is an aggregate indicator of the relative amount of traffic noise that is occurring under existing conditions or would occur under each alternative. The value of this parameter has no absolute meaning.
- **Number of Existing Roadway Segments Where Traffic Noise Increases Are Greater than 5 Decibels or Greater Relative to Existing Conditions.** This parameter identifies the number of roadway segments where substantial traffic noise increases would occur and is an indicator of both direct and cumulative impacts.
- **Number of Existing Roadway Segments Where Traffic Noise Increases Are Greater than 0 Decibels and Less than 5 Decibels Relative to Existing Conditions.** This parameter identifies the number of roadway segments where traffic noise increases of less than 5 decibels (dB) would occur. Given that existing traffic noise levels along all existing roadway segments analyzed are close to or exceed the 60-dB day-night average sound level (L_{dn}) standard for residences, any increase in noise along these roadway segments can be considered a substantial cumulative effect. This parameter is thus an indicator of cumulative impacts.
- **Number of Existing Roadway Segments Where Traffic Noise Decreases Relative to Existing Conditions.** This parameter is an indicator of the beneficial effects of an alternative in reducing traffic noise.
- **Number of Substantial Noise-Related Land Use Compatibility Impacts Identified.** Substantial noise-related land use compatibility impacts have been identified for each alternative. This parameter is the number of substantial impacts identified and is an indicator of the relative amount of compatibility problems that may occur under each alternative.

Values for each comparison parameter under each reuse alternative are summarized in Table 5-10.

Under Alternative 1 proposed development of Fort Ord would result in approximately 23,000 acres of construction-related land disturbance and would require the construction of new major arterials and freeways within the bounds of the installation. This construction would result in increased noise levels around construction sites and along access roads to construction sites. These increased noise levels have the potential to adversely affect residences and other noise-sensitive land uses near these sites or roads. Ambient noise levels may be substantially increased or local noise standards may be exceeded.

Traffic noise levels have been evaluated along existing roadway segments and other roadway segments proposed under Alternative 1 that would be within the boundaries of Fort Ord. Noise-sensitive land uses (primarily residential uses) are adjacent to all of the existing roadway segments evaluated. Other noise-sensitive land uses adjacent to these roadways include educational, religious, and healthcare facilities. Residential land uses range from rural residential land uses with scattered houses adjacent to roadways to high-density urban residential development. Commercial, industrial, and recreational land uses also are adjacent to some of the roads. However, impacts are evaluated based on the most sensitive land use adjacent to a given roadway segment.

Table 5-10. Comparison of Reuse Alternatives Relative to Noise

Parameter	Existing	Alternative 1	Subalternative A	Subalternative B	Subalternative C	Alternative 2	Subalternative A	Subalternative B
Acres of construction related land disturbance	N/A	23,000	22,000	23,000	22,400	17,700	16,700	17,500
Logarithmic sum in dB of calculated Ldn values for 30 existing roadway segments	84.6	87.4	-	-	-	85.5	-	-
Number of existing roadway segments where traffic noise increase are 5 dB or greater	N/A	9	-	-	-	2	-	-
Number of existing roadway segments where traffic noise increases are greater than 0 dB and less than 5 dB relative to existing conditions	N/A	14	-	-	-	17	-	-
Number of existing roadway segments where traffic noise decreases relative to existing conditions	N/A	1	-	-	-	2	-	-
Number of substantial noise-related land use compatibility impacts identified	N/A	6	6	6	5	5	5	5

Parameter	Existing	Alternative 3	Alternative 4	Alternative 5	Subalternative A	Alternative 6R
Acres of construction related land disturbance	N/A	10,000	10,000	1,900	400	7,485
Logarithmic sum in dB of calculated Ldn values for 30 existing roadway segments	84.6	86.1	85.3	85.0	-	85.4
Number of existing roadway segments where traffic noise increase are 5 dB or greater	N/A	5	4	2	-	4
Number of existing roadway segments where traffic noise increases are greater than 0 dB and less than 5 dB relative to existing conditions	N/A	17	11	7	-	13
Number of existing roadway segments where traffic noise decreases relative to existing conditions	N/A	6	7	7	-	5
Number of substantial noise-related land use compatibility impacts identified	N/A	2	4	0	0	3

N/A Not applicable.

- These parameters were not quantitatively analyzed for subalternatives because differences in traffic noise levels would be small.

Under Alternative 1, the noise criterion for residential land uses of 60-dB L_{dn} would be exceeded within 100 feet of all of the existing roadway segments evaluated. In most cases, this is also true under existing conditions. However, implementing Alternative 1 would substantially increase noise (5 dB or greater relative to existing conditions) along nine of the existing roadway segments evaluated or would increase noise levels along roads where local noise standards are already exceeded. The combination of local noise standards being exceeded and substantial increases in traffic noise along several roadway segments would have a substantial adverse effect on existing residences.

Major arterials and freeways would cross or be adjacent to all of the noise-sensitive land uses proposed under Alternative 1. These noise-sensitive uses include residential, educational, wildlife park, botanical garden, and cemetery uses that would be exposed to noise levels that exceed local noise standards for these uses.

Under Alternative 1, land uses that may support activities that are sources of noise would be located adjacent to noise-sensitive land uses. Substantial noise impacts could occur as a result of these adjacent uses. The following noise-sensitive land uses are adjacent to land uses that may support noise-generating activities:

- low-density residential land use, a botanical garden, a cemetery, and a wildlife park would be located adjacent to an outdoor amphitheater;
- a high school, a trade school, a university, and an Asilomar-type facility would be located adjacent to a transit center;
- high-density residential land uses would be located adjacent to sports fields and a sports complex;
- a resort hotel would be located adjacent to a film complex and theme park;
- a police academy would be located adjacent to low-density residential land uses; noise from activities at the academy, primarily use of rifle and pistol ranges, could be incompatible with adjacent residential areas; and could adversely affect adjacent residential land uses under this alternative; and
- a commercial center would be located adjacent to an airport where Fritzsche Army Airfield is currently located.

5.6.1.10 Hazardous and Toxic Waste Site Remediation

Implementing Alternative 1 would result in high-density development on remediated toxic waste sites, formerly used trainfire ranges, and remote areas of the installation that may not be characterized as part of hazardous waste or unexploded ordnance cleanup activities. Risks to human health and safety from development on unidentified hazardous waste or unexploded ordnance would increase with development intensity.

The cleanup and certification process required by the EPA and the Army for land transfer reduces the potential for unidentified hazardous waste and unexploded ordnance to remain on the installation. In addition, under the Defense Environmental Restoration Program for Formerly Used Defense Sites, the Army is responsible for cleanup of contamination or unexploded ordnance discovered following land transfers.

Most buildings at Fort Ord would be demolished under Alternative 1. Many of these buildings contains asbestos; some may contain lead-based paint and other potentially hazardous materials. Demolition activities would release asbestos to the environment; building debris generated during these

activities could be classified as hazardous waste. Generation and disposal of hazardous waste during building demolition could affect compliance with federal and state laws and regulations regarding the handling of hazardous waste and materials.

5.6.1.11 Vegetation, Wildlife, and Wetland Resources

Common and Special Native Biological Communities. Alternative 1 would result in the removal of approximately 7,790 acres (75%) of common biological communities, including beaches, bluffs and blowouts, ice plant mats, disturbed dune, coastal scrub, coast live oak woodland and savanna, and annual grassland. The following habitat losses would occur to special native biological communities: approximately 6 acres (6%) of native coastal strand and dune scrub, 12,120 acres (95%) of maritime chaparral, 230 acres (50%) of perennial grassland, and 210 acres (90%) of riparian forest. Losses of biological communities by alternative are shown in Table 5-11.

Special-Status Plant Species. Alternative 1 would result in the loss of approximately 11,060 acres of habitat occupied by sand gilia, a federally listed endangered species, and Monterey spineflower, a species federally listed as endangered. Combined habitat losses for all special-status plant species are shown in Table 5-11.

Approximately 14,130 acres of habitat occupied by one or more plant species that are federal candidates for listing as threatened or endangered would be lost under Alternative 1. The species affected would be Seaside bird's-beak, Toro manzanita, sandmat manzanita, Hickman's onion, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and wedge-leaved horkelia.

Approximately 15 acres of habitat occupied at low density by Yadon's piperia would be removed for development. This species will soon be proposed for federal listing as endangered (U.S. Fish and Wildlife Service pers. comm.). Yadon's piperia is considered rare and endangered by CNPS.

Alternative 1 would result in the loss of approximately 11,800 acres of habitat occupied by the following nine plant species that have no federal or state status but occur on CNPS List 1b or 4: Hooker's manzanita, Monterey Indian paintbrush, Douglas' spineflower, Lewis' clarkia, virgate eriastrum, small-leaved lomatium, Santa Cruz County monkeyflower, curly-leaved monardella, and purple-flowered piperia.

Implementation of Alternative 1 would result in losses of Seaside bird's-beak, Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and Hooker's manzanita so extensive that these species could become eligible for federal listing as threatened or endangered.

Special-Status Wildlife Species. Alternative 1 would result in the loss of approximately 40 acres (22%) of Smith's blue butterfly habitat and 60 acres (92%) of California linderiella habitat, including five known California linderiella breeding sites. Smith's blue butterfly is federally listed as endangered, and California linderiella is federally proposed for endangered status. Nesting success of western snowy plovers, a species federally listed as threatened, would be adversely affected by activities associated with coastal development and increased public use of beaches. Increased public use of dune habitats could also degrade habitat occupied by Smith's blue butterfly and black legless lizard. Habitat losses for all special-status wildlife species are shown in Table 5-11.

Between 83% and 96% of the habitat available at Fort Ord for seven federal candidate wildlife species would be eliminated under Alternative 1: black legless lizard, Monterey dusky-footed woodrat, Monterey ornate shrew, loggerhead shrike, California tiger salamander, California red-legged frog, and southwestern pond turtle. All eight known tiger salamander breeding sites would be lost. Because of the limited ranges of the black legless lizard, Monterey dusky-footed woodrat, and Monterey ornate shrew, habitat losses under Alternative 1 could result in all three species being elevated from Category 2 federal candidate status to threatened or endangered species status. Approximately 65% of the available California

Table 5-11 Vegetation, Wildlife, and Wetland Resources Impacts by Reuse Alternative

Reuse Alternative	Loss of Common Biological Communities	Loss of Special Native Biological Communities	Loss of Habitat for Federally Listed and Proposed Plants ^a	Loss of Habitat for Candidate Plants ^b	Loss of Other Special-Status Plants ^c
Vegetation					
Alternative 1	Approximately 7,790 acres (75%)	Approximately 12,570 acres	Approximately 11,060 acres	Approximately 14,130 acres	Approximately 11,800 acres
Subalternative A	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1
Subalternative B	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1
Subalternative C	Similar to Alternative 1 but to a greater extent	Similar to Alternative 1 but to a greater extent	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1
Alternative 2	Approximately 6,350 acres (60%)	Approximately 6,710 acres	Approximately 6,620 acres	Approximately 7,680 acres	Approximately 11,950 acres
Subalternative A	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2
Subalternative B	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2
Alternative 3	Approximately 4,230 acres (40%)	Approximately 1,820 acres	Approximately 3,450 acres	Approximately 2,740 acres	Approximately 11,800 acres
Alternative 4	Approximately 3,150 acres (30%)	Approximately 1,290 acres	Approximately 2,230 acres	Approximately 1,890 acres	Approximately 1,220 acres
Alternative 5	Approximately 770 acres (10%)	Approximately 30 acres	Approximately 110 acres	Approximately 45 acres	Approximately 45 acres
Subalternative A	Similar to Alternative 5	Similar to Alternative 5	Similar to Alternative 5	Similar to Alternative 5	Similar to Alternative 5
Alternative 6R	Approximately 1,550 acres (15%)	Approximately 955 acres	Approximately 1,090 acres	Approximately 2,190 acres	Approximately 1,210 acres

Table 5-11 Continued

Reuse Alternative	Loss of Habitat for Federally Listed and Proposed Wildlife Species ^d	Loss of Habitat for Federal Candidate Wildlife Species ^e	Loss of Habitat Available for Wildlife Species that are California Species of Special Concern	Loss of Habitat Available for Special-Interest Wildlife Species with No Legal Status
Wildlife				
Alternative 1	Approximately 22% of available habitat for Smith's blue butterfly, approximately 92% for California linderiella	Approximately 83-96% for seven species and 41-65% for two species	Approximately 86-97% for four species and 67-77% for five species	Approximately 94-100%
Subalternative A	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1
Subalternative B	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1
Subalternative C	Similar to Alternative 1 but to a greater extent	Similar to Alternative 1	Similar to Alternative 1	Similar to Alternative 1
Alternative 2	Approximately 14-23%	Approximately 91% for one species, 51-70% for four species, and 23-33% for four species	Approximately 89% for two species, 51-65% for six species, and 21% for one species	Approximately 83-100% for three species and 49% for one species
Subalternative A	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2
Subalternative B	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2	Similar to Alternative 2
Alternative 3	Approximately 1-6%	Approximately 50% for one species, 20-37% for four species, and 6-7% for four species	Approximately 29-44% for four species, 18-20% for two species, 3% for one species, and no loss for two species	Approximately 71% for one species, 14% for one species, and no loss for two species
Alternative 4	Approximately 8-14%	Approximately 22-33% for three species, 7-17% for five species, and 1% for one species	Approximately 26-34% for four species, 5-15% for three species, and no loss for two species	Approximately 46% for one species, 10% for one species, and no loss for two species
Alternative 5	Approximately 1%	Approximately 1-6% for six species and no impact for three species	Approximately 1-7% for seven species and no loss for two species	Approximately 1-8% for two species, and no loss for two species
Subalternative 5	Similar to Alternative 5	Similar to Alternative 5	Similar to Alternative 5	Similar to Alternative 5
Alternative 6R	Approximately 1-3%	Approximately 10-18% for three species and 3-9% for six species	Approximately 14% for one species and 3-10% for eight species	Approximately 28% for one species and 5-7% for three species

Table 5-11 Continued

Reuse Alternative	Loss of Wetlands and Other Waters of the United States	Loss of Plant and Butterfly Preserves and Significant Natural Areas	Conflict with Monterey Bay National Marine Sanctuary
Wetlands			
Alternative 1	Approximately 55 acres of wetlands and 96,400 linear feet of streams	All except preserve 2 and SNA 026 adversely affected to some extent	--
Subalternative A	Similar to Alternative 1	Similar to Alternative 1	--
Subalternative B	Similar to Alternative 1	Similar to Alternative 1	--
Subalternative C	Similar to Alternative 1	All areas lost	Construction of marina and cruise ship pier conflicts with regulations proposed for the sanctuary
Alternative 2	Approximately 15 acres of wetlands and 71,400 linear feet of streams	Similar to Alternative 1 but to a lesser extent	--
Subalternative A	Similar to Alternative 2	Similar to Alternative 1 but to a lesser extent	--
Subalternative B	Similar to Alternative 2	Similar to Alternative 1 but to a lesser extent	--
Alternative 3	Approximately 4 acres of wetlands and 4,000 linear feet of streams	Portions of preserves 3 and 7 and portion of SNA 040 lost	--
Alternative 4	Approximately 7 acres of wetlands and 10,500 linear feet of streams	Preserve 11 and portions of preserves 2 and 12 lost	--
Alternative 5	No wetlands, approximately 2,200 linear feet of streams	--	--
Subalternative A		--	--
Alternative 6R	Approximately 2 acres of wetlands and 2,250 linear feet of streams	No preserves or significant areas lost in areas designated for urban development	--

horned lark habitat and roughly 41% of the tricolored blackbird habitat at Fort Ord would also be eliminated. The one known tricolored blackbird nesting colony would be disturbed by activities associated with proposed residential land uses.

Under Alternative 1, 86-97% of the available habitat at Fort Ord for four California species of special concern would be eliminated: Cooper's hawk, yellow warbler, golden eagle, and coast horned lizard. Burrowing owl, northern harrier, sharp-shinned hawk, prairie falcon, and American badger, which are also California species of special concern, would lose 64-77% of their available habitat.

From 94% to 100% of the available habitat for four special-interest species would also be eliminated under Alternative 1: Salinas harvest mouse, greater roadrunner, Swainson's thrush, and common yellowthroat. Special-interest species have no legal status but may be rare or declining in the region.

Wetlands and Other Waters of the United States. Alternative 1 would result in the degradation or removal of all vernal pools, approximately 80% of the freshwater marsh and ponds, and about 96,400 linear feet of streams at Fort Ord. Vernal pools and freshwater marsh are potentially jurisdictional wetlands and stream channels and ponds are potentially other waters of the United States protected under Section 404 of the Clean Water Act.

Plant and Butterfly Preserves and Significant Natural Areas. Under Alternative 1, all natural habitat would be eliminated in preserves 3, 4, 5, 6, 7, 8, 9, 11, and 12, and approximately 20% of preserve 1 and 25% of preserve 10 would be removed (Figure 4.11-12). In addition, the habitat in significant natural areas 040 and 050 would be removed (Figure 4.11-13).

5.6.1.12 Visual Resources

Implementation of Alternative 1 would require construction of a substantial number of buildings, renovation of existing buildings, and modification of infrastructure. These activities would produce short-term visual impacts and could produce long-term visual impacts. Short-term visual impacts would occur from construction activities, including location of equipment storage areas, removal of vegetation, and infrastructure modifications. Long-term visual impacts could occur from removal of vegetation; construction of new buildings; alteration of the appearances of buildings and other structures; and construction of improvements such as recreation facilities, parking areas, lighting standards, and fences.

The activities described above could result in a substantial reduction in visual unity and intactness for some visually sensitive areas for views from State Route 1 and other important visitor use areas in and around Monterey Bay. The resulting visual impacts would be inconsistent with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of coastal areas.

Alternative 1 proposes extensive high-density development for the western portion of the installation, west of Barloy Canyon Road. This level of development would introduce numerous buildings, parking lots, roads, and other built elements into the Fort Ord viewshed. The forms, lines, colors, and textures of the built elements would differ substantially from those of the existing landscape, which is mostly natural in appearance. Extensive vegetation removal and regrading would occur to facilitate development.

Proposed development would substantially reduce the vividness, intactness, and unity of the region's visual resources and would result in substantial impacts on regional visual quality. This level of development would also alter the visual character and reduce the visual quality of Fort Ord's coastal area. This alternative would be inconsistent with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of the coastal area.

Views of Fort Ord from primary and secondary travel routes would be reduced in visual quality by encroaching land uses of potentially high visual impact. Viewed from State Route 1, the vividness and intact-

ness of the coastal area would be reduced. Additionally, built elements would be highly visible in areas of high visual sensitivity and quality east of State Route 1, outside the coastal area. Land uses of potentially high impact located in the middleground of views of Fort Ord from State Route 68, a state-designated scenic highway, would reduce the visual quality of this scenic corridor. Impacts on sensitive areas visible from secondary roads would also be substantial.

Viewed from Monterey Bay and other important tourist and recreation areas along the Monterey Peninsula, the vividness and intactness of Fort Ord's visual resources would be substantially reduced by proposed development.

In the northern and northeast portions of the installation, impacts resulting from development in visually sensitive areas would be visible from the Salinas Valley.

5.6.1.13 Cultural Resources

This alternative has the potential to affect National Register-eligible historic buildings by loss of federal protection and by splitting proposed National Register districts. If National Register-eligible archeological sites are found within the archeologically sensitive areas at Fort Ord, the high-intensity uses proposed by Alternative 1 have the greatest potential to affect these resources. The areas of greatest archeological sensitivity include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible Canyons. All other installation lands are recommended as having low to medium potential for possessing archeological resources. If sites or resources important to Native Americans are found to be located on Fort Ord lands, the high-intensity land uses proposed by Alternative 1 would have the greatest potential to cause loss of access, damage to, or destruction of these properties.

5.6.1.14 Subalternative A: No Presidio of Monterey Annex/No Reserve Center

Land Use

Land use impacts of Subalternative A would be similar to those described under Alternative 1.

Socioeconomics

- **Population and Housing.** Direct population and housing growth countywide would be slightly greater under Subalternative A than under Alternative 1 (Table 5-3). Population and housing growth in Marina would be similar to levels under Alternative 1, while population and housing levels in Seaside would be higher than those under Alternative 1. The jobs/housing ratio would be similar to the ratio under Alternative 1.
- **Regional Economy.** Employment, output, and personal income growth under Subalternative A would be similar to growth under Alternative 1 (Table 5-3).
- **Social Services.** Implementation of Subalternative A would result in social services impacts similar to those described for Alternative 1, with the increased loss of military retiree benefits. Under this subalternative, the installation's commissary, post exchange, and recreational areas currently available to military retirees in the region would be closed. Loss of these services could place an additional financial burden on the region's military retirees, who rely on the commissary and post exchange for reduced retail prices for consumer products.

- **Schools.** Impacts on schools under Subalternative A would be similar to those described under Alternative 1 except that the number of students generated under this subalternative would increase by approximately 2,000 (Table 5-4).
- **Recreation.** In addition to the impacts described under Alternative 1, implementation of this Subalternative A would also result in the loss of recreational opportunities in the Main Garrison area (Table 5-4).

Soils, Geology, Topography, and Seismicity

Impacts of Subalternative A would be similar to those described under Alternative 1.

Public Services and Utilities

Table 5-5 quantifies public service and utility impacts for Subalternative A.

- **Wastewater.** Impacts on wastewater would be similar to those described under Alternative 1 except that Subalternative A would generate up to 18.9 mgd, a 686% increase over existing levels. An estimated 15.6 mgd of wastewater treatment capacity would be needed under this subalternative.
- **Solid Waste.** Impacts on solid waste would be similar to those described for Alternative 1 except that Subalternative A would generate up to 1,070 tpd, a 1,038% increase over existing levels. This would reduce the life of the Marina Landfill by 50 years.
- **Telephone Service.** Impacts on telephone service would be similar to those described under Alternative 1 except that Subalternative A would require the expansion of the telephone service area to approximately 21,860 acres, a 435% increase in service area.
- **Gas and Electric Service.** Impacts on gas and electric service would be similar to those described under Alternative 1 except that Subalternative A would require up to 5,850 MCFH of gas and 550 MW of electricity, an increase of 4,000% more gas and 3,100% more electricity than existing levels.
- **Cable Television.** Impacts on cable television service would be similar to those described for Alternative 1 except that Subalternative A would require the expansion of the cable television service area to approximately 21,860 acres, a 435% increase in service area.
- **Storm Drainage System.** Subalternative A would have the same impacts as those described under Alternative 1.
- **Water Distribution Infrastructure.** Impacts on the water distribution system would be similar to those described under Alternative 1 except that Subalternative A would require that the water distribution system's service area be expanded approximately 221,860 acres, an increase of 435% in service area.

Water Resources

- **Hydrology and Water Quality.** Subalternative A would convert land from open space to urban development, which would increase watershed runoff and peak floodflows. Subalternative A would not only increase watershed runoff but would also degrade water

quality by generating additional urban pollutants. Surface runoff containing urban pollutants would degrade water quality on the installation and in Monterey Bay.

- **Water Supply and Demand.** Water demand under Subalternative A would be about 35,386 acre-feet per year. This amount is within 9% of the water demand for Alternative 1 (Table 5-6).

Public Health and Safety

Table 5-7 quantifies the impacts of Subalternative A on the following services:

- **Law Enforcement.** Impacts on law enforcement for Subalternative A would be similar to those described under Alternative 1 except that Subalternative A would require up to 515 law enforcement officers and equipment, a 257% increase over existing levels.
- **Fire Protection.** Impacts on fire protection for Subalternative A would be similar to those described under Alternative 1 except that Subalternative A would require up to 257 firefighters and equipment and approximately 64 firefighting companies, a 542% increase over existing levels.
- **Medical Services.** Impacts on medical services for Subalternative A would be similar to those described under Alternative 1 except that Subalternative A would result in the need for additional medical services for approximately 99,500 residents.
- **Emergency Medical Services.** Impacts on emergency medical services for Subalternative A would be similar to those described under Alternative 1 except that Subalternative A would result in the need for additional emergency medical services for approximately 189,500 residents.
- **Seismic Safety.** Seismic safety impacts for Subalternative A would be similar to those described under Alternative 1 except that approximately 250,000 people would be exposed to potential seismic events.

Traffic and Circulation

The reuse impacts of Subalternative A would be similar to, but greater than, those described under Alternative 1 (Table 5-8). Subalternative A proposes land uses, such as a resort hotel and a larger central business district, to replace the POM annex and reserve center. These uses would generate more daily traffic than the POM annex and reserve center. The large-scale development proposed for each land use would mean that the difference in impacts of each proposal would be small and localized.

Air Quality

Subalternative A would result in approximately the same amount of construction emissions as those generated under Alternative 1. However, Subalternative A has moderately higher emissions of PM₁₀ and ozone precursors because of a higher level of high-density residential development (Table 5-9). Like Alternative 1, Subalternative A would result in violations of the CO ambient standards and is inconsistent with both the MBUAPCD's 1991 AQMP and the 1982 SIP developed jointly by the MBUAPCD and AMBAG.

Noise

The absence of the POM annex and the reserve center would not substantially affect traffic noise levels or the degree to which proposed noise-sensitive land uses are affected by noise. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Hazardous and Toxic Waste Site Remediation

No additional effects on hazardous and toxic waste site remediation would be caused by implementing this subalternative.

Vegetation, Wildlife, and Wetland Resources

Under Subalternative A, impacts would be similar to those described under Alternative 1 (Table 5-11). However, without development of the POM annex and reserve center, some areas within the proposed POM annex footprint would be converted to new land uses (i.e., university and resort hotel). Small areas of native vegetation may be removed to allow for construction of new facilities associated with these land uses. Small populations or individuals of the following special-status plant and wildlife species could be affected: Monterey spineflower, sandmat manzanita, Monterey ceanothus, purple-flowered piperia, Monterey ornate shrew, Monterey dusky-footed woodrat, black legless lizard, coast horned lizard, and Salinas harvest mouse. Monterey spineflower is proposed for federal listing as endangered. Should it become listed, the loss of individuals or populations of the species would be a violation of the federal Endangered Species Act. Future land uses for the no proposed use area are unknown.

Visual Resources

Visual impacts resulting from Subalternative A would be similar to those described under Alternative 1. However, impacts would be less for some areas near North-South Road that are designated for no proposed use and golf course.

Cultural Resources

All buildings recommended for the National Register are located outside of, and will not be affected by, the Subalternative A locations proposed for the POM annex and the reserve center. Lands within the cantonment area are generally considered to be highly disturbed and are not recommended for archeological survey.

5.6.1.15 Subalternative B: Seaside's Recommended Presidio of Monterey Annex/No Reserve Center

Land Use

Land use impacts resulting from Subalternative B would be similar to those described under Alternative 1. In addition, implementation of Subalternative B would result in incompatibilities between Seaside's recommended POM annex and the existing natural habitat where this annex is proposed to be built.

Socioeconomics

- **Population and Housing.** Direct population and housing growth countywide under Subalternative B would be similar to levels that would occur under Alternative 1 (Table 5-3). Population and housing growth in Marina would be similar to levels under Alternative 1, while population and housing levels in Seaside would be lower than those under Alter-

native 1. The countywide jobs/housing ratio would be greater than the ratio under Alternative 1, but similar to the existing jobs/housing ratio within Monterey County.

- **Regional Economy.** Employment, output, and personal income growth under Subalternative would be substantially greater than those under Alternative 1 (Table 5-3).
- **Social Services.** Implementation of Subalternative B would result in social services effects similar to those described under Alternative 1.
- **Schools.** Impacts on schools resulting from Subalternative B would be similar to those described under Alternative 1 except that the number of students generated by Subalternative B would increase by a few hundred (Table 5-4).
- **Recreation.** In addition to the impacts described under Alternative 1, implementation of this subalternative would also result in the loss of recreational opportunities in the Main Garrison area (Table 5-4).

Soils, Geology, Topography, and Seismicity

Impacts for Subalternative B would be similar to those described under Alternative 1.

Public Services and Utilities

Table 5-5 quantifies public service and utility impacts for Subalternative B.

- **Wastewater.** Impacts on wastewater would be similar to those described under Alternative 1 except that Subalternative B would generate up to 19.3 mgd, a 704% increase over existing levels. An estimated, 16 mgd of wastewater treatment capacity would be needed for this subalternative.
- **Solid Waste.** Impacts on solid waste would be similar to those described under Alternative 1 except that Subalternative B would generate up to 1,016 tpd, a 981% increase over existing levels. This would reduce the life of the Marina Landfill by 48 years.
- **Telephone Service.** Impacts on telephone service would be similar to those described for Alternative 1 except that Subalternative B would require the expansion of the telephone service area to approximately 21,170 acres, a 420% increase in service area.
- **Gas and Electric Service.** Impacts on gas and electric service would be similar to those described for Alternative 1 except that Subalternative B would require up to 3,950 MCFH of gas and 440 MW of electricity, an increase of 2,700% more gas and 2,500% more electricity than existing levels.
- **Cable Television.** Impacts on cable television service would be similar to those described for Alternative 1 except that Subalternative B would require the expansion of the cable television service area to approximately 21,170 acres, a 420% increase in service area.
- **Storm Drainage System.** Subalternative B would have the same impacts as those described under Alternative 1.

- **Water Distribution Infrastructure.** Impacts on the water distribution system would be similar to those described under Alternative 1 except that Subalternative B would require that the water distribution system's service area expand approximately 21,170 acres, an increase of 420% in service area.

Water Resources

- **Hydrology and Water Quality.** Subalternative B would convert land from open space to urban development, which would increase watershed runoff and peak floodflows. Subalternative B would not only increase watershed runoff but would also degrade watershed water quality by generating additional urban pollutants. Surface runoff containing urban pollutants would degrade water quality on the installation and in Monterey Bay.
- **Water Supply and Demand.** Water demand under Subalternative B would be about 36,633 acre-feet per year. This amount is similar to the water demand for Alternative 1 (Table 5-6).

Public Health and Safety

Table 5-7 quantifies the impacts of Subalternative B on the following services:

- **Law Enforcement.** Impacts on law enforcement for Subalternative B are similar to those described under Alternative 1, except that Subalternative B would require up to 496 law enforcement officers and equipment, a 244% increase over existing levels.
- **Fire Protection.** Impacts on fire protection for Subalternative B are similar to those described under Alternative 1 except that Subalternative B would require up to 248 firefighters and equipment and approximately 62 firefighting companies, a 519% increase over existing levels.
- **Medical Services.** Impacts on medical services for Subalternative B are similar to those described under Alternative 1 except that Subalternative B would result in the need for additional medical services for approximately 157,800 residents.
- **Emergency Medical Services.** Impacts on emergency medical services for Subalternative B are similar to those described under Alternative 1 except that Subalternative B would result in the need for additional emergency medical services for approximately 247,800 residents.
- **Seismic Safety.** Seismic safety impacts for Subalternative B are similar to those described under Alternative 1 except that approximately 240,000 people would be exposed to potential seismic events.

Traffic and Circulation

The reuse impacts of Subalternative B would be similar to those described under Alternative 1 because the land uses would be similar to those described under Alternative 1 (Table 5-8). The scale and conceptual nature of the proposed land uses would obscure any differences.

Air Quality

Subalternative B would result in approximately the same amount of construction emissions as Alternative 1. However, Subalternative B would have slightly higher emissions of PM₁₀ and ozone precursors because of higher levels of residential and nonresidential development (Table 5-9). Like Alternative 1, this

subalternative would result in violations of the CO ambient standards and is inconsistent with both the MBUAPCD's 1991 AQMP and the 1982 SIP developed jointly by the MBUAPCD and AMBAG (Table 5-9).

Noise

The presence of Seaside's recommended POM annex and the absence of a reserve center would not substantially affect traffic noise levels or the degree to which proposed noise-sensitive land uses are affected by noise. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Hazardous and Toxic Waste Site Remediation

No additional effects on hazardous and toxic waste site remediation would be caused by implementing Subalternative B.

Vegetation, Wildlife, and Wetland Resources

Under Subalternative B, impacts would be similar to those described under Alternative 1. However, buildout of Seaside's recommended POM annex would slightly increase the amount of habitat eliminated by development compared to Alternative 1 because Seaside's recommended POM annex would adversely affect areas currently designated as open space. Approximately 3% of additional coastal scrub and approximately 1% of additional coastal coast live oak woodland would be eliminated under this Subalternative B (Table 5-11). Small populations or individuals of the following special-status plant and wildlife species could be affected: Monterey spineflower, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, wedge-leaved horkelia, Hooker's manzanita, virgate eriastrum, Monterey ornate shrew, Monterey dusky-footed woodrat, black legless lizard, coast horned lizard, and Salinas harvest mouse. Monterey spineflower is proposed for federal listing as endangered. Should it become listed, the loss of individuals or populations of the species would be a violation of the federal Endangered Species Act.

Small areas of native vegetation could also be lost because of changes in land use within the Army's proposed POM annex footprint (i.e., university and hotel) proposed under Subalternative B. Small populations or individuals of the following special-status plant and wildlife species could be affected: Monterey spineflower, sandmat manzanita, Monterey ceanothus, purple-flowered piperia, Monterey ornate shrew, Monterey dusky-footed woodrat, black legless lizard, coast horned lizard, and Salinas harvest mouse.

Visual Resources

Visual impacts resulting from Subalternative B would be similar to those described under Alternative 1. However, impacts would be less for an area to the west of North-South Road that is designated for a golf course.

Cultural Resources

All buildings recommended as eligible for listing in the National Register are located outside of, and will not be affected by, the Subalternative B locations proposed for the POM annex and reserve center. Archeological surveys will be necessary for construction projects undertaken on undeveloped land areas as part of Seaside's recommended POM annex under Subalternative B.

5.6.1.16 Subalternative C: Partial Variation of High-Intensity Mixed Use

Land Use

Land use impacts of Subalternative C would be similar to those described under Alternative 1. In addition, implementation of Subalternative C would result in approximately 800 acres of proposed land uses in the coastal zone that would be incompatible with the coastal zone designation and an inconsistency with a California Coastal Act policy protecting against fuel spills.

Socioeconomics

- **Population and Housing.** Direct population and housing growth would be greater under Subalternative C than under Alternative 1 (Table 5-3), but would not exceed significance thresholds established for population and housing effects. Population and housing growth in Marina would be similar to levels under Alternative 1, while population and housing levels in Seaside would be higher than levels under Alternative 1. The countywide jobs/housing ratio would be greater than the ratio under Alternative 1 but similar to the existing jobs/housing ratio in Monterey County.
- **Regional Economy.** Employment, output, and personal income growth under Subalternative C would be substantially greater than those under Alternative 1 (Table 5-3).
- **Social Services.** Implementation of Subalternative C would result in social services effects similar to those described under Alternative 1.
- **Schools.** The impacts would be similar under Subalternative C to those under Alternative 1 except that the number of students generated would be much greater, increasing by approximately 8,000 (Table 5-4).
- **Recreation.** In addition to the impacts described under Alternative 1, the implementation of Subalternative C would also result in the loss of recreational opportunities in the Main Garrison area and an additional 100-acre increase in developed recreational opportunities (Table 5-4).

Soils, Geology, Topography, and Seismicity

Impacts for Subalternative C would be similar to those under Alternative 1, with the additional potential for increased coastal effects due to shoreline and off-shore development.

Public Services and Utilities

Table 5-5 quantifies public service and utility impacts on Subalternative C.

- **Wastewater.** Impacts on wastewater would be similar to those described under Alternative 1 except that Subalternative C would generate up to 19.9 mgd, a 730% increase over existing levels. An estimated 16.6 mgd of wastewater treatment capacity would be needed for Subalternative C.
- **Solid Waste.** Impacts on solid waste would be similar to those described under Alternative 1 except that Subalternative C would generate up to 1,180 tpd, a 1,156% increase over existing levels. This would reduce the life of the Marina Landfill by 53 years.

- **Telephone Service.** Impacts on telephone service would be similar to those described for Alternative 1 except that Subalternative C would require the expansion of the telephone service area to approximately 22,000 acres, a 435% increase in service area.
- **Gas and Electric Service.** Impacts on gas and electric service would be similar to those described under Alternative 1 except that Subalternative C would require up to 4,120 MCFH of gas and 440 MW of electricity, an increase of 2,800% more gas and 2,500% more electricity than existing levels.
- **Cable Television.** Impacts on cable television service would be similar to those described under Alternative 1 except that Subalternative C would require the expansion of the cable television service area to approximately 22,000 acres, a 435% increase in service area.
- **Storm Drainage System.** Subalternative C would have impacts similar to those described under Alternative 1 except that 25,442 acres of storm drainage infrastructure would need to be upgraded or expanded.
- **Water Distribution Infrastructure.** Impacts on the water distribution system would be similar to those described under Alternative 1 except that Subalternative C would require that the water distribution system's service area expand approximately 22,000 acres, an increase of 435% in service area.

Water Resources

- **Hydrology and Water Quality.** Subalternative C would convert land from open space to urban development, which would increase watershed runoff and peak floodflows. Subalternative C would not only increase watershed runoff but would also degrade watershed water quality by generating additional urban pollutants. Surface runoff containing urban pollutants would degrade water quality on the installation and in Monterey Bay.
- **Water Supply and Demand.** Water demand under Subalternative C would be about 37,732 acre-feet per year. This amount is higher than the water demand for Alternative 1 (Table 5-6).

Public Health and Safety

Table 5-7 quantifies the impacts of Subalternative C on the following services:

- **Law Enforcement.** Impacts on law enforcement for Subalternative C are similar to those described under Alternative 1 except that Subalternative C would require up to 566 law enforcement officers and equipment, a 293% increase over existing levels.
- **Fire Protection.** Impacts on fire protection for Subalternative C are similar to those described under Alternative 1 except that Subalternative C would require up to 283 firefighters and equipment and approximately 71 firefighting companies, a 606% increase over existing levels.
- **Medical Services.** Impacts on medical services for Subalternative C are similar to those described under Alternative 1 except that Subalternative C would result in the need for additional medical services for approximately 127,500 residents.

- **Emergency Medical Services.** Impacts on emergency medical services for Subalternative C are similar to those described under Alternative 1 except that Subalternative C would result in the need for additional emergency medical services for approximately 217,500 residents.
- **Seismic Safety.** Seismic safety impacts for Subalternative C are similar to those described under Alternative 1 except that approximately 275,000 people would be exposed to potential seismic events. Also, because of the increased coastline development proposed in Subalternative C, coastline development would be exposed to increased potential for damage caused by tsunamis in Monterey Bay.

Traffic and Circulation

The reuse impacts of Subalternative C would be similar to those described under Alternative 1 because the land uses for Subalternative C would be similar to those described under Alternative 1 (Table 5-8). The scale and conceptual nature of the proposed land uses would obscure the differences.

Air Quality

Subalternative C would result in approximately the same amount of construction emissions as Alternative 1. It would have slightly higher emissions of PM₁₀ and ozone precursors because of higher levels of residential development (Table 5-9). Like Alternative 1, Subalternative C would result in violations of the CO ambient standards and is inconsistent with both the MBUAPCD's 1991 AQMP and the 1982 SIP developed jointly by the MBUAPCD and AMBAG (Table 5-9).

Noise

Under Subalternative C, the reuse impacts would be similar to those described under Alternative 1 except that Subalternative C would not result in the exposure of educational facilities to noise from a transit center (Table 5-10).

Hazardous and Toxic Waste Site Remediation

No additional effects on hazardous and toxic waste site remediation would be caused by implementing Subalternative C.

Vegetation, Wildlife, and Wetland Resources

Under Subalternative C, impacts would be similar to those described under Alternative 1, except for increased impacts on coastal and marine resources (Table 5-11). Approximately 28% of additional dune habitats would be lost, including an additional 61% of native coastal strand relative to Alternative 1. The proposed golf course and weather station would also eliminate habitat preserves 2 and 10 along the coast. Approximately 45% of additional Smith's blue butterfly habitat and an additional 5% of black legless lizard habitat would also be eliminated. Disturbance to nesting western snowy plovers would also increase under Subalternative C. Smith's blue butterfly is listed as endangered and the western snowy plover is federally listed as threatened under the federal Endangered Species Act. Development of the proposed cruise ship pier and marina could disturb southern sea otters and would conflict with regulations associated with the designated Monterey Bay National Marine Sanctuary. The southern sea otter is listed as threatened under the federal Endangered Species Act.

Visual Resources

The visual impacts under Subalternative C would be similar to those described under Alternative 1. However, impacts would be less for some areas near North-South Road, greater for an area in the south part of the study area, less for some portions of the coastal area, and substantially greater for other portions of the coastal area.

Visual quality in the coastal area would be affected by the addition of a marina, cruise ship pier, weather station, hotels, and a golf course. Although a golf course is a low-intensity land use, its presence in the highly sensitive coastal area would substantially alter the existing visual character and quality by altering the natural vegetation patterns, landforms, colors, textures, and lines of the area. The intactness, vividness, and unity of the coastal area would be substantially reduced by the addition of the land uses proposed in this area as part of Subalternative C.

Cultural Resources

Subalternative C has the potential to affect National Register-eligible historic buildings by splitting proposed National Register districts. The high-intensity land uses proposed under Subalternative C are nearly identical to those under Alternative 1. If National Register-eligible archeological sites are found within the archeologically sensitive areas at Fort Ord, the high-intensity land uses proposed by Subalternative C have a great potential to affect these resources. The areas of greatest archeological sensitivity include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible Canyons. All other installation lands are recommended as having low to medium potential for possessing archeological resources. If sites or resources important to Native Americans are found to be located on Fort Ord lands, the high-intensity land uses proposed by Subalternative C would have a great potential to cause loss of access, damage to, or destruction of these properties.

5.6.1.17 Impact Summary

- **Land Use.** Most of the approximately 23,000 acres of existing Army training areas and undeveloped open space would be converted to high-density developed urban uses. Only approximately 14% of Fort Ord would remain in open space and agricultural land uses. Approximately 60% of the 7,040 acres of residential development would be medium- and high-density residential areas, with only 2,825 acres in lower density rural, very low- and low-density residential.

Some of the proposed urban uses would conflict with adjacent land uses, agricultural operations, or land use policies. Urban development would occur in areas that would be unsuitable for development because of physical constraints or because they contain significant habitat for rare and endangered plant and wildlife species. Proposed urban development could be inconsistent with the policy of the California Coastal Act of 1976. The resulting growth pressure could eventually jeopardize the natural resources of the Monterey Bay coastline.

Extensive development is proposed under Alternative 1 where infrastructure is inadequate. Extensive growth in remote or peripheral areas instead of in existing urban areas may result in blighted infill areas.

- **Socioeconomics.** Alternative 1 would increase resident population by approximately 212,200 persons to a buildout population of approximately 250,000 persons and 83,100 housing units. Regional economic activity, as measured by countywide employment, personal income, and industrial output, would increase substantially over 1991 conditions, with increases of

approximately 54% in employment, 59% in direct output, and 50% in personal income. Approximately 89,000 new jobs would occur, with an increase in personal income of \$2.4 billion. Total output within Monterey County also would increase by \$7.2 billion. Military retirees would be affected by the loss of medical services currently available at Fort Ord. Alternative 1 would increase the need for school capacity through the 12th grade by 54,200 students. Alternative 1 would decrease the land available for undeveloped recreational opportunities by 12,000 acres, and provide 3,900 acres of developed recreational opportunities.

- **Soils, Geology, Topography, and Seismicity.** The extensive development proposed under Alternative 1 would disturb or destroy the soil component that supports rare plant communities. Development in currently undeveloped portions of the installation would remove vegetation, disturb the soil surface, and accelerate erosion and sedimentation. Developments along Toro Creek would be subjected to an increased flood hazard and to a high to very high potential for liquefaction and seismically induced landslides. Constructing facilities in the coastal zone would subject these facilities to eventual loss because of the coastal erosion in the area.
- **Public Services and Utilities.** Extensive upgrade and expansion of the utility system would be required to provide service under Alternative 1. An increase of up to 1,000% over that currently available would be required. Telephone, cable television, gas and electricity, storm drainage, and water supply infrastructure would require public or private utility companies to upgrade, replace, and expand the infrastructure to provide service to the expanded developments. Additional wastewater treatment facilities would need to be constructed and additional landfill capacity secured, and the collection and delivery systems would need to be upgraded, replaced, and expanded.
- **Water Resources.** Increases in impervious surfaces under Alternative 1 would cause additional surface runoff that could contribute to watershed flood problems. Areas within existing FEMA 100-year floodplains are particularly sensitive to flood damage from increased runoff and generally contribute to water quality degradation in the area and potentially in Monterey Bay, a designated national marine sanctuary.

Alternative 1 would increase water demand from approximately 5,400 acre-feet at Fort Ord to about 36,626 acre-feet. The existing supply consists entirely of groundwater and already exceeds the safe yield of the groundwater basin in the vicinity of Fort Ord, as evidenced by seawater intrusion. Local groundwater could not supply the water needed for this development. Water demand could be met by constructing a desalination facility for brackish or saline water or by importing water from areas farther inland. The Salinas Valley Water Transfer Project proposed by the Monterey County Water Resources Agency would provide water to the Fort Ord area from a pipeline and wellfield to be built inland near the Salinas River. Local reservoirs could be built on Fort Ord and used to store excess runoff from the Salinas River or to store diverted water released from Nacimiento and San Antonio Reservoirs. A dam could be built on the Arroyo Seco, a large tributary of the Salinas River, and stored water could be delivered to Fort Ord by pipeline or by the Salinas River.

- **Public Health and Safety.** Alternative 1 would require up to 495 law enforcement officers, 247 firefighters or 62 firefighting companies and equipment, and emergency medical services for many institutions and businesses and for approximately 280,000 persons. Ambulance service and related medical technician emergency response could be supplied by local government agencies or by private companies. The installation is in a seismic and tsunami risk area, and people would be exposed to these risks and to risks from buildings subjected to ground shaking.
- **Traffic and Circulation.** Alternative 1 would generate approximately 1.1 million daily trips at full buildout. To serve this demand, up to 36 lanes of north-south roadways and 45 lanes of

east-west roadways would need to be built. To serve travel between Fort Ord and surrounding communities, up to 125 lanes of roadway would need to be built. These estimates should not be combined because one roadway could satisfy both on- and off-installation travel. Providing transit service and implementing aggressive measures to reduce single-occupant driving could reduce the need for roadways by approximately 10%.

- **Air Quality.** Exposure to asbestos is possible if asbestos is not removed from buildings before demolition. Hazardous air pollutants and PM₁₀ could be emitted during hazardous waste cleanup and recovery of unexploded ordnance. Construction activities during reuse would generate substantial increases in NO_x, ROG, CO, and PM₁₀ emissions. Alternative 1 would create excessive levels of CO at three locations where people live or work. Substantial increases in air emissions would result in increased NO_x, ROG, CO, and PM₁₀ emissions, lowering air quality and conflicting with plans to bring the air basin into compliance with state and federal air quality standards. Alternative 1 would not be consistent with the 1982 State Implementation Plan developed jointly by the MBUAPCD and AMBAG or the MBUAPCD's 1991 AQMP due to the increases in population.
- **Noise.** Noise impacts from Alternative 1 would include traffic noise impacts on existing and new noise-sensitive land uses and the noise impacts of incompatible land uses. The traffic noise impacts on existing and new noise-sensitive land uses would exceed the 60-dB L_{dn} criterion for all evaluated road segments that would have noise-sensitive land uses. Other noise sources, such as the airport, amphitheater, and police academy, would also have noise levels that exceed the criterion for noise-sensitive land uses. Sensitive land uses, such as residences, campgrounds, and resort hotels, are projected to be located adjacent to such noise-generating land uses as an amphitheater, transit center, sports fields, sports complex, film complex, theme park, police academy, and airports.

Cumulative noise impacts would result from the intensity of the reuse development on Fort Ord combined with other noise-producing development outside Fort Ord. Approximately 29 roadway segments are projected to have noise increases with substantial cumulative effects under Alternative 1.

- **Hazardous and Toxic Waste Site Remediation.** After hazardous and toxic waste remediation activities are complete at Fort Ord, reuse of former hazardous and toxic waste sites would pose slight risks to public health and safety. Development could occur on unidentified hazardous waste or unexploded ordnance. Additional hazardous waste would be generated on the installation by demolishing buildings that may contain asbestos and other potentially hazardous materials.
- **Vegetation, Wildlife, and Wetland Resources.** Land development proposed for reuse under Alternative 1 would result in the loss of over 85% of common and special-status biological resources at Fort Ord. Impacts include the loss of large portions of the ranges of federally listed and proposed and state-listed threatened and endangered species and reduction in the ranges of numerous special-status plant and wildlife species to the point that they would likely become eligible for federal or state listing as threatened or endangered. It would result in the loss of 95% of the Fort Ord maritime chaparral, comprising of over one-half of all known central maritime chaparral habitat, and nearly complete loss of wetlands and riparian habitats at Fort Ord. Biological resources would lose federal protection if lands are transferred to nonfederal entities. Implementation of a multispecies HMP, developed under Section 7 of the federal Endangered Species Act, could be the means for mitigating impacts. However, Alternative 1 would need to be significantly modified to accommodate the HMP. The future owner of the property could implement mitigation to avoid development in Smith's blue butterfly habitat.

- **Visual Resources.** The development in important view areas under Alternative 1 would greatly decrease the amount and diversity of natural vegetation cover and distant views. Development would alter the visual character and reduce the visual quality of the coastal area of Fort Ord. Views from and toward Monterey Bay and views from state-designated scenic routes heavily traveled by tourists and recreationists would be reduced in visual quality by proposed development.
- **Cultural Resources.** All requirements for identification of historic properties under the provisions of the National Historic Preservation Act (NHPA) of 1966 have not been completed as of this writing. Therefore, the Army will adhere to the program outlined in the BRAC cultural resource programmatic agreement (1992) to meet its NHPA requirements.

Alternative 1 would affect 35 buildings that have been identified as potentially eligible for listing in the National Register. It has the potential to split proposed National Register districts. Alternative 1 proposes development in areas considered to have potential to contain archeological resources.

No studies have yet been conducted to determine whether culturally sensitive Native American properties are present at Fort Ord. If such properties are found to exist at Fort Ord, Alternative 1 has a high potential to affect them because of the extent of development proposed. Native American groups will be contacted about the presence of these types of properties before initiating disposal or reuse actions.

- **Conclusions.** Alternative 1 would have severe impacts on most environmental resources. The large populations, great expanse of dense urban development, large water and wastewater requirements, endangered species impacts, and conflicts in land use and transportation plans for the region would require revisions and implementation of mitigation. Changes to this alternative would be required to address physical and environmental constraints and allow for economically feasible development and operation within Fort Ord and in the region. It would need to comply with federal laws and policies concerning air quality, endangered species, and floodplains; California coastal zone regulations; Monterey marine sanctuary requirements; historic preservation requirements; and noise standards.

5.6.1.18 Mitigation Summary

The following mitigation could be implemented by the Army, unless otherwise indicated. Other mitigation is available that could be implemented by other federal, state, or local agencies and private entities responsible for development; it is described in Volume II, "Detailed Analysis of Disposal and Reuse".

- Encourage additional CHAMPUS/PRIME providers.
- Disclose information on buried utilities to the underground service alert.
- Transfer infrastructure to responsible parties.
- Create a unified storm drainage and flood control district to serve existing and new development.
- Disclose information on buried water distribution infrastructure to the underground service alert.
- Implement measures during construction to minimize NO_x emissions (for establishment of the POM annex only).

- Obtain emission offsets from the emissions bank maintained by the MBUAPCD (for establishment of the POM annex only).
- Implement the transportation control alternatives included in the MBUAPCD's 1991 AQMP (Alternatives 1, 2, 3, 4, and 6).
- Avoid development in Smith's blue butterfly habitat.
- Determine whether remediation sites have been surveyed for archeological resources and conduct surveys where determined necessary and safe to do so.

5.6.2 Alternative 2: Medium-Intensity Mixed Use

5.6.2.1 Land Use

Under Alternative 2, intensive reuse of the installation is proposed. Approximately 40% of the currently undeveloped portion of the installation is proposed for development. The major land use impacts of Alternative 2 relate to incompatibilities between proposed and existing land uses incompatibilities between proposed land uses, and inconsistencies with relevant state and local plans and policies.

Several land uses are proposed that would be incompatible with existing land uses in the area. Residential areas are proposed adjacent to agricultural lands in the eastern and southeastern portions of the installation. These agricultural lands are of all classifications, including prime agricultural land, the highest classification of agricultural land.

Several land uses are also proposed that would be incompatible with other proposed land uses. These include the incompatibilities between the proposed agri-center adjacent to proposed residential areas, the habitat preserve, and the regional park.

Alternative 2 also proposes development patterns that would be inconsistent with relevant state and local plans and policies. These inconsistencies include creation of development patterns that are not consistent with the 1991 AQMP; the expansion of development in areas without adequate infrastructure; development in areas not designated for growth; disregard for infill; inadequate provision of open space; land use incompatibilities; inadequate protection of sensitive environments and habitats and inconsistencies with policies that relate to groundwater resources and preservation of visual resources.

5.6.2.2 Socioeconomics

Population and Housing. Implementation of Alternative 2 would directly increase the population and housing stocks of Monterey County, Marina, and Seaside. As shown by Table 5-3, the countywide population would increase by an estimated 78,000 (22%), and the housing stock would grow by 22,200 units (18%). This growth, when annualized over the assumed 50-year buildout period, would not exceed significance thresholds established for population and housing effects.

After accounting for the effects of closure, Marina's population would increase by approximately 7,000 residents even though its housing stock would decrease by 360 units. This seemingly contradictory effect would result from replacing group quarters on the installation with single-family housing that would support a larger population per housing unit. Seaside's population would grow by about 36,000, and its housing stock would increase by 9,510 units under Alternative 2.

The ratio of jobs to housing in Monterey County would incrementally increase from 1.36 to 1.52. This effect is considered major because it would increase the countywide ratio, which already exceeds the ratio of jobs to housing generally considered to be optimal for maintaining a jobs/housing balance.

Regional Economy. Implementation of Alternative 2 would result in the development of employment-generating land uses that would create an estimated 79,600 direct jobs and 54,900 secondary jobs within Monterey County. Subtracting the effects of closure would result in a net increase of approximately 107,500 jobs (Table 5-3), a 65% increase in countywide employment. An estimated 14,000 of the direct jobs would be located in Marina, and 19,000 jobs would be located in Seaside.

After accounting for closure reductions, total output in Monterey County is estimated to increase by \$7.9 billion, a 64% increase over baseline conditions. Similarly, personal income is estimated to increase by \$2.8 billion in Monterey County, a 59% increase over baseline conditions.

Social Services. Economic activity generated by Alternative 2 could benefit social services programs provided by Monterey County and nonprofit organizations, including welfare services and jobs training and placement programs, by increasing employment opportunities, decreasing unemployment, and generating increased income in the county.

As currently defined, Alternative 2 would result in no housing set aside for the homeless. Based on the current need for housing for the homeless in Monterey County, implementation of Alternative 2 would increase the need for housing for the homeless and lower income households.

The availability of healthcare services for military retirees and their family members would likely be reduced under Alternative 2 with the closure of Silas B. Hays Army Community Hospital. The regional medical center developed under Alternative 2 would presumably not be a CHAMPUS-contract hospital. Population growth generated by development under Alternative 3 would increase the regional demand and competition for healthcare services in Monterey County. Military retirees and their family members could use the new medical center and other facilities within the region and apply for partial reimbursement of costs through CHAMPUS or Medicare; however, out-of-pocket costs and possibly travel costs to receive healthcare would increase for military retirees and their family members.

Schools. Alternative 2 would generate the need for additional school capacity for up to approximately 19,500 students in kindergarten through 12th grade. This would result in a demand for additional school facilities and staff (Table 5-4).

Recreation. Alternative 2 proposes 7,300 acres of land for undeveloped recreational opportunities and 1,930 acres for developed recreational opportunities (Table 5-4). This would result in the loss of approximately 7,200 acres of land available for undeveloped recreational activities including fishing and hunting. Alternative 2 would, however, result in an additional 1,500 acres of developed recreational opportunities, including parks and sports facilities.

5.6.2.3 Soils, Geology, Topography, and Seismicity

The impacts of development under Alternative 2 would be similar to those under Alternative 1. Two impacts would be eliminated: the use of unsuitable soil types for agriculture and the very high infiltration rate limitation for a water storage reservoir. A moderate increase in natural area preservation would reduce the impact of the loss of the natural soil ecosystem component. Other soil impacts would be slightly reduced as a result of slightly reduced development.

5.6.2.4 Public Services and Utilities

Table 5-5 quantifies public service and utility impacts of Alternative 2.

Wastewater. Alternative 2 would generate up to 13.1 mgd of wastewater. This 445% increase over the existing 2.4 mgd (3.3 mgd are available to the installation) would require 9.8 mgd of additional treatment capacity to accommodate the land uses.

Solid Waste. Alternative 2 would generate up to 460 tpd of solid waste, a 389% increase from the existing 94 tpd. This amount of solid waste would reduce the life of the Marina Landfill by approximately 27 years.

Telephone Service. Telephone service exists only in the developed portions of the installation, and additional or upgraded infrastructure would be required to serve future development. Alternative 2 would require the expansion of telephone service to approximately 18,760 acres, a 370% increase in service area.

Gas and Electric Service. Gas and electric service exists only in the developed portions of the installation. Alternative 2 would result in the demand for approximately 3,695 MCFH of gas and 392 MW of electric service, an increase of 2,500% more gas and 2,200% more electricity than current levels.

Cable Television. Cable television service exists only in the developed portions of the installation. Alternative 2 would result in the need for additional cable television service to approximately 18,760 acres, a 370% increase in service area.

Storm Drainage System. Alternative 2 would require new storm drainage infrastructure for approximately 22,845 acres, in addition to upgrades and expansions to existing storm drainage infrastructure that may continue to be used with the new systems.

Water Distribution Infrastructure. Alternative 2 would require that the water distribution system's infrastructure be upgraded or expanded to provide service to approximately 18,760 acres, a 370% increase in service area.

5.6.2.5 Water Resources

Hydrology and Water Quality. Alternative 2 would convert land from open space to urban development, which would increase watershed runoff and peak floodflows. Approximately 12,000 acres would be converted from open space to urban land uses, resulting in a 40% increase in urban area over existing conditions.

Alternative 2 would not only increase watershed runoff but would also degrade watershed water quality by generating additional urban pollutants. Surface runoff containing urban pollutants would degrade water quality on the installation and in Monterey Bay.

Water Supply and Demand. Total water demand under Alternative 2 would be about 23,022 acre-feet per year (Table 5-6). This is over four times greater than existing water use, which already exceeds the safe yield of the groundwater system in the vicinity of Fort Ord.

5.6.2.6 Public Health and Safety

Table 5-7 quantifies the impacts of Alternative 3 on the following services:

Law Enforcement. Alternative 2 would require up to 228 law enforcement officers and equipment to provide service to the proposed uses. This is a 58% increase over the existing Fort Ord law enforcement staff of 144.

Fire Protection. Alternative 2 would require up to 113 firefighters and equipment and approximately 28 firefighting companies to provide service to the proposed uses. This is a 182% increase over the existing Fort Ord fire protection staff of 40.

Medical Services. No impacts on medical services would result from implementation of Alternative 2.

Emergency Medical Services. Under Alternative 2, additional emergency medical services would be required for approximately 26,000 residents.

Seismic Safety. Under Alternative 2, approximately 124,000 people would be exposed to potential seismic events.

5.6.2.7 Traffic and Circulation

Implementation of Alternative 2 would generate approximately 570,000 daily trips (Table 5-8). Alternative 2 would also generate travel demand of:

- approximately 307,000 trips between Fort Ord and the surrounding communities, creating the need for between 19 and 51 lanes of roadway;
- approximately 81,000 vehicle trips in the north-south direction on the installation, creating the need for between five and 14 lanes of roadway; and
- approximately 103,000 vehicle trips in the east-west direction on and through the installation, creating the need for between seven and 17 lanes of roadway.

By providing transit service and implementing aggressive measures to reduce single-occupant driving, the need for roadways could be reduced by approximately 10%.

To describe the number of lanes of roadway that would be needed to meet the travel demand created by this alternative, ranges are presented rather than a single number. The lower end of the range describes the number of freeway lanes needed to meet the demand, and the upper end describes the total number of lanes including arterial roadways. In reality, the capacity would likely be provided by an unknown combination of freeways, arterials, collector streets, and transit facilities. The provision of this capacity would be the joint responsibility of the public and private entities that would take ownership and be responsible for development of the uses under Alternative 2.

Implementation of Alternative 2 would create an incompatibility between existing local general plans and the reuse plans for Fort Ord. This incompatibility could be resolved by updating local general plans to include the roadway and transit improvements needed to accommodate the proposed reuse of Fort Ord.

5.6.2.8 Air Quality

Alternative 2 consists of the construction and use of 35,873 residential units and 11,179 acres of commercial, industrial, recreational, and institutional development. Both construction and operation of these land uses would generate air emissions (Table 5-9).

The air quality analysis assumes that construction would occur from 1995 through 2010 and that by 2010, all land uses would be fully developed. The operational emissions estimates, which assume full buildout by 2010, focus on motor vehicle and residential area emission sources.

Construction and operation of Alternative 2 would result in substantial increases of PM₁₀ and NO_x (an ozone precursor). These increases would exceed the MBUAPCD's emission thresholds for PM₁₀ and NO_x, contributing to the area's air quality problems. Alternative 2 would not cause or contribute to violations of the ambient CO standards.

Alternative 2 is inconsistent with the MBUAPCD's 1991 AQMP, which is designed to bring the air basin into compliance with California ozone standards, because the population growth associated with Alternative 2 exceeds the population forecasts used to prepare the 1991 AQMP (Table 5-9). However,

Alternative 2 is consistent with the MBUAPCD and AMBAG's 1982 SIP (designed to meet federal ozone standards).

5.6.2.9 Noise

Under Alternative 2, proposed development of Fort Ord would result in approximately 17,600 acres of construction-related land disturbance and would require the construction of major arterials and freeways within the boundaries of the installation. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Under Alternative 2, construction would result in increased noise levels in areas around construction sites and along access roads to construction sites. These increased noise levels have the potential to adversely affect residences and other noise-sensitive land uses near these sites or roads. Ambient noise levels may be substantially increased or local noise standards may be exceeded.

Traffic noise levels have been evaluated along existing roadway segments and other roadway segments proposed under Alternative 2 that would be located within the boundaries of Fort Ord. Noise-sensitive land uses (primarily residential uses) are adjacent to all of the existing roadway segments evaluated. The noise-sensitive land uses adjacent to these roadways include educational, religious, and healthcare facilities. Residential land uses range from rural residential land uses with scattered houses adjacent to roadways to high-density urban residential development. Commercial, industrial, and recreational land uses also are adjacent to some of the roads. However, impacts are evaluated based on the most sensitive land use adjacent to a given roadway segment.

Under Alternative 2, the noise criterion for residential land uses of 60-dB L_{dn} is exceeded within 100 feet of all existing roadway segments evaluated. In most cases, this is also true under existing conditions. Although implementing Alternative 2 would substantially increase noise (5 dB or greater relative to existing conditions) along only two of the existing roadway segments evaluated, Alternative 2 would result in increased noise levels along roads where local noise standards are already exceeded.

Major arterials and freeways would cross or be adjacent to all of the noise-sensitive land uses proposed under Alternative 2. These noise-sensitive uses include residential and educational land uses. Noise-sensitive land uses would be exposed to traffic noise levels that exceed local noise standards for these uses.

Under Alternative 2, land uses that may support activities that are sources of noise would be located adjacent to noise-sensitive land uses. Substantial noise impacts could occur as a result of these adjacent uses. The following noise-sensitive land uses are adjacent to land uses that may support noise-generating activities:

- high-density residential land uses would be located adjacent to a sports fields and a sports complex;
- low-density residential land uses would be located adjacent to a police academy that could have rifle and pistol ranges;
- a high school, trade school, university, Asilomar-type facility, and RV park/campground would be located adjacent to a transit center;
- residential land uses would be located adjacent to an agri-center; and
- a high-tech business park would be located adjacent to an airport where Fritzsche Army Airfield is currently located.

5.6.2.10 Hazardous and Toxic Waste Site Remediation

Alternative 2 proposes medium-density development on remediated toxic waste sites, formerly used trainfire ranges, and remote areas of the installation that may not be characterized as part of hazardous waste or unexploded ordnance and explosive waste cleanup activities. Implementing this alternative poses slight risks to human health and safety from development on unidentified hazardous waste or unexploded ordnance.

The cleanup and certification process required by EPA and the Army for land transfer reduces the potential for unidentified hazardous waste and unexploded ordnance to remain on the installation. In addition, under the Defense Environmental Restoration Program for Formerly Used Defense Sites, the Army is responsible for cleanup of contamination or unexploded ordnance discovered following land transfers.

Under Alternative 2, most buildings at Fort Ord would be demolished. Many of the buildings contain asbestos; some may contain lead-based paint and other potentially hazardous materials. Demolition activities would release asbestos to the environment; building debris generated during these activities could be classified as hazardous waste. Generation and disposal of hazardous waste during building demolition could affect compliance with federal and state laws and regulations regarding the handling of hazardous waste and materials.

5.6.2.11 Vegetation, Wildlife, and Wetland Resources

Common and Special Native Biological Communities. Alternative 2 would result in the removal of approximately 6,350 acres (60%) of common biological communities, including beaches, bluffs and blowouts, ice plant mats, disturbed dune, coastal scrub, coast oak woodland and savanna, and annual grassland. The following habitat losses would occur to special native biological communities: approximately 5 acres (5%) of native coastal strand and dune scrub, 6,300 acres (50%) of maritime chaparral, 230 acres (50%) of perennial grassland, and 200 acres (90%) of riparian forest. Losses of biological communities by alternative are shown in Table 5-11.

Special-Status Plant Species. Alternative 2 would result in the loss of approximately 6,620 acres of habitat occupied by sand gilia, a federally listed endangered species, and Monterey spineflower, a species proposed for federal listing as endangered. Habitat losses for all special-status plant species are shown in Table 5-11.

Approximately 7,680 acres of habitat occupied by plants that are federal candidates for listing as threatened or endangered would be lost under Alternative 2: Seaside bird's-beak, Toro manzanita, sandmat manzanita, Hickman's onion, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and wedge-leaved horkelia.

Alternative 2 would result in the loss of approximately 11,950 acres of habitat occupied by the following nine plant species that have no federal or state status but occur on CNPS List 1b or 4: Hooker's manzanita, Monterey Indian paintbrush, Douglas' spineflower, Lewis' clarkia, virgate eriastrum, small-leaved lomatium, Santa Cruz County monkeyflower, curly-leaved monardella, and purple-flowered piperia.

Implementation of Alternative 2 would result in substantial losses of Toro manzanita, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and Hooker's manzanita, resulting in these species potentially becoming eligible for federal listing as threatened or endangered.

Special-Status Wildlife Species. Alternative 2 would result in the loss of approximately 25 acres (14%) of Smith's blue butterfly habitat and 15 acres (23%) of California linderiella habitat at Fort Ord, including three of the five known California linderiella breeding sites. Smith's blue butterfly is federally listed as endangered, and California linderiella is federally proposed for endangered status. Nesting success

of western snowy plovers, federally listed as a threatened species, would be adversely affected by coastal development and increased public use of beaches. Activities associated with increased public use of dune habitats could also degrade habitat occupied by Smith's blue butterfly and black legless lizard. Habitat losses for all special-status wildlife species are shown in Table 5-11.

Approximately 91% of the available black legless lizard habitat at Fort Ord would be eliminated under Alternative 2. The black legless lizard is a Category 2 federal candidate. Between 51% and 70% of the available habitat for four other federal candidate species would be eliminated under Alternative 2: Monterey dusky-footed woodrat, Monterey ornate shrew, loggerhead shrike, and California horned lark. Because of the limited ranges of the black legless lizard, Monterey dusky-footed woodrat, and Monterey ornate shrew, habitat losses under Alternative 2 could result in all three species being elevated from Category 2 federal candidate status to threatened or endangered species status. From 23% to 33% of the available habitat for tricolored blackbird, California tiger salamander, California red-legged frog, and southwestern pond turtle would also be lost under Alternative 2. Four of the eight known tiger salamander breeding ponds at Fort Ord would be eliminated, and the one known tricolored blackbird nesting colony at Fort Ord would be disturbed by activities associated with the proposed residential land uses.

Under Alternative 2, roughly 89% of the available habitat at Fort Ord for Cooper's hawk and yellow warbler would be lost. Between 51% and 65% of the available habitat for six other California species of special concern would also be eliminated: burrowing owl, northern harrier, golden eagle, prairie falcon, American badger, and coast horned lizard. Roughly 21% of the available sharp-shinned hawk habitat would be eliminated.

Between 83% and 100% of the available habitat for three special-interest species would be eliminated under Alternative 2: Salinas harvest mouse, Swainson's thrush, and common yellowthroat. Roughly 49% of the available greater roadrunner habitat would be lost. Special-interest species have no legal status, but may be rare or declining in the region.

Wetlands and Other Waters of the United States. Alternative 2 would result in the degradation or removal of approximately 5 acres (15%) of vernal pools, approximately 10 acres (40%) of ponds and freshwater marsh, and about 71,400 linear feet of streams at Fort Ord. Vernal pools and freshwater marsh are potentially jurisdictional wetlands and stream channels and ponds are potentially other waters of the United States protected under Section 404 of the Clean Water Act.

Plant and Butterfly Preserves and Significant Natural Areas. Under Alternative 2, all natural habitat in preserves 1, 6, 7, 8 and 9 would be eliminated, and approximately 30% of preserve 3 would be removed (Figure 4.11-12). Small portions of significant natural areas 040 and 050 would be removed (Figure 4.11-13).

5.6.2.12 Visual Resources

Implementation of Alternative 2 would require construction of a substantial number of buildings, renovation of existing buildings, and modification of infrastructure. These activities would produce short-term visual impacts and could produce long-term visual impacts. Short-term visual impacts would occur from construction activities, including location of equipment storage areas, removal of vegetation, and infrastructure modifications. Long-term visual impacts could occur from removal of vegetation; construction of new buildings; alteration of the appearances of buildings and other structures; and construction of improvements such as recreation facilities, parking areas, lighting standards, and fences.

The activities described above could result in a substantial reduction in visual unity and intactness for some visually sensitive areas for view from State Route 1 and other important visitor use areas in and around Monterey Bay. The resulting visual impacts would be inconsistent with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of coastal areas.

Alternative 2 proposes extensive medium-intensity development centered primarily around the Main Garrison and extending north of Reservation Road and south to the installation's boundary. Institutional use would occupy a large portion of the base's interior, with the remainder generally proposed for open space/parks and recreation or no proposed use. This level of development would introduce numerous buildings, parking lots, roads, and other built elements into the Fort Ord viewshed. The forms, lines, colors, and texture of the built elements would differ substantially from those of the existing landscape, which is mostly natural in appearance. Extensive vegetation removal and regrading would occur to facilitate development.

Proposed development would substantially reduce the vividness, intactness, and unity of the region's visual resources and would result in substantial impacts on regional visual quality. This level of development would also alter the visual character and reduce the visual quality of Fort Ord's coastal area. This alternative would be inconsistent with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of the coastal area.

Views of Fort Ord from primary travel routes would be reduced in visual quality by encroaching land uses of potentially high visual impact. Viewed from State Route 1, the vividness and intactness of the coastal area would be reduced. Additionally, built elements would be highly visible in areas of high visual sensitivity and quality east of State Route 1, outside the coastal area. Land uses of potentially high impact located in the middleground of views of Fort Ord from State Route 68, a state-designated scenic highway, would reduce the visual quality of this scenic corridor. Lower intensity land uses proposed for a large portion of the installation's interior would reduce impacts visible from secondary roads and portions of the Salinas Valley.

Viewed from Monterey Bay and other important tourist and recreation areas along the Monterey Peninsula, the vividness and intactness of Fort Ord's visual resources would be substantially reduced by proposed development of the coastal area.

5.6.2.13 Cultural Resources

This alternative has the potential to affect National Register-eligible historic buildings by loss of federal protection and splitting proposed National Register districts. If archeological sites or Native American traditional or sacred properties are found at Fort Ord, the medium-intensity mixed land uses proposed by Alternative 2 could result in considerably more of them being preserved in open spaces, institutional/public areas, or in parks than would occur under Alternative 1. The areas of greatest archeological sensitivity include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible Canyons. All other installation lands are recommended as having low to medium potential for possessing archeological resources.

5.6.2.14 Subalternative A: No Presidio of Monterey Annex/No Reserve Center

Land Use

Land use impacts of Subalternative A would be similar to those described under Alternative 2.

Socioeconomics

- **Population and Housing.** Direct population and housing growth countywide would be greater under Subalternative A than under Alternative 2 (Table 5-3), but would not exceed significance thresholds established for population and housing effects. Population and housing growth in Marina would be similar to levels described under Alternative 2, while population and housing levels in Seaside would be higher than levels described under

Alternative 2. The countywide jobs/housing ratio would be similar to the ratio under Alternative 2, which would exceed the existing jobs/housing ratio within the county.

- **Regional Economy.** Employment, output, and personal income growth under this Subalternative A would be slightly greater than those described under Alternative 2 (Table 5-3).
- **Social Services.** Implementation of Subalternative A would result in social services effects similar to those described under Alternative 2.
- **Schools.** Impacts on schools under this subalternative would be similar to those described under Alternative 2 except that the number of students generated under Subalternative A would increase by approximately 2,000 (Table 5-4).
- **Recreation.** In addition to the impacts described under Alternative 1, the implementation of this subalternative would also result in the loss of recreational opportunities in the Main Garrison area (Table 5-4).

Geology, Soils, Topography, and Seismicity

Impacts for Subalternative A would be similar to those described under Alternative 2.

Public Services and Utilities

Table 5-5 quantifies public service and utility impacts for Subalternative A.

- **Wastewater.** Impacts on wastewater would be similar to those described for Alternative 2 except that Subalternative A would generate up to 12.6 mgd, a 425% increase over existing levels. An estimated 9.6 mgd of wastewater treatment capacity would be needed under this subalternative.
- **Solid Waste.** Impacts on solid waste would be similar to those described for Alternative 2 except that Subalternative A would generate up to 527 tpd, a 460% increase over existing levels. This would reduce the life of the Marina Landfill by 31 years.
- **Telephone Service.** Impacts on telephone service would be similar to those described under Alternative 2 except that Subalternative A would require the expansion of the telephone service area to approximately 19,400 acres, a 385% increase in service area.
- **Gas and Electric Service.** Impacts on gas and electric service would be similar to those described under Alternative 2 except that Subalternative A would require up to 3,885 MCFH of gas and 402 MW of electricity, an increase of 2,650% more gas and 2,250% more electricity than existing levels.
- **Cable Television.** Impacts on cable television service would be similar to those described for Alternative 2 except that Subalternative A would require the expansion of the cable television service area to approximately 19,400 acres, a 385% increase in service area.
- **Storm Drainage System.** Subalternative A would have the same impacts as those described under Alternative 2.

- **Water Distribution Infrastructure.** Impacts on the water distribution system would be similar to those described for Alternative 2 except that Subalternative A would require that the water distribution system's service area be expanded approximately 19,400 acres, an increase of 385% in service area.

Water Resources

- **Hydrology and Water Quality.** Subalternative A would convert land from open space to urban development, which would increase watershed runoff and peak floodflows. Subalternative A would not only increase watershed runoff but would also degrade watershed water quality by generating of additional urban pollutants associated with urban runoff. Surface runoff containing urban pollutants will degrade water quality degradation on the installation and in Monterey Bay.
- **Water Supply and Demand.** Water demand under this subalternative would be about 21,956 acre-feet per year. This amount is within 5% of the water demand for Alternative 2 (Table 5-6).

Public Health and Safety

Table 5-7 quantifies the impacts of Subalternative A on the following services:

- **Law Enforcement.** Impacts on law enforcement for Subalternative A would be similar to those described under Alternative 2 except that Subalternative A would require up to 249 law enforcement officers and equipment, a 73% increase over existing levels.
- **Fire Protection.** Impacts on fire protection for Subalternative A would be similar to those described under Alternative 2 except that Subalternative A would require up to 124 firefighters and equipment and approximately 31 firefighting companies; a 209% increase over existing levels.
- **Medical Services.** No impacts on medical services would result from implementation of Subalternative A.
- **Emergency Medical Services.** Impacts on emergency medical services under Subalternative A would be similar to those described under Alternative 2 except that Subalternative would result in the need for additional emergency medical services for approximately 58,400 residents.
- **Seismic Safety.** Seismic safety impacts for Subalternative A would be similar to those described under Alternative 2 except that approximately 125,000 people would be exposed to potential seismic events.

Traffic and Circulation

The reuse impacts of Subalternative A would be similar to, but greater than, those described under Alternative 2 (Table 5-8). Subalternative A proposes land uses, such as a larger marine research facility and a larger central business district, to replace the POM annex and reserve center. These uses would generate more daily traffic than the POM annex and reserve center. The large-scale development proposed for each land use would mean that the difference in impacts of each proposal would be small and localized.

Air Quality

Subalternative A would result in a slightly lower amount of construction emissions compared to those under Alternative 2. However, Subalternative A's operational emissions of PM₁₀ and ozone precursors are moderately higher than those of Alternative 2 because of a higher level of high-density residential development (Table 5-9). Subalternative A, like Alternative 2, would not result in violations of the ambient CO standards and is inconsistent with the MBUAPCD's 1991 AQMP but consistent with the 1982 SIP developed jointly by the MBUAPCD and AMBAG (Table 5-9).

Noise

The absence of the POM annex and the reserve center would not substantially affect traffic noise levels or the degree to which proposed noise-sensitive land uses are affected by noise. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Hazardous and Toxic Waste Site Remediation

No additional effects on hazardous and toxic waste site remediation would be caused by implementing Subalternative A.

Vegetation, Wildlife, and Wetland Resources

Under Subalternative A, impacts would be similar to those discussed under Alternative 2 (Table 5-11). However, without development of the POM annex and reserve center, some areas within the proposed POM annex footprint would be converted to new land uses (i.e., university and resort hotel). Small areas of native vegetation may be removed to allow for construction of new facilities associated with these land uses. Small populations or individuals of the following special-status plant and wildlife species could be affected: Monterey spineflower, sandmat manzanita, Monterey ceanothus, purple-flowered piperia, Monterey ornate shrew, Monterey dusky-footed woodrat, black legless lizard, coast horned lizard, and Salinas harvest mouse. Monterey spineflower is proposed for federal listing as endangered. Should it become listed, the loss of individuals or populations of the species would be a violation of the federal Endangered Species Act. Future land uses for the no proposed use (NPU) area are unknown.

Visual Resources

Visual impacts resulting from Subalternative A would be similar to those described under Alternative 2. The POM annex would be replaced by high-intensity land uses, which could increase the magnitude of visual impacts.

Cultural Resources

All buildings recommended as potentially eligible for listing in the National Register are located outside of and will not be affected by the Subalternative A locations proposed for the POM annex and the reserve center.

5.6.2.15 Subalternative B: Seaside's Recommended Presidio of Monterey Annex/No Reserve Center

Land Use

Land use impacts resulting from Subalternative B would be similar to those described under Alternative 2. In addition, implementation of Subalternative B would result in incompatibilities between Seaside's recommended POM annex and the existing natural habitat where this annex is proposed to be built.

Socioeconomics

- **Population and Housing.** Direct population and housing growth would be greater under Subalternative B than growth that would occur under Alternative 2 (Table 5-3), but it would not exceed significance thresholds established for population and housing effects. Population and housing growth in Marina would be similar to levels under Alternative 2, while population and housing levels in Seaside would be lower than levels under Alternative 2. The jobs/housing ratio under Subalternative B would be lower than the ratio under Alternative 2 but would exceed the existing jobs/housing ratio in the county.
- **Regional Economy.** Employment, output, and personal income growth under Subalternative B would be lower than those under Alternative 2 (Table 5-3).
- **Social Services.** Implementation of Subalternative B would result in social services effects similar to those described under Alternative 2; however, no regional medical center would be developed under Subalternative B, which would result in much greater competition for medical services between military beneficiaries and the civilian population. Medical services available to military retirees and their family members would be further reduced relative to existing conditions.
- **Schools.** The impacts on schools resulting from Subalternative B would be similar to those described under Alternative 1 except that the number of students generated by Subalternative B would increase by about 2,000 (Table 5-4).
- **Recreation.** In addition to the impacts described under Alternative 1, implementation of Subalternative B would also result in the loss of recreational opportunities in the Main Garrison area (Table 5-4).

Soils, Geology, Topography, and Seismicity

Impacts for Subalternative B would be similar to those described under Alternative 2.

Public Services and Utilities

Table 5-5 quantifies public service and utility impacts for Subalternative B.

- **Wastewater.** Impacts on wastewater would be similar to those described under Alternative 2 except that Subalternative B would generate up to 13.1 mgd, a 445% increase over existing levels. An estimated 9.8 mgd of wastewater treatment capacity would be needed for this subalternative.
- **Solid Waste.** Impacts on solid waste would be similar to those described under Alternative 2 except that Subalternative B would generate up to 501 tpd, a 433% increase over existing levels. This would reduce the life of the Marina Landfill by 29 years.

- **Telephone Service.** Impacts on telephone service would be similar to those described under Alternative 2 except that Subalternative B would require the expansion of the telephone service area to approximately 18,530 acres, a 370% increase in service area.
- **Gas and Electric Service.** Impacts on gas and electric service would be similar to those described under Alternative 2 except that Subalternative B would require up to 3,730 MCFH of gas and 366 MW of electricity, an increase of 2,550% more gas and 2,050% more electricity than existing levels.
- **Cable Television.** Impacts on cable television service would be similar to those described for Alternative 2 except that Subalternative B would require the expansion of the cable television service area to approximately 18,530 acres, a 370% increase in service area.
- **Storm Drainage System.** Subalternative B would have the same impacts as those described under Alternative 2.
- **Water Distribution Infrastructure.** Impacts on the water distribution system would be similar to those described under Alternative 2 except that Subalternative B would require that the water distribution system's service area expand approximately 18,530 acres, an increase of 370% in service area.

Water Resources

- **Hydrology and Water Quality.** This subalternative would convert land from open space to urban development, which would increase watershed runoff and peak floodflows. Subalternative B would not only increase watershed runoff but would also degrade watershed water quality by generating additional urban pollutants. Surface runoff containing urban pollutants will degrade water quality on the installation and in Monterey Bay.
- **Water Supply and Demand.** Water demand under Subalternative B would be about 23,377 acre-feet per year. This amount is similar to the water demand for Alternative 2 (Table 5-6).

Public Health and Safety

Table 5-7 quantifies the impacts of Subalternative B on the following services.

- **Law Enforcement.** Impacts on law enforcement for Subalternative B are similar to those described under Alternative 2 except that Subalternative B would require up to 246 law enforcement officers and equipment, a 71% increase over existing levels.
- **Fire Protection.** Impacts on fire protection for Subalternative B are similar to those described under Alternative 2 except that Subalternative B would require up to 122 firefighters and equipment and approximately 31 firefighting companies, a 206% increase over existing levels.
- **Medical Services.** No impacts on medical services would result from implementation of Subalternative B.
- **Emergency Medical Services.** Impacts on emergency medical services for Subalternative B are similar to those described under Alternative 2 except that Subalternative B would result in the need for additional emergency medical services for approximately 57,000 residents.

- **Seismic Safety.** Seismic safety impacts for Subalternative B are similar to those described under Alternative 2 except that approximately 120,000 people would be exposed to potential seismic events.

Traffic and Circulation

The reuse impacts of Subalternative B would be similar to those described under Alternative 2 because the land uses would be similar to those described under Alternative 2 (Table 5-8). The scale and conceptual nature of the proposed land uses would obscure any difference.

Air Quality

Subalternative B would result in approximately the same amount of construction emissions as Alternative 2 (Table 5-9). However, Subalternative B has moderately higher emissions of PM₁₀ and ozone precursors because of higher levels of residential and nonresidential development. Subalternative B, like Alternative 2, would not result in violations of the ambient CO standards and is inconsistent with the MBUAPCD's 1991 AQMP but consistent with the 1982 SIP developed jointly by the MBUAPCD and AMBAG.

Noise

The presence of Seaside's recommended POM annex and the absence of a reserve center would not substantially affect traffic noise levels or the degree to which proposed noise-sensitive land uses are affected by noise. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Hazardous and Toxic Waste Site Remediation

No additional effects on hazardous and toxic waste site remediation would be caused by implementing Subalternative B.

Vegetation, Wildlife, and Wetland Resources

Under Subalternative B, impacts would be similar to those described under Alternative 2. However, buildout of Seaside's recommended POM annex would slightly increase the amount of habitat eliminated by development compared to Alternative 2 because Seaside's recommended POM annex would adversely affect areas currently designated as open space. Approximately 2% of additional coastal scrub and approximately 1% of additional coastal coast live oak woodland would be eliminated under Subalternative B (Table 5-11). Small populations or individuals of the following special-status plant and wildlife species could be affected: Monterey spineflower, sandmat manzanita, Monterey ceanothus, Eastwood's ericameria, wedge-leaved horkelia, Hooker's manzanita, virgate eriastrum, Monterey ornate shrew, Monterey dusky-footed woodrat, black legless lizard, coast horned lizard, and Salinas harvest mouse. Monterey spineflower is proposed for federal listing as endangered. Should it become listed, the loss of individuals or populations of the species would be a violation of the federal Endangered Species Act.

Small areas of native vegetation could also be lost because of changes in land use within the original POM annex footprint (i.e., university and resort hotel) proposed under Subalternative B. Small populations or individuals of the following special-status plant and wildlife species could be affected: Monterey spineflower, sandmat manzanita, Monterey ceanothus, purple-flowered piperia, Monterey ornate shrew, Monterey dusky-footed woodrat, black legless lizard, coast horned lizard, and Salinas harvest mouse.

Visual Resources

Visual impacts resulting from Subalternative B would be similar to those described under Alternative 2. The magnitude of impacts would be slightly increased for an area east of North-South Road and

decreased for the area designated for a golf course.

Cultural Resources

All buildings recommended as potentially eligible for listing in the National Register are located outside of, and will not be affected by the Subalternative B locations proposed for, the POM annex and reserve center. Archeological surveys will be necessary for construction undertaken on undeveloped areas as part of the Subalternative B Seaside's recommended POM annex.

5.6.2.16 Impact Summary

- **Land Use.** Approximately 40% of the 23,000 acres of existing Army training areas and undeveloped open space would be converted to high-density developed urban uses. Only approximately 18% of Fort Ord would remain in open space and agricultural land uses. Most of the 6,239 acres proposed for residential development, 87% or over 5,400 acres, would be lower density rural, very low-, and low-density residential, compared with only 2,825 acres in these density categories under Alternative 1. Only 791 acres of high-density residential development would occur under Alternative 2.

Some of the proposed urban uses would conflict with adjacent land uses, agricultural operations, or land use policies. Residential development adjacent to agricultural areas would cause conflicts. Conflicts would also result from the agri-center being located near residential areas, a habitat preserve and regional park. Urban development would occur in areas that contain significant habitat for rare and endangered plant and wildlife species. New development is proposed under Alternative 2 where infrastructure is inadequate. The alternative would not conform to existing policies governing urban infill, groundwater, and visual resources nor provide adequate open space.

- **Socioeconomics.** Alternative 2 would increase resident population by approximately 78,000 persons to a buildout population of approximately 112,800 persons and 36,000 housing units. Regional economic activity, as measured by countywide employment, personal income, and industrial output, would increase substantially over 1991 conditions, with increases of approximately 65% in employment, 64% in direct output, and 59% in personal income. Approximately 107,000 new jobs would be created, with an increase in personal income of \$2.8 billion. Total output within Monterey County also would increase by \$7.9 billion. Military retirees would be affected by the loss of medical services currently available at Fort Ord. Alternative 2 would increase the need for school capacity through the 12th grade by 19,500 students. Alternative 2 would decrease the land available for undeveloped recreational opportunities by 1,930 acres and increase developed recreational opportunities by 1,500 acres.
- **Soils, Geology, Topography, and Seismicity.** The development proposed under Alternative 2 would disturb or destroy some areas where the soil supports rare plant communities. Development in currently undeveloped portions of the installation would remove vegetation, disturb the soil surface, and accelerate erosion and sedimentation. Some unstable soils would be used for agriculture. Development would occur in a seismic hazard zone.
- **Public Services and Utilities.** Much of the utility system would need to be upgraded and expanded to provide service under Alternatives 2. An increase of over 400% of the public services and utilities currently available would be needed. Telephone, cable television, gas and electricity, storm drainage, and water supply infrastructure would require public or private utility companies to upgrade, replace, and expand the infrastructure to provide service to the expanded developments. Additional wastewater treatment facilities would need to be

constructed and additional landfill capacity secured, and the collection and delivery systems would need to be upgraded, replaced, and expanded.

- **Water Resources.** Increases in impervious surfaces under Alternative 2 would cause surface runoff that could contribute to watershed flood problems. Areas within existing 100-year floodplains of the Federal Emergency Management Agency (FEMA) are particularly sensitive to flood damage from increased runoff and generally contribute to water quality degradation in the area and potentially in Monterey Bay, a designated national marine sanctuary.

Alternative 2 would increase water demand from the existing approximately 5,400 acre-feet at Fort Ord to about 23,022 acre-feet. Local groundwater could not supply the water needed for this development. Water demand could be met by constructing a desalination facility for brackish or saline water or by importing water from areas farther inland. The Salinas Valley Water Transfer Project proposed by the Monterey County Water Resources Agency would provide water to the Fort Ord area from a pipeline and wellfield to be built inland near the Salinas River. Local reservoirs could be built on Fort Ord and used to store excess runoff from the Salinas River or to store rediverted water released from Nacimiento and San Antonio Reservoirs. A dam could be built on the Arroyo Seco, a large tributary of the Salinas River, and stored water could be delivered to Fort Ord by pipeline or by the Salinas River.

- **Public Health and Safety.** Alternative 2 would require up to 228 law enforcement officers, 113 firefighters or 28 firefighting companies and equipment, and emergency medical services for approximately 100,000 persons in the many institutions and businesses and for approximately 26,000 residents. Ambulance service and related medical technician emergency response would be supplied by local government agencies or by private companies. People would be exposed to seismic and tsunami risks.
- **Traffic and Circulation.** Alternative 2 would generate approximately 570,000 daily trips at full buildout. To serve this demand, up to 14 lanes of north-south roadways and 17 lanes of east-west roadways would need to be built. To serve travel between Fort Ord and surrounding communities, up to 51 lanes of roadway would need to be built. These estimates should not be combined because one roadway could satisfy both on- and off-installation travel. Providing transit service and implementing aggressive measures to reduce single-occupant driving could reduce the need for roadways by approximately 10%.
- **Air Quality.** Exposure to asbestos is possible if asbestos is not removed from buildings before demolition. Hazardous air pollutants and PM₁₀ could be emitted during hazardous waste cleanup and recovery of unexploded ordnance. Construction activities during reuse would generate substantial increases in NO_x and PM₁₀ emissions. Reactive organic gas (ROG) emissions would be reduced. Alternative 2 would not create excessive levels of CO. Substantial increases in air emissions would result in lower air quality and would be in conflict with plans to bring the air basin into compliance with state and federal air quality standards. Alternative 2 would be inconsistent with the MBUAPCD's 1991 AQMP due to the increases in population.
- **Noise.** Noise impacts from alternative 2 would include traffic noise impacts on existing and new noise-sensitive land uses and the noise impacts of incompatible land uses. The traffic noise impacts on existing and new noise sensitive land uses would exceed the 60-dB L_{dn} criterion for all evaluated road segments that would have noise-sensitive land uses. In some cases, noise-sensitive land uses are already in locations that exceed the criterion and noise levels would substantially increase as a result of construction, traffic, and noise from Monterey Peninsula Airport and the proposed general aviation airport. Sensitive land uses, such as hospitals, schools, residences, business parks, and campgrounds, would be affected. The

locations of new development could be changed to reduce noise impacts. In addition, sound walls or berms could be constructed to mitigate traffic noise impacts.

Cumulative noise impacts would result from the intensity of the reuse development on Fort Ord combined with other noise-producing development outside Fort Ord.

- **Hazardous and Toxic Waste Site Remediation.** After hazardous and toxic waste remediation activities are complete at Fort Ord, reuse of former hazardous and toxic waste sites would pose slight risks to public health and safety. Development could occur on unidentified hazardous waste or unexploded ordnance. Additional hazardous waste would be generated on the installation by demolishing buildings that may contain asbestos and other potentially hazardous materials.
- **Vegetation, Wildlife, and Wetland Resources.** Land development proposed for reuse under Alternative 2 would result in the loss of over 60% of common and special-status biological resources at Fort Ord. Impacts include the loss of large portions of the ranges of federally listed and proposed and state-listed threatened and endangered species and reduction in the ranges of numerous special-status plant and wildlife species to the point that they would likely become eligible for federal or state listing as threatened or endangered. It would cause the loss of 50% of all known central maritime chaparral habitat and loss of 15% and 40% of vernal pools and wetlands at Fort Ord, respectively, and reduce riparian habitats at Fort Ord. Biological resources would also lose federal protection if lands are transferred to nonfederal entities.

Implementation of a multispecies HMP, developed under Section 7 of the federal Endangered Species Act, could be the means for mitigating impacts. However, Alternative 2 would need to be significantly modified to accommodate the HMP. Development in Smith's blue butterfly habitat could be avoided.

- **Visual Resources.** The development in important view areas under Alternative 2 would greatly decrease the amount and diversity of natural vegetation cover and distant views. Development would alter the visual character and reduce the visual quality of the coastal area of Fort Ord. Views from and toward Monterey Bay and views from state-designated scenic routes heavily traveled by tourists and recreationists would be reduced in visual quality by proposed development. Institutional uses in the central portion of the installation would require many new structures that would convert open landscape views to urban and suburban views. The large portions of the installation proposed for park and open space uses would retain visual qualities.
- **Cultural Resources.** The Army will follow the provisions of the BRAC cultural resource programmatic agreement (1992) to meet its NHPA requirements before initiating land disposal or reuse actions.

Alternative 2 could affect the buildings at Fort Ord recommended as being potentially eligible for listing in the National Register. Alternative 2 proposes development in areas considered to have potential for archeological resources. However, the development densities are less than those under Alternative 1, and the greater open space and park uses could result in fewer archeological resources being affected.

No studies have yet been conducted to determine whether any culturally sensitive Native American properties are present at Fort Ord. If Native American traditional or sacred properties are found at Fort Ord, Alternative 2 has less potential than Alternative 1 to affect them due to the lower extent of development proposed. Native American groups will be contacted about the presence of these types of properties before initiation of disposal or reuse actions.

- **Conclusions.** Alternative 2 would have severe impacts on many environmental resources. The population increases, great expanses of new development, large water and wastewater requirements, endangered species impacts, and conflicts in land use and transportation plans for the region would require substantial revisions and implementation of mitigation. Changes to this alternative would be required to address physical and environmental constraints and allow for economically feasible development and operation within Fort Ord and in the region. It would need to comply with federal laws and policies concerning air quality, endangered species, and floodplains; California coastal zone regulations; Monterey marine sanctuary requirements; historic preservation requirements; and noise standards.

5.6.2.17 Mitigation Summary

The following mitigation could be implemented by the Army, unless otherwise indicated. Other mitigation is available and is described in Volume II, "Detailed Analysis of Disposal and Reuse".

- Encourage additional CHAMPUS/PRIME providers.
- Disclose information on buried utilities to the Underground Service Alert.
- Transfer infrastructure to responsible parties.
- Create a unified storm drainage and flood control district to serve existing and new development.
- Disclose information on buried water distribution infrastructure to the Underground Service Alert.
- Implement measures during construction to minimize NO_x emissions (for establishment of the POM annex only).
- Obtain emission offsets from the emissions bank maintained by the MBUAPCD (for establishment of the POM annex only).
- Implement the transportation control measures included in the MBUAPCD's 1991 AQMP.
- Avoid development in Smith's blue butterfly habitat.

5.6.3 Alternative 3: Low-Intensity Mixed Use

5.6.3.1 Land Use

Alternative 3 proposes a less intensive reuse of the installation. Approximately 15% of the currently undeveloped portion of the installation is proposed for development. The major land use impacts of Alternative 3 relate to land use incompatibilities between proposed and existing land uses, incompatibilities between proposed land uses, and inconsistencies with relevant state and local plans and policies.

Several land uses are also proposed that would be incompatible with existing land uses in the area. Residential land uses are proposed adjacent to agricultural lands in the eastern portion of the installation. These agricultural lands are of all classifications, including prime agricultural land, the highest classification of agricultural land.

Alternative 3 also proposes several land uses that would be incompatible with other proposed land uses. These include the placement of a proposed agri-center and adjacent to proposed residential areas and

the proposed RV park/campground, and the placement of a proposed aquaculture facility in the proposed disturbed habitat zone in the coastal zone.

Alternative 3 also proposes development patterns that would be inconsistent with relevant state and local plans and policies. These inconsistencies include creation of development patterns that are not consistent with the 1991 Air Quality Management Plan; the expansion of development in areas without adequate infrastructure; development in areas not designated for growth; disregard for infill; inadequate provision of open space; land use incompatibilities; inadequate protection of sensitive environments and habitats; and inconsistencies with policies that relate to groundwater resources.

5.6.3.2 Socioeconomics

Population and Housing. Implementation of Alternative 3 would directly increase the population and housing stocks of Monterey County, Marina, and Seaside. As shown in Table 5-3, the countywide population would increase by an estimated 48,200 (13%), and the housing stock would grow by 22,200 units (12%). This growth, when annualized over the assumed 50-year buildout period, would not exceed significance thresholds established for population and housing effects.

After accounting for the effects of closure, Marina's population would increase by approximately 7,000 residents even though its housing stock would decrease by 360 units. This seemingly contradictory effect would result from replacing group quarters on the installation with single-family housing that would support a larger population per housing unit. Seaside's population would grow by about 4,000, and its housing stock would increase by 1,200 units under Alternative 3.

The ratio of jobs to housing in Monterey County would incrementally decrease from 1.36 to 1.31. This effect is considered beneficial but would not bring the countywide jobs/housing ratio within the 0.75-1.25 range of jobs/housing ratios generally considered to be optimal.

Regional Economy. Implementation of Alternative 3 would result in the development of employment-generating land uses that would create an estimated 39,300 direct jobs and 22,800 secondary jobs within Monterey County. Subtracting the effects of closure would result in a net increase of approximately 35,100 jobs (Table 5-3), a 21% increase in countywide employment. An estimated 17,000 of the direct jobs would be located in Marina, and 12,000 jobs would be located in Seaside.

After accounting for closure reductions, total output in Monterey County is estimated to increase by \$3.3 billion, a 27% increase over baseline conditions. Similarly, personal income is estimated to increase by \$860 million in Monterey County, an 18% increase over baseline conditions.

Social Services. Economic activity generated by Alternative 3 could benefit social services programs provided by Monterey County and nonprofit organizations, including welfare services and jobs training and placement programs, by increasing employment opportunities, decreasing unemployment, and generating increased income in the county.

Alternative 3 would result in no housing set aside for the homeless. Based on the current need for housing for the homeless in Monterey County, implementation of Alternative 3 would increase the need for housing for the homeless and lower income households.

The availability of healthcare services for military retirees and their family members would likely be reduced under Alternative 3 with the closure of Silas B. Hays Army Community Hospital. The regional medical center developed under Alternative 3 would presumably not be a CHAMPUS-contract hospital. Population growth generated by development under Alternative 3 would increase the regional demand and competition for healthcare services in Monterey County. Military retirees and their family members could use the new medical center and other facilities in the region and apply for partial reimbursement of costs

through CHAMPUS or Medicare; however, out-of-pocket costs and possibly travel costs to receive healthcare would increase for military retirees and their family members.

Schools. Alternative 3 would generate the need for additional school capacity for up to approximately 7,100 students in kindergarten through 12th grade (Table 5-4). This would result in a demand for additional school facilities and staff.

Recreation. Alternative 3 proposes 17,300 acres of land for undeveloped recreational opportunities and 2,000 acres for developed recreational opportunities (Table 5-4). This would result in an increase of approximately 2,800 acres of land available for undeveloped recreational activities and an additional 1,500 acres of developed recreational opportunities.

5.6.3.3 Soils, Geology, Topography, and Seismicity

Most impacts associated with Alternative 1 would be either eliminated or substantially reduced under Alternative 3. Three impacts would be eliminated entirely: the use of unsuitable soils types for agriculture, the very high infiltration rate limitation for a water storage reservoir, and the engineering limitation on the use of soil types with low strength and high shrink-swell potential. Impacts that would be substantially reduced but not eliminated are loss of the natural soil ecosystem component, loss of coastal facilities from shoreline erosion, accelerated rates of water-induced erosion, increased landslide susceptibility, increased sedimentation and flood hazard, engineering limitation on use of soil types with excavation-caving and piping potential, and susceptibility of development to seismically induced liquefaction and landslide hazards.

One minor impact under Alternative 1 would become substantial under Alternative 3: the potential loss of soil fertility from a high-temperature wildfire resulting from fire suppression and lack of a controlled burning program.

5.6.3.4 Public Services and Utilities

Table 5-5 quantifies public service and utility impacts for Alternative 3.

Wastewater. Alternative 3 would generate up to 8.9 mgd of wastewater. This 270% increase over the existing 2.4 mgd (3.3 mgd are available to the installation) would require 5.6 mgd of additional treatment capacity to accommodate the land uses.

Solid Waste. Alternative 3 would generate up to 252 tpd of solid waste, a 168% increase from the existing 94 tpd. This amount of solid waste would reduce the life of the Marina Landfill by approximately 14 years.

Telephone Service. Telephone service exists only in the developed portions of the installation, and additional or upgraded infrastructure would be required to serve future development. Alternative 3 would require the expansion of telephone service to approximately 8,120 acres, a 160% increase in service area.

Gas and Electric Service. Gas and electric service exists only in the developed portions of the installation. Alternative 3 would result in the demand for approximately 1,278 MCFH of gas and 366 MW of electric service, an increase of 2,550% more gas and 2,050% more electricity than current levels.

Cable Television. Cable television service exists only in the developed portions of the installation. Alternative 3 would result in the need for additional cable television service to approximately 8,129 acres, a 160% increase in service area.

Storm Drainage System. Alternative 3 would require new storm drainage infrastructure for approximately 17,985 acres, in addition to upgrades and expansions to existing storm drainage infrastructure that may continue to be used with the new systems.

Water Distribution Infrastructure. Alternative 3 would require that the water distribution system's infrastructure be upgraded or expanded to provide service to approximately 8,120 acres, a 160% increase in service area.

5.6.3.5 Water Resources

Hydrology and Water Quality. Alternative 3 would convert land from open space to urban development, which would increase watershed runoff and peak floodflows. Approximately 4,000 acres would be converted from open space to urban land uses, which would result in a 15% increase in urban area over existing conditions.

Alternative 3 would not only increase watershed runoff but would also degrade watershed water quality by generating additional urban pollutants associated with urban runoff. Surface runoff containing urban pollutants would degrade water quality on the installation and in Monterey Bay.

Water Supply and Demand. Total water demand under Alternative 3 would be about 17,582 acre-feet per year (Table 5-6). This is over three times greater than existing water use, which already exceeds the safe yield of the groundwater system in the vicinity of Fort Ord.

5.6.3.6 Public Health and Safety

Table 5-7 quantifies the impacts of Alternative 3 on the following services.

Law Enforcement. Alternative 3 would require up to 170 law enforcement officers and equipment to provide service to the proposed uses. This is a 18% increase over the existing Fort Ord law enforcement staff of 144.

Fire Protection. Alternative 3 would require up to 83 firefighters and equipment and approximately 21 firefighting companies to provide service to the proposed uses. This is a 107% increase over the existing Fort Ord fire protection staff of 40.

Medical Services. No impacts on medical services would result from implementation of Alternative 3.

Emergency Medical Services. No impacts on emergency medical service would result from implementation of Alternative 3.

Seismic Safety. Under Alternative 3, approximately 83,000 people would be exposed to potential seismic events.

5.6.3.7 Traffic and Circulation

Implementation of Alternative 3 would generate approximately 305,000 daily trips (Table 5-8). Alternative 3 would also generate travel demand of:

- approximately 285,000 trips between Fort Ord and the surrounding communities, creating the need for between 18 and 48 lanes of roadway;

- approximately 32,000 vehicle trips in the north-south direction on the installation, creating the need for between two and six lanes of roadway; and
- approximately 93,000 vehicle trips in the east-west direction on and through the installation, creating the need for between six and 16 lanes of roadway.

By providing transit service and implementing aggressive measures to reduce single-occupant driving, the need for roadways could be reduced approximately 10%.

To describe the number of lanes of roadway that would be needed to meet the travel demand created by this alternative, ranges are presented rather than a single number. The lower end of the range describes the number of freeway lanes needed to meet the estimated demand, and the upper end describes the total number of lanes including arterial roadways. In reality, the capacity would likely be provided by an unknown combination of freeways, arterials, collector streets, and transit facilities. The provision of this capacity would be the joint responsibility of the public and private entities that would take ownership and be responsible for developing the uses in Alternative 3.

Implementation of Alternative 3 would create an incompatibility between existing local general plans and the reuse plans for Fort Ord. This incompatibility could be resolved by updating local general plans to include the roadway and transit improvements needed to accommodate the proposed reuse of Fort Ord.

5.6.3.8 Air Quality

Alternative 3 consists of the construction and use of 19,656 residential units and 5,091 acres of commercial, industrial, recreational, and institutional development. Both construction and operation of these land uses would generate air emissions.

The air quality analysis assumes that construction would occur from 1995 through 2010 and that by 2010, all land uses would be fully developed. The operational emissions estimates, which assume full buildout by 2010, focus on motor vehicle and residential area emission sources.

Construction of Alternative 3 would cause increases of PM₁₀ and NO_x emissions that exceed the MBUAPCD thresholds. Operation of Alternative 3 would, as compared to existing Fort Ord emissions, result in decreases of all pollutants, including PM₁₀ and ozone precursors. These decreases would improve existing air quality with regard to PM₁₀ and ozone. Alternative 3 would not result in violations of the ambient CO standards.

The population growth that would result from Alternative 3 is inconsistent with the population forecasts used to prepare the MBUAPCD's 1991 AQMP (designed to meet California ozone standards) because the population growth associated with Alternative 3 would exceed the population forecasts used to prepare the 1991 AQMP. Alternative 3 is consistent with the population forecasts used to prepare the MBUAPCD and AMBAG's 1982 SIP (designed to meet federal ozone standards) (Table 5-9).

5.6.3.9 Noise

Under Alternative 3, proposed development of Fort Ord would result in approximately 10,000 acres of construction-related land disturbance and would require the construction of major arterials within the boundaries of the installation. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Under Alternative 3, construction would result in increased noise levels in areas around construction sites and along access roads to construction sites. These increased noise levels have the potential to adversely affect residences and other noise-sensitive land uses near these sites or roads. Ambient noise levels may be substantially increased or local noise standards may be exceeded.

Traffic noise levels have been evaluated along existing roadway segments and other roadway segments proposed under Alternative 3 that would be located within the boundaries of Fort Ord. Noise-sensitive land uses (primarily residential uses) are adjacent to all of the existing roadway segments evaluated. The noise-sensitive land uses adjacent to these roadways include educational, religious, and healthcare facilities. Residential land uses vary from rural residential with scattered houses adjacent to roadways to high-density urban residential development. Commercial, industrial, and recreational land uses also are adjacent to some of the roads. However, impacts are evaluated based on the most sensitive land use adjacent to a given roadway segment.

Under Alternative 3, the noise criterion for residential land uses of 60-dB L_{dn} would be exceeded within 100 feet of all existing roadway segments evaluated. In most cases, this is also true under existing conditions. However, implementing Alternative 3 would substantially increase noise (by 5 dB or more relative to existing conditions) along five of the existing roadway segments evaluated or would increase noise levels along roads where local noise standards are already exceeded. The combination of local noise standards being exceeded and a substantial increase in traffic noise along several roadway segments would have a substantial adverse effect on existing residences.

Major arterials would cross or be adjacent to all of the noise-sensitive land uses proposed under Alternative 3. These noise-sensitive uses include residential and educational land uses. Noise-sensitive land uses would be exposed to traffic noise levels that exceed local noise standards for these uses.

Under Alternative 3, land uses that may support activities that are sources of noise would be located adjacent to noise-sensitive land uses. Substantial noise impacts could occur as a result of these adjacent uses. The following noise-sensitive land uses are adjacent to land uses that may support noise-generating activities:

- residential land uses and the RV park/campground would be located adjacent to an agri-center and
- a high-tech business park would be located adjacent to an airport where Fritzsche Army Airfield is currently located.

5.6.3.10 Hazardous and Toxic Waste Site Remediation

Alternative 3 proposes low-intensity development on remediated toxic waste sites and in remote undeveloped areas of the installation. Proposed land use under this alternative limits public access to and development of formerly used trainfire ranges in the southern portion of the installation. The proposed development under Alternative 3 poses very slight risks to human health and safety from development on unidentified hazardous wastes and unexploded ordnance.

The cleanup and certification process required by EPA and the Army for land transfer reduces the potential for unidentified hazardous waste and unexploded ordnance to remain on the installation. In addition, under the Defense Environmental Restoration Program for Formerly Used Defense Sites, the Army is responsible for cleanup of contamination or unexploded ordnance discovered subsequent to land transfers.

Most buildings on the installation would be demolished under Alternative 3. Many of the buildings contain asbestos; some may contain lead-based paint and other potentially hazardous materials. Demolition activities would release asbestos to the environment; building debris generated during demolition could be classified as hazardous waste. Generation and disposal of hazardous waste during building demolition could affect compliance with federal and state laws and regulations regarding the handling of hazardous wastes and materials.

5.6.3.11 Vegetation, Wildlife, and Wetland Resources

Common and Special Native Biological Communities. Alternative 3 would result in the removal of approximately 4,230 acres (40%) of common biological communities, including beaches, bluffs and blowouts, ice plant mats, disturbed dune, coastal scrub, coast oak woodland and savanna, and annual grassland. The following habitat losses would result for special native biological communities: approximately 2 acres (2%) of native coastal strand and dune scrub and 1,820 (15%) of maritime chaparral. Losses of biological communities by alternative are shown in Table 5-11.

Special-Status Plant Species. Alternative 3 would result in the loss of approximately 3,450 acres of habitat occupied by sand gilia, a federally listed endangered species, and Monterey spineflower, a species proposed for listing as endangered. Habitat losses for all special-status plant species are shown in Table 5-11.

Approximately 2,740 acres of habitat occupied by plant species that are federal candidates for listing as threatened or endangered would be lost under Alternative 3. The species affected would be Seaside bird's-beak, Toro manzanita, sandmat manzanita, Hickman's onion, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and wedge-leaved horkelia.

Alternative 3 would result in the loss of approximately 2,070 acres of habitat occupied by nine plant species that have no federal or state status but occur on CNPS List 1b or 4: Hooker's manzanita, Monterey Indian paintbrush, Douglas' spineflower, Lewis' clarkia, virgate eriastrum, small-leaved lomatium, Santa Cruz County monkeyflower, curly-leaved monardella, and purple-flowered piperia.

Special-Status Wildlife Species. Alternative 3 would result in the loss of approximately 2 acres (1%) of Smith's blue butterfly habitat and 4 acres (6%) of California linderiella habitat at Fort Ord, including two of the five known California linderiella breeding sites. Smith's blue butterfly is federally listed as endangered, and California linderiella is federally proposed for endangered status. Nesting success of western snowy plovers, a federally listed threatened species, would be adversely affected by increased public use of the beaches. Public use of dune habitats could also degrade habitat for Smith's blue butterfly and black legless lizard. Habitat losses for all special-status wildlife species are shown in Table 5-11.

Approximately 37% of the available black legless lizard habitat and roughly 50% of the Monterey ornate shrew habitat at Fort Ord would be eliminated under Alternative 3. Both species are federal Category 2 candidates for threatened or endangered status. Because of the limited ranges of the black legless lizard and Monterey ornate shrew, habitat losses under Alternative 3 could result in both species being elevated to threatened or endangered species. Between 20% and 30% of the available habitat for three other federal candidate species (Monterey dusky-footed woodrat, loggerhead shrike, and California horned lark) would be eliminated under Alternative 3. From 6% to 7% of the available habitat for tricolored blackbird, California tiger salamander, California red-legged frog, and southwestern pond turtle would also be lost under Alternative 3. Three of the eight known tiger salamander breeding ponds at Fort Ord would be eliminated.

Under Alternative 3, 29% to 44% of the available habitat at Fort Ord for four California species of special concern would also be eliminated: burrowing owl, northern harrier, prairie falcon, and American badger. Golden eagle and coast horned lizard would suffer approximately 20% and 18% habitat losses, respectively. Roughly 3% of the available sharp-shinned hawk habitat would be eliminated. No habitat would be lost for Cooper's hawk and yellow warbler.

Habitat losses for special-interest species range from no loss to 71% loss under Alternative 3. Approximately 71% of the available Salinas harvest mouse habitat and 14% of the greater roadrunner habitat

at Fort Ord would be eliminated. No loss would occur for Swainson's thrush and common yellowthroat. Special-interest species have no legal status but may be rare or declining in the region.

Wetlands and Other Waters of the United States. Alternative 3 would result in the degradation or removal of approximately 2 acres (6%) of vernal pools, approximately 2 acres (7%) of freshwater marsh and ponds, and about 4,000 linear feet of streams at Fort Ord. Vernal pools and freshwater marsh are potentially jurisdictional wetlands and stream channels and ponds are potentially other waters of the United States protected under Section 404 of the Clean Water Act.

Plant and Butterfly Preserves and Significant Natural Areas. Under Alternative 3, approximately 30% of the habitat in preserve 3 and 75% of the habitat in preserve 7 would be eliminated (Figure 4.11-12). A small portion of significant natural area 040 would be removed (Figure 4.11-13).

5.6.3.12 Visual Resources

Implementation of Alternative 3 would require construction of a substantial number of buildings, renovation of existing buildings, and modification of infrastructure. These activities would produce short-term visual impacts and could produce long-term visual impacts. Short-term visual impacts would occur from construction activities, including location of equipment storage areas, removal of vegetation, and infrastructure modifications. Long-term visual impacts could occur from removal of vegetation; construction of new buildings; alteration of the appearances of buildings and other structures; and construction of improvements such as recreation facilities, parking areas, lighting standards, and fences.

The activities described above could result in a substantial reduction in visual unity and intactness for some visually sensitive areas for views from State Route 1 and other important visitor use areas in and around Monterey Bay. The resulting visual impacts would be inconsistent with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of coastal areas.

The activities described above could result in a substantial reduction in visual unity and intactness for some visually sensitive areas for views from State Route 1 and other important visitor use areas in and around Monterey Bay. The resulting visual impacts would be inconsistent with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of coastal areas.

Under Alternative 3, low-intensity development would occur principally in the northeastern portion of the installation, with limited development of the coastal area. Development would introduce numerous buildings, parking lots, roads, and other built elements into this portion of the Fort Ord viewshed. The forms, lines, colors, and textures of the built elements would differ substantially from those of the existing landscape, which is mostly natural in appearance. Extensive vegetation removal and regrading would occur to facilitate development. Existing beach firing ranges would be removed from the coastal area under this alternative. Additionally, lower intensity land uses would occupy most of the installation's interior.

Proposed development would substantially reduce the vividness, intactness, and unity of the region's visual resources and would result in substantial impacts on regional visual quality.

The visual quality of the coastal area would be improved by the removal of the beach firing ranges. As viewed from State Route 1, the vividness and intactness of this coastal viewshed would be reduced due to the high visibility of development in areas of high visual sensitivity and quality east of State Route 1, outside of the coastal area.

Views of Fort Ord from primary travel routes would be reduced in visual quality by encroaching land uses of potentially high visual impact. Land uses of potentially high impact located in the middleground of

views of Fort Ord from State Route 68, a state-designated scenic highway, would reduce the visual quality of this scenic corridor. Lower intensity land uses proposed for a large portion of the installation's interior would reduce visual impacts visible from secondary roads and portions of the Salinas Valley.

Viewed from Monterey Bay and other important tourist and recreation areas along the Monterey Peninsula, the vividness and intactness of Fort Ord's visual resources would be reduced by proposed development of the hills and ridges directly inland from the coast.

5.6.3.13 Cultural Resources

This alternative has the potential to affect National Register-eligible historic buildings by loss of federal protection and by splitting proposed National Register districts. If archeological sites or Native American traditional or sacred properties are found at Fort Ord, the low-intensity mixed land uses proposed by Alternative 3 would result in considerably more of them being preserved in open spaces, institutional/public areas, or in parks than would occur under Alternatives 1 and 2. The areas of greatest archeological sensitivity include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible canyons. All other installation lands are recommended as having low to medium potential for possessing archeological resources.

5.6.3.14 Impact Summary

- **Land Use.** Approximately 15% of the 23,000 acres of existing Army training areas and undeveloped open space would be converted to high-density developed urban uses. Approximately 43% of Fort Ord would remain in open space and agricultural land uses. All of the 2,818 acres proposed for residential development would be low density. This is the only density residential development that would occur under Alternative 3.

Some of the uses would conflict with adjacent land uses, agricultural operations, or land use policies. Residential development adjacent to agricultural areas would cause conflicts. Conflicts would also result from the aquaculture center being located in the disturbed portion of the coastal zone and from the agri-center being located near residential areas, a habitat preserve, and regional park. Urban development would occur in areas that contain significant habitat for rare and endangered plant and wildlife species. New development is proposed in Alternative 3 where infrastructure is inadequate. The alternative would not conform to existing urban infill or groundwater policies or provide adequate open space.

Potential mitigation for these impacts includes limiting growth and directing growth to areas designated for urban development, such as already developed portions of the installation (i.e., Main Garrison area and housing areas). New residential areas could be eliminated on the eastern edge of Fort Ord next to agricultural operations. Urban reuse and development of the installation could be phased or limited to occur only in areas adjacent to urban service areas.

- **Socioeconomics.** Alternative 3 would increase resident population by approximately 48,000 persons to a buildout population of approximately 82,900 persons and 30,000 housing units. Regional economic activity, as measured by countywide employment, personal income, and industrial output, would increase substantially over 1991 conditions, with increases of approximately 21% in employment, 27% in direct output, and 18% in personal income. Approximately 35,000 new jobs would be created, with an increase in personal income of \$860 million. Total output within Monterey County also would increase by \$3.3 billion. Military retirees would be affected by the loss of medical services currently available at Fort Ord.

Alternative 3 would increase the need for school capacity through the 12th grade by 7,100 students. Alternative 3 would increase the land available for undeveloped recreational opportunities by 2,800 acres and increase developed recreational opportunities by 1,500 acres.

- **Soils, Geology, Topography, and Seismicity.** The development proposed under Alternative 3 would disturb or destroy some areas where the soil supports rare plant communities and slightly increase areas developed with potential for increased erosion and landslides, soil piping, and flood hazards.
- **Public Services and Utilities.** Much of the utility system would be required to be upgraded and expanded to provide service under Alternative 3. An increase of up to 140% of the public services and utilities currently available would be required. Wastewater flows would increase 240% over existing. Telephone, cable television, gas and electricity, storm drainage, and water supply infrastructure would require public or private utility companies to upgrade, replace, and expand the infrastructure to provide service to the expanded developments. Additional wastewater treatment facilities would not need to be constructed and additional landfill capacity secured, and the collection and delivery systems would need to be upgraded, replaced, and expanded.
- **Water Resources.** Increases in impervious surfaces associated with an increase in urban area of 15% under Alternative 3 would cause surface runoff that could contribute to watershed flood problems. Areas within existing FEMA 100-year floodplains are particularly sensitive to flood damage from increased runoff and generally contribute to water quality degradation in the area and potentially in Monterey Bay, a designated national marine sanctuary.

Alternative 3 would increase water demand from approximately 5,400 acre-feet at Fort Ord to about 17,582 acre-feet. Local groundwater could not supply the water needed for this development. Water demand could be met by constructing a desalination facility for brackish or saline water or by importing water from areas farther inland. The Salinas Valley Water Transfer Project proposed by the Monterey County Water Resources Agency would provide water to the Fort Ord area from a pipeline and wellfield to be built inland near the Salinas River. Local reservoirs could be built on Fort Ord and used to store excess runoff from the Salinas River or to store rediverted water released from Nacimiento and San Antonio Reservoirs. A dam could be built on the Arroyo Seco, a large tributary of the Salinas River, and stored water could be delivered to Fort Ord by pipeline or by the Salinas River.

- **Public Health and Safety.** Alternative 3 would require up to 170 law enforcement officers, 83 firefighters or 21 firefighting companies and equipment, and emergency medical services for approximately 48,000 residents. Ambulance service and related medical technician emergency response would be supplied by local government agencies or by private companies. People would be exposed to seismic and tsunami risks.
- **Traffic and Circulation.** Alternative 3 would generate approximately 305,000 daily trips at full buildout. To serve this demand, up to 6 lanes of north-south roadways and 16 lanes of east-west roadways would need to be built. To serve travel between Fort Ord and surrounding communities, up to 48 lanes of roadway would need to be built. These estimates should not be combined because one roadway could satisfy both on- and off-installation travel. Providing transit service and implementing aggressive measures to reduce single-occupant driving could reduce the need for roadways by approximately 10%.

- **Air Quality.** Exposure to asbestos is possible if asbestos is not removed from buildings before demolition. Hazardous air pollutants and PM₁₀ could be emitted during hazardous waste cleanup and recovery of unexploded ordnance. Construction activities during reuse would generate substantial increases in NO_x and PM₁₀ emissions. All air emissions would be reduced during operation as compared to existing conditions. Alternative 3 would not create excessive levels of CO. Alternative 3 would not be consistent with the MBUAPCD's 1991 AQMP due to the increases in population. It would be consistent with the MBUAPCD and AMBAG's 1982 SIP.
- **Noise.** Noise impacts from Alternative 3 would include traffic noise impacts on noise-sensitive land uses and the noise impacts of incompatible land uses. The traffic noise impacts on existing and new noise sensitive land uses would exceed the 60-dB L_{dn} criterion for all road segments that have been evaluated. Sensitive land uses, such as residences, business parks, and campgrounds, would be affected.
- **Hazardous and Toxic Waste Site Remediation.** After hazardous and toxic waste remediation activities are complete at Fort Ord, reuse of former hazardous and toxic waste sites would pose slight risks to public health and safety. Development could occur on unidentified hazardous waste or unexploded ordnance. Additional hazardous waste would be generated on the installation by demolishing buildings that may contain asbestos and other potentially hazardous materials.
- **Vegetation, Wildlife, and Wetland Resources.** Land development proposed for reuse under Alternative 3 would result in the loss of over 40% of common and special-status biological resources at Fort Ord. Impacts include the loss of large portions of the ranges of federally listed and proposed and state-listed threatened and endangered species and reduction in the ranges of numerous special-status plant and wildlife species to the point that they would likely become eligible for federal or state listing as threatened or endangered. It would cause the loss of 15% of all known central maritime chaparral habitat, and a 7% loss of marshlands, 6% of vernal pools and reduce riparian habitats at Fort Ord. Implementation of a multispecies HMP, developed under Section 7 of the Federal Endangered Species Act, could be a means for mitigating impacts. However, Alternative 3 would need modifications to accommodate the HMP. Development in Smith's blue butterfly habitat could be avoided.
- **Visual Resources.** The development in important view areas the northeast portion of the installation and a small portion of the disturbed coastal portion of the installation under Alternative 3 would decrease the amount and diversity of natural vegetation cover and distant views and reduce the visual quality of a small portion of the coastal area of Fort Ord.
- **Cultural Resources.** The Army will follow the provisions of the BRAC cultural resource programmatic agreement (1992) to meet its NHPA requirements before initiating land disposal or reuse actions.

Alternative 3 has the potential to split historic districts recommended as potentially eligible for listing in the National Register. Alternative 3 proposes low-density development in areas considered to have potential for archeological resources. However, if archeological sites are present, the Alternative 3 development densities are less than those under Alternatives 1 or 2, and the greater open space and park uses could result in fewer sites being affected.

Studies have not yet been conducted to determine whether culturally sensitive Native American properties are present at Fort Ord. If Native American traditional or sacred properties are

found at Fort Ord, Alternative 3 has less potential to affect them due to the lower extent of development proposed.

- **Conclusions.** Alternative 3 would have significant impacts on many environmental resources. The population increases, location and extent of new development, new water and wastewater requirements, endangered species impacts, and conflicts in land use and transportation plans for the region would require revisions and implementation of mitigation. Changes to this alternative would be required to address physical and environmental constraints and allow for economically feasible development and operation within Fort Ord and in the region. It would need to comply with federal laws and policies concerning air quality, endangered species and floodplains; California coastal zone regulations; Monterey marine sanctuary requirements; historic preservation requirements; and noise standards.

5.6.3.15 Mitigation Summary

The following mitigation could be implemented by the Army, unless otherwise indicated. Other mitigation is available that could be implemented by other federal, state, or local agencies and private entities responsible for development; it is described in Volume II, "Detailed Analysis of Disposal and Reuse":

- Encourage additional CHAMPUS/PRIME providers.
- Disclose information on buried utilities to the Underground Service Alert.
- Create a unified storm drainage and flood control district to serve existing and new development.
- Transfer infrastructure to responsible parties.
- Disclose information on buried water distribution infrastructure to the Underground Service Alert.
- Implement measures during construction to minimize NO_x emissions (for establishment of the POM annex only).
- Obtain emission offsets from the emissions bank maintained by the MBUAPCD (for establishment of the POM annex only).
- Implement the transportation control measures included in MBUAPCD's 1991 AQMP.
- Avoid development in Smith's blue butterfly habitat.
- Determine whether remediation sites have been surveyed for archeological resources and conduct surveys where determined necessary and safe to do so.

5.6.4 Alternative 4: Institutional Use

5.6.4.1 Land Use

Under Alternative 4, reuse of the installation by government and private institutions is proposed. Approximately 10% of the currently undeveloped portion of the installation is proposed for development. The major land use impacts under Alternative 4 would relate to the inconsistencies of proposed development

with relevant state and local plans and policies. These policies include those related to the expansion of development in areas without adequate infrastructure and development in areas not designated for growth, infill, protection of sensitive environments and habitats, and groundwater resources.

5.6.4.2 Socioeconomics

Population and Housing. Implementation of Alternative 4 would result in the development of limited housing associated with a university, correctional facility, and POM annex. The population residing in this housing would not offset the population loss caused by closure, resulting in a direct, net population decrease of 3,800 (Table 5-3), representing a countywide population decrease of 1%. The net housing supply would decrease by 1,500 units. Employment generated under Alternative 4, however, would generate substantial secondary population growth that would offset the direct population loss and would result in the unmet need for approximately 25,000 housing units within the county. This effect is considered major.

Implementation of Alternative 4 would result in no new, direct housing growth in Marina and Seaside. The effects of closure on population and housing levels within these communities would not be offset by development under Alternative 4.

The ratio of jobs to housing within Monterey County would incrementally increase from 1.36 to 1.43. This effect is considered major because it would increase the countywide ratio, which already exceeds the ratio of jobs to housing generally considered to be optimal for maintaining a jobs/housing balance.

Regional Economy. Implementation of Alternative 4 would result in the development of employment-generating land uses that would create an estimated 31,900 direct jobs and 17,800 secondary jobs within Monterey County. Subtracting the effects of closure would result in a net increase of approximately 22,800 jobs (Table 5-3), representing a 14% increase in countywide employment. An estimated 8,000 of the direct jobs would be located in Marina, and 13,000 jobs would be located in Seaside.

After accounting for closure reductions, total output in Monterey County is estimated to increase by \$1.8 billion, representing a 15% increase over baseline conditions, under this alternative. Similarly, personal income is estimated to increase by \$280 million in Monterey County, representing a 6% increase over baseline conditions.

Social Services. Economic activity generated under Alternative 4 could benefit social services programs provided by Monterey County and nonprofit organizations, including welfare services and jobs training and placement programs, by increasing employment opportunities, decreasing unemployment, and generating increased income within the county. Providing housing for the homeless would benefit homeless services and the homeless within the county.

The availability of healthcare services for military retirees and their family members would likely be reduced under Alternative 4 with the closure of Silas B. Hays Army Community Hospital. The regional medical center developed under this alternative would presumably not be a CHAMPUS-contract hospital. Population growth generated by development under Alternative 4 would increase the regional demand and competition for healthcare services in Monterey County. Military retirees and their family members could use the new medical center and other facilities within the region and apply for partial reimbursement of costs through CHAMPUS or Medicare; however, out-of-pocket costs and possibly travel costs to receive health-care would increase for military retirees and their family members.

Schools. Alternative 4 would generate the need for additional school capacity for up to approximately 9,700 students in kindergarten through 12th grade. This would create a demand for additional school facilities and staff (Table 5-4).

Recreation. Alternative 4 proposes 14,000 acres of land for undeveloped recreational opportunities and 1,300 acres for developed recreational opportunities (Table 5-4). This would result in the loss of approximately 450 acres of land available for undeveloped recreational activities, including fishing and hunting. Under Alternative 4, however, an additional 1,500 acres of developed recreational opportunities, including parks and sports facilities, would be available.

5.6.4.3 Soils and Geology

Impacts under Alternative 4 would be similar to those described under Alternative 3.

5.6.4.4 Public Services and Utilities

Table 5-5 quantifies the public service and utilities impacts of Alternative 4.

Wastewater. Alternative 4 would generate up to 7.7 mgd of wastewater. This 220% increase over the existing 2.4 mgd (3.3 mgd are available to the installation) would require 4.4 mgd of additional treatment capacity to accommodate the land uses.

Solid Waste. Alternative 4 would generate up to 132 tpd of solid waste, a 41% increase over the existing 94 tpd. This amount of solid waste would reduce the life of the Marina Landfill by approximately 4 years.

Telephone Service. Telephone service exists only in the developed portions of the installation, and additional or upgraded infrastructure would be required to serve future development. Alternative 4 would require the expansion of telephone service to approximately 9,830 acres, a 195% increase in service area.

Gas and Electric Service. Gas and electric service exist only in the developed portions of the installation. Alternative 4 would result in the demand for approximately 807 MCFH of gas and 141 MW of electric service, an increase of 550% in gas and 790% in electricity over current levels.

Cable Television. Cable television service exists only in the developed portions of the installation. Alternative 4 would result in the need for additional cable television service to approximately 9,830 acres, a 195% increase in service area.

Storm Drainage System. Alternative 4 would require new storm drainage infrastructure for approximately 21,031 acres, in addition to upgrades and expansions to existing storm drainage infrastructure that may continue to be used with the new systems.

Water Distribution Infrastructure. Alternative 4 would require that the water distribution system's infrastructure be upgraded or expanded to provide service to approximately 9,830 acres, a 195% increase in service area.

5.6.4.5 Water Resources

Hydrology and Water Quality. Alternative 4 would convert land from open space to urban development, which would increase watershed runoff and peak floodflows. Approximately 3,500 acres would be converted from open space to urban land uses, which would result in a 10% increase in urban area over existing conditions.

Alternative 4 would not only increase watershed runoff but would also degrade watershed water quality by generating additional urban pollutants. Surface runoff containing urban pollutants would degrade water quality on the installation and in Monterey Bay.

Water Supply and Demand. Total water demand for Alternative 4 would be about 13,360 acre-feet per year (Table 5-6). This is over two times greater than existing water use, which already exceeds the safe yield of the groundwater system in the vicinity of Fort Ord.

5.6.4.6 Public Health and Safety

Table 5-7 quantifies the impact of Alternative 4 on the following services:

Law Enforcement. Alternative 4 would require up to 65 law enforcement officers and equipment to provide service to the proposed uses. This is a 55% decrease from the existing Fort Ord law enforcement staff of 144.

Fire Protection. Alternative 4 would require up to 31 firefighters and equipment and approximately eight firefighting companies to provide service to the proposed uses. This is a 22% decrease from the existing Fort Ord fire protection staff of 40.

Medical Services. No impacts on medical service would result from implementation of this alternative.

Emergency Medical Services. Under Alternative 4, additional emergency medical services would be required for approximately 31,000 residents.

Seismic Safety. Under Alternative 4, approximately 31,000 people would be exposed to potential seismic events.

5.6.4.7 Traffic and Circulation

Implementation of Alternative 4 would generate approximately 172,000 daily trips (Table 5-8). Alternative 4 would also generate travel demand of approximately 188,000 trips between Fort Ord and the surrounding communities, creating the need for between 12 and 31 lanes of roadway; approximately 16,000 vehicle trips in the north-south direction on the installation, creating the need for between one and three lanes of roadway; and approximately 50,000 vehicle trips in the east-west direction on and through the installation, creating the need for between three and nine lanes of roadway.

By providing transit service and implementing aggressive measures to reduce single-occupant driving, the need for roadways could be reduced by approximately 10%.

To describe the number of lanes of roadway that would be needed to meet the travel demand created by Alternative 4, ranges are presented rather than a single number. The lower end of the range describes the number of freeway lanes needed to meet the demand, and the upper end describes the number of arterial roadways. In reality, the capacity would likely be provided by an unknown combination of freeways, arterials, collector streets, and transit facilities. The provision of this capacity would be the joint responsibility of the public and private entities that would take ownership and be responsible for development of the uses under Alternative 4.

Implementation of Alternative 4 would create an incompatibility between existing local general plans and the reuse plans for Fort Ord. This incompatibility could be resolved by updating local general plans to include the roadway and transit improvements needed to accommodate the proposed reuse of Fort Ord.

5.6.4.8 Air Quality

Alternative 4 includes the construction and use of 6,303 acres of retail, commercial, recreational, and institutional development. Both construction and operation of these land uses would generate air emissions (Table 5-9).

The air quality analysis assumes that construction would occur from 1995 through 2010 and that by 2010 all land uses would be fully developed. The operational emission estimates, which assume full buildout by 2010, focus on motor vehicle emissions. No residential units are associated with Alternative 4.

Construction of Alternative 4 would increase PM₁₀ and NO_x emissions in excess of the MBUAPCD thresholds. Operation of Alternative 4 would, as compared to existing Fort Ord emissions, result in decreases of all pollutants, including PM₁₀ and ozone precursors. These decreases would improve existing PM₁₀ and ozone air quality. Alternative 4 would not cause violations of the ambient CO standards. In addition, Alternative 4 is consistent with the MBUAPCD's 1991 AQMP and the 1982 SIP developed jointly by the MBUAPCD and AMBAG (Table 5-9).

5.6.4.9 Noise

Under Alternative 4, development of Fort Ord would result in approximately 10,000 acres of construction-related land disturbance and would require the construction of major arterials within the boundaries of the installation. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Under Alternative 4, construction would result in increased noise levels in areas around construction sites and along access roads to construction sites. These increased noise levels have the potential to adversely affect residences and other noise-sensitive land uses near these sites or roads. Ambient noise levels may be substantially increased or local noise standards may be exceeded.

Traffic noise levels have been evaluated along existing roadway segments and other roadway segments proposed under Alternative 4 that would be located within the boundaries of Fort Ord. Noise-sensitive land uses (primarily residential) are adjacent to all of the existing roadway segments evaluated. The noise-sensitive land uses adjacent to these roadways include educational, religious, and health care facilities. Residential land uses range from rural residential land uses with scattered houses adjacent to roadways to high-density urban residential development. Commercial, industrial, and recreational land uses also are adjacent to some of the roads. However, impacts are evaluated based on the most sensitive land use adjacent to a given roadway segment.

Under Alternative 4, the noise criterion for residential land uses of 60-dB L_{dn} would be exceeded within 100 feet of all of the existing roadway segments evaluated. In most cases, this is also true under existing conditions. Although implementing Alternative 4 would substantially increase noise (by 5 dB or more relative to existing conditions) along only four of the existing roadway segments evaluated, the project would increase noise levels along roads where local noise standards are already exceeded. The

combination of local noise standards being exceeded and a substantial traffic noise increase along three roadway segments would have a substantial adverse effect on adjacent existing residences.

Major arterials would cross or be adjacent to all noise-sensitive land uses proposed under Alternative 4. These noise-sensitive uses are limited to educational land uses and a cemetery located in the northern portion of Fort Ord. The following noise-sensitive land uses would be exposed to traffic noise levels that exceed local noise standards for these uses.

Under Alternative 4, land uses that may support activities that are sources of noise would be located adjacent to noise-sensitive land uses. Substantial noise impacts could occur as a result of these adjacent uses. The following noise-sensitive land uses are adjacent to land uses that may support noise-generating activities: Peace Officer Standards and Training (POST) Academy classrooms would be located adjacent to POST Academy pistol and rifle ranges; the natural resources management area would be located adjacent to the POST Academy pistol and rifle firing ranges; a university would be located adjacent to a transit center; and a high-tech business park, trade schools, cemetery, and university science offices would be located adjacent to an airport where Fritzsche Army Airfield is currently located.

5.6.4.10 Hazardous and Toxic Waste Site Remediation

Proposed land reuse patterns under Alternative 4 would be similar to existing land use patterns; reuse would occur primarily in previously developed areas of the installation with known land use and hazardous waste histories and in areas that have been investigated as part of the Superfund cleanup process. Public access to and development on the inland trainfire ranges would be limited. Risks to public health and safety from development on unidentified hazardous waste or unexploded ordnance would be slight under Alternative 4.

The cleanup and certification process required for land transfer by EPA and the Army reduces the potential for unidentified hazardous waste and unexploded ordnance to remain on the installation. In addition, under the Defense Environmental Restoration Program for Formerly Used Defense Sites, the Army is responsible for cleanup of contamination or unexploded ordnance discovered subsequent to land transfers.

Some buildings at Fort Ord would be demolished under this alternative. Most of the buildings contain asbestos; some may contain lead-based paint and other potentially hazardous materials. Demolition activities would release asbestos into the environment; building debris generated during demolition could be classified as hazardous waste. Generation and disposal of hazardous waste during building demolition could affect compliance with federal and state laws and regulations regarding the handling of hazardous wastes and materials.

Because some existing buildings would be used for housing the homeless as part of the McKinney Act, the amount of asbestos released into the environment and the amount of potentially hazardous waste generated during demolition would be less than if all buildings were demolished.

5.6.4.11 Vegetation, Wildlife, and Wetland Resources

Common and Special Native Biological Communities. Alternative 4 would result in the loss of approximately 3,150 acres (30%) of common biological communities, including beaches, bluffs and blowouts, ice plant mats, disturbed dune, coastal scrub, coast live oak woodland and savanna, and annual grassland. The following habitat losses would occur to special native biological communities: approximately 15 acres (15%) of native coastal strand and dune scrub and 1,270 acres (10%) of maritime chaparral. Losses of biological communities by alternative are shown in Table 5-11.

Special-Status Plant Species. Alternative 4 would result in the loss of approximately 2,230 acres of habitat occupied by sand gilia, a federally listed endangered species, and Monterey spineflower, a species proposed for listing as endangered. Habitat losses for all special-status plant species are shown in Table 5-11.

Approximately 1,890 acres of habitat occupied by the following federal candidates for listing as threatened or endangered would be lost under Alternative 4: Toro manzanita, sandmat manzanita, Hickman's onion, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and wedge-leaved horkella.

Alternative 4 would result in the loss of approximately 1,220 acres of habitat occupied by the following nine plant species that have no federal or state status but occur on CNPS List 1b or 4: Hooker's manzanita, Monterey Indian paintbrush, Douglas' spineflower, Lewis' clarkia, virgate eriastrum, small-leaved lomatium, curly-leaved monardella, and purple-flowered piperia.

Special-Status Wildlife Species. Alternative 4 would result in the loss of approximately 15 acres (8%) of Smith's blue butterfly habitat and 9 acres (14%) of California linderiella habitat at Fort Ord. None of the five known California linderiella breeding sites would be affected. Smith's blue butterfly is federally listed as endangered, and California linderiella is federally proposed for endangered status. Nesting success of western snowy plovers, a federally listed threatened species, could be adversely affected by activities associated with increased public use of beaches. Public use on dune habitats could also degrade habitat occupied by Smith's blue butterfly and black legless lizard. Habitat losses for all special-status wildlife species are shown in Table 5-11.

Between 22% and 32% of the available habitat at Fort Ord for three federal candidate species would be eliminated under Alternative 4. Species affected include the black legless lizard, Monterey ornate shrew, and California horned lark. Because of the limited ranges of the black legless lizard and Monterey ornate shrew, habitat losses under Alternative 4 could result in both species being elevated to threatened or endangered status. Between 7% and 17% of the available habitat for five other federal candidate species would be eliminated under Alternative 4. Species affected include the Monterey dusky-footed woodrat, loggerhead shrike, California tiger salamander, California red legged frog, and southwestern pond turtle. One of the eight known tiger salamander breeding ponds at Fort Ord would be lost. Less than 1% of the available tricolored blackbird habitat at Fort Ord would be affected.

Under Alternative 4, 26-34% of the available habitat at Fort Ord for the following four California species of special concern would also be eliminated: burrowing owl, northern harrier, prairie falcon, and American badger. The golden eagle, sharp-shinned hawk, and coast horned lizard are also California species of special concern and would lose between 5-15% of their habitat at Fort Ord. There would be no habitat loss for Cooper's hawk and yellow warbler.

Habitat losses for special-interest species range from no loss to 46% loss under Alternative 4. Approximately 46% of the available Salinas harvest mouse habitat and 10% of the greater roadrunner habitat at Fort Ord would be lost to development. There would be no loss for Swainson's thrush and common yellowthroat. Special-interest species have no legal status, but may be rare or declining in the region.

Wetlands and Other Waters of the United States. Alternative 4 would result in the degradation or removal of approximately 5 acres (20%) of the vernal pools, approximately 2 acres (7%) of freshwater marsh and ponds, and about 10,500 linear feet of streams at Fort Ord. Vernal pools and freshwater marsh are potentially jurisdictional wetlands, and stream channels and ponds are potentially other waters of the United States protected under Section 404 of the Clean Water Act.

Plant and Butterfly Preserves and Significant Natural Areas. Under Alternative 4, all natural habitat would be eliminated in preserve 11, and approximately 30% of preserve 2 and 25% of preserve 12 would be lost (Figure 4.11-12). A small portion of significant natural area 026 would be removed to construct the weather station.

5.6.4.12 Visual Resources

Implementation of Alternative 4 would require construction of a substantial number of buildings, renovation of existing buildings, and modification of infrastructure. These activities would produce short-term visual impacts and could produce long-term visual impacts. Short-term visual impacts would occur from construction activities, including location of equipment storage areas, removal of vegetation, and infrastructure modifications. Long-term visual impacts could occur from removal of vegetation; construction of new buildings; alteration of the appearances of buildings and other structures; and construction of improvements such as recreation facilities, parking areas, lighting standards, and fences.

The activities described above could result in a substantial reduction in visual unity and intactness for some visually sensitive areas for views from State Route 1 and other important visitor use areas in and around Monterey Bay. The resulting visual impacts would be inconsistent with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of coastal areas.

Under Alternative 4, institutional development would occur principally in the northeastern portion of the installation, with limited development of the coastal area. Development would introduce numerous buildings, parking lots, roads, and other built elements into this portion of the Fort Ord viewshed. The forms, lines, colors, and texture of the built elements would differ substantially from those of the existing landscape, which is mostly natural in appearance. Extensive vegetation removal and regrading would occur to facilitate development. Existing beach firing ranges would be removed from the coastal area under Alternative 4. Additionally, lower intensity land uses would occupy most of the installation's interior.

Proposed development would substantially reduce the vividness, intactness, and unity of the region's visual resources and would result in substantial impacts on regional visual quality.

The visual quality of the coastal area would be improved by the removal of the beach firing ranges. Viewed from State Route 1, the vividness and intactness of the coastal area would be reduced. Additionally, built elements would be visible due to the high visibility of development in areas of high visual sensitivity and quality east of State Route 1, outside the coastal area.

Views of Fort Ord from primary travel routes would be reduced in visual quality by encroaching land uses of potentially high visual impact. School expansion proposed in the southwestern portion of the installation would reduce the vividness of views of Fort Ord from State Route 68, a state-designated scenic highway. Lower intensity land uses proposed for a large portion of the installation's interior would reduce visual impacts from secondary roads and portions of the Salinas Valley.

Viewed from Monterey Bay and other important tourist and recreation areas along the Monterey Peninsula, the vividness and intactness of Fort Ord's visual resources would be reduced by proposed development of the hills and ridges directly inland from the coast.

5.6.4.13 Cultural Resources

This alternative has the potential to affect National Register-eligible historic buildings by loss of federal protection and by splitting proposed National Register districts. If archeological sites or Native American traditional or sacred properties are found at Fort Ord, the institutional land uses proposed by

Alternative 4 are similar to those of Alternative 3 and would result in considerably more of them being preserved in open spaces, institutional/public areas, or in parks than would occur under Alternatives 1 and 2. The areas of greatest archeological sensitivity include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible Canyons. All other installation lands are recommended as having low to medium potential for possessing archeological resources.

5.6.4.14 Impact Summary

- **Land Use.** Under Alternative 4, approximately 10% of the currently undeveloped areas of Fort Ord is proposed for development. At buildout there would be 24% open space. However, under this alternative 58% of the installation would remain in a caretaker status pending long-term disposition of the impact area and developed portions of the installation that were not incorporated into open space and recreation uses. If the impact area were cleared of unexploded ordnance and used for open space and recreation, the total open space and recreation land use would be 56%.

Some of the proposed institutional uses would conflict with local or state land use policies. Urban development would occur in areas that would be unsuitable for development because of physical constraints, because they contain significant habitat for rare and endangered plant and wildlife species, or because of the absence or inadequacy of public services infrastructure.

- **Socioeconomics.** Alternative 4 would result in a net decrease of 3,800 in resident population from the existing 31,270. However, the effective resident population would be approximately 31,000 persons because of the university with an enrollment of 19,200 persons, the 7,000-person correctional facility, and 4,770 persons at the POM annex and reserve center. The net housing supply would decrease by 1,500 units. Army- and university-related residents would occupy approximately 10,490 housing units on Fort Ord. Employment generated by Alternative 4 would result in substantial secondary population growth that would offset direct population loss and would result in the unmet need for approximately 25,000 housing units in the county. Regional economic activity, as measured by countywide employment, personal income, and industrial output, would increase substantially over 1991 conditions, with increases of approximately 14% in employment, 15% in direct output, and 6% in personal income. Approximately 23,000 new jobs would occur, with an increase of \$280 million. Total output within Monterey County also would increase by \$1.8 billion. The large number of potential jobs would result in the need for school capacity through 12th grade for approximately 9,700 students in the Fort Ord area. Military retirees would be affected by the loss of medical services currently available at Fort Ord. Under Alternative 4 there would be a loss of approximately 450 acres of land available for undeveloped recreational activity and an increase of approximately 1,500 acres for developed recreational opportunities.
- **Soils, Geology, Topography, and Seismicity.** The development under Alternative 4 would disturb or destroy the soil components that support rare plant communities. Development in currently undeveloped portions of the installation would remove vegetation, disturb the soil surface, and accelerate erosion and sedimentation. Developments along Toro Creek would be subjected to an increased flood hazard and to a high to very high potential for liquefaction and seismically induced landslides. Constructing facilities in the coastal zone would subject these facilities to eventual loss from coastal erosion in the area.
- **Public Services and Utilities.** Extensive upgrade and expansion of the utility system would be required to provide service under Alternative 4. An increase of up to 790% over that

currently available would be required. Telephone, cable television, gas and electricity, storm drainage, and water supply infrastructure would require public or private utility companies to upgrade, replace, and expand the infrastructure to provide service to the expanded developments.

- **Water Resources.** Increases in impervious surfaces under Alternative 4 would cause additional surface runoff that could contribute to watershed flood problems. Areas within existing FEMA 100-year floodplains are particularly sensitive to flood damage from increased runoff and generally contribute to water quality degradation in the area and potentially in Monterey Bay, a designated national marine sanctuary.

Alternative 4 would increase water demand from the existing approximately 5,400 acre-feet at Fort Ord to about 13,360 acre-feet. The existing supply consists entirely of groundwater and already exceeds the safe yield of the groundwater basin in the vicinity of Fort Ord, as evidenced by seawater intrusion. Local groundwater could not supply the water needed for this development.

- **Public Health and Safety.** Alternative 4 would require up to 65 law enforcement officers, 31 firefighters or eight firefighting companies and equipment, and emergency medical services for many institutions and businesses and for approximately 31,000 persons.

The installation is in a seismic and tsunami risk area, and people would be exposed to these risks and to risks from buildings subjected to ground shaking.

- **Traffic and Circulation.** Alternative 4 would generate approximately 172,000 daily trips at full buildout. To serve this demand, up to three lanes of north-south roadways and nine lanes of east-west roadways would need to be built. To serve travel between Fort Ord and surrounding communities, up to 31 lanes of roadway would need to be built. These estimates should not be combined because one roadway could satisfy both on- and off-installation travel.
- **Air Quality.** Exposure to asbestos is possible if asbestos is not removed from buildings before demolition. Hazardous air pollutants and PM₁₀ could be emitted during hazardous waste cleanup and recovery of unexploded ordnance. Construction activities during reuse would generate substantial increases in NO_x, ROG, CO, and PM₁₀ emissions. Alternative 4 would not create excessive levels of CO at locations where people live or work. Alternative 4 would be consistent with the MBUAPCD's 1991 AQMP and the 1982 SIP developed jointly by the MBUAPCD and AMBAG.
- **Noise.** Noise impacts from Alternative 4 would include traffic noise impacts on existing and new noise-sensitive land uses and the noise impacts of incompatible land uses. The traffic noise impacts on existing and new noise sensitive land uses would exceed the 60-dB L_{dn} criterion for all evaluated road segments that would have noise-sensitive land uses. Other noise sources such as the airport and agri-center may also have noise levels that exceed the criterion for noise-sensitive land uses. Sensitive land uses, such as educational uses, are projected to be located adjacent to such noise-generating land uses as an airport or agri-center.

Cumulative noise impacts would result from the intensity of the reuse development on Fort Ord combined with other noise-producing development outside Fort Ord. Approximately four roadway segments are projected to have noise increases with substantial cumulative effects under Alternative 4.

- **Hazardous and Toxic Waste Site Remediation.** After hazardous and toxic waste remediation activities are complete at Fort Ord, reuse of former hazardous and toxic waste sites would pose slight risks to public health and safety. Development could occur on unidentified hazardous waste or unexploded ordnance. Additional hazardous waste would be generated on the installation by demolishing buildings that may contain asbestos and other potentially hazardous materials.
- **Vegetation, Wildlife, and Wetland Resources.** Land development proposed for reuse under Alternative 4 would result in the loss of over 30% of common biological communities at Fort Ord. Impacts include the loss of portions of the ranges of federally listed and proposed and state-listed threatened and endangered species, reduction in the ranges of numerous special-status plant and wildlife species to the point that they would likely become eligible for federal or state listing as threatened or endangered. It would result in the loss of 10% of maritime chaparral habitat, a 20% loss of vernal pools, and a 7% loss of other types of wetlands and riparian habitats. Development and implementation of an installation-wide multispecies HMP could be a means for mitigating impacts. Modifications in this alternative would be needed. Development could avoid Smith's blue butterfly habitat.
- **Visual Resources.** The development in important view areas under Alternative 4 would greatly decrease the amount and diversity of natural vegetation cover and distant views. Development would alter the visual character and reduce the visual quality of the coastal area of Fort Ord. Views from and toward Monterey Bay and views from state-designated scenic routes heavily traveled by tourists and recreationists would be reduced in visual quality by proposed development.
- **Cultural Resources.** All requirements for identification of historic properties under the provisions of the NHPA of 1966 have not been completed as of this writing. Therefore, the Army will adhere to the program outlined in the BRAC cultural resource programmatic agreement (1992) to meet its NHPA requirements.

Alternative 4 could affect buildings at Fort Ord recommended as potentially eligible for listing in the National Register. Alternative 4 also proposed development in areas considered to have potential for possessing archeological resources.

No studies have yet been conducted to determine whether culturally sensitive Native American properties are present at Fort Ord. If Native American traditional or sacred properties are found at Fort Ord, the institutional land uses proposed by Alternative 4 would result in considerably more of them being preserved by open spaces, institutional/public areas, or in parks than would occur under Alternatives 1 and 2. Native American groups will be contacted about the presence of these types of properties before initiating disposal or reuse actions.

- **Conclusions.** Alternative 4 would have significant impacts on many environmental resources. The location and extent of new development, new water and wastewater requirements, endangered species impacts, and conflicts in land use and transportation plans for the region would require revisions and implementation of mitigation. Changes to this alternative would be required to address physical and environmental constraints and to allow for economically feasible development and operation within Fort Ord and in the region. It would need to comply with federal laws and policies concerning air quality, endangered species, and floodplains; California coastal zone regulations; Monterey marine sanctuary requirements; historic preservation requirements; and noise standards.

5.6.4.15 Mitigation Summary

The following mitigation could be implemented by the Army, unless otherwise indicated. Other mitigation is available that could be implemented by other federal, state, or local agencies and private entities responsible for development; it is described in Volume II, "Detailed Analysis of Disposal and Reuse":

- Encourage additional CHAMPUS/PRIME providers.
- Disclose information on buried utilities to the Underground Service Alert.
- Create a unified storm drainage and flood control district to serve existing and new development.
- Transfer infrastructure to responsible parties.
- Disclose information on buried water distribution infrastructure to the underground service alert.
- Implement measures during construction to minimize NO_x emissions (for establishment of the POM annex only).
- Obtain emission offsets from the emissions bank maintained by the MBUAPCD (for establishment of the POM annex only).
- Implement the transportation control measures included in the MBUAPCD's 1991 AQMP.
- Avoid development in Smith's blue butterfly habitat.
- Determine whether remediation sites have been surveyed for archeological resources and conduct surveys where determined necessary and safe to do so.

5.6.5 Alternative 5: Open Space

5.6.5.1 Land Use

Alternative 5 proposes that most of the installation remain in open space. Approximately 1% of the currently undeveloped portion of the installation is proposed for development. Under Alternative 5, no uses are proposed that have major land use impacts relating to land use incompatibilities, and no inconsistencies with relevant state and local plans and policies would occur.

5.6.5.2 Socioeconomics

Population and Housing. Under Alternative 5, no housing would be developed on installation properties. The estimated population decrease of 30,000 and loss of 13,900 housing units under closure would not be offset by development under Alternative 5 (Table 5-3). This impact is related to closure rather than reuse of installation properties. Population and housing growth within the county unrelated to reuse activities would offset population losses related to closure over the 5-year buildout period.

Implementation of Alternative 5 would result in no new, direct housing growth in Marina and Seaside. The effects of closure on population and housing levels within these communities would not be offset by development under Alternative 5.

The ratio of jobs to housing within Monterey County would incrementally decrease from 1.36 to 1.32. This effect is considered beneficial but would not bring the countywide jobs/housing ratio within the 0.75-1.25 range generally considered to be optimal.

Regional Economy. Implementation of Alternative 5 would result in the development of employment-generating land uses that would create an estimated 2,400 direct jobs (all in Seaside) and 1,700 secondary jobs in Monterey County. The 4,100 jobs generated by Alternative 5 would not offset the estimated 27,000 jobs lost because of closure, resulting in a net decrease of 22,900 jobs in Monterey County (Table 5-3). This net loss represents a 14% decrease in countywide employment relative to 1991 conditions.

After accounting for closure reductions, total output in Monterey County is estimated to decrease by \$290 million, representing a 2% decrease compared to baseline conditions. Similarly, personal income is estimated to decrease by \$510 million in Monterey County, representing a 10% decrease from baseline conditions.

Social Services. The net decrease in economic activity under Alternative 5 would increase demand for family-related and support services because of the decreased number of jobs and increased levels of unemployment in the county caused by the closure. Caseloads of family-related services, including Aid to Families with Dependent Children, are expected to increase. Support services such as suicide prevention and crisis intervention programs would also likely experience increases in the demand for services without offsetting increases in funding.

The loss of jobs under Alternative 5 would have adverse effects on local job development programs. Specifically, this alternative could adversely affect the Private Industry Council that administers the Job Partnership Act within Monterey County because of the extended funding requirements and probable job shortage for displaced workers.

The availability of healthcare services for military retirees and their family members would likely be reduced under Alternative 5 with the closure of Silas B. Hays Army Community Hospital. No medical center would be developed under Alternative 5. Military retirees and their family members could use existing medical facilities within the region and apply for partial reimbursement of costs through CHAMPUS or Medicare; however, out-of-pocket costs to receive health care would increase for military retirees and their family members. Similarly, military retirees and their family members could travel to other military medical treatment facilities to receive health care. The availability of services at these facilities, however, is likely to be highly constrained and travel costs would increase relative to existing conditions.

Schools. Alternative 5 would not generate the need for additional school capacity (Table 5-4). This could result in the closing of existing Monterey Peninsula Unified School District (MPUSD) schools because of a lack of students resulting from the closure of the installation. Approximately 5,000 students would be leaving the MPUSD and other area school districts as a result of the closure of the installation.

Recreation. Alternative 5 proposes 18,700 acres of land for undeveloped recreational opportunities and 1,500 acres for developed recreational opportunities (Table 5-4). Under Alternative 5, an additional 4,200 acres of land would be available for undeveloped recreational activities and an additional 1,000 acres would be available for developed recreational opportunities.

5.6.5.3 Soils and Geology

All impacts identified under Alternative 1 would be either eliminated entirely or reduced to a minimal level under Alternative 5. The only impact that would be increased is the potential loss of soil fertility identi-

fied under Alternative 3. It is important to note that existing problems of coastal wind and water erosion would not be eliminated under Alternative 5; only further acceleration of their rates would be eliminated.

5.6.5.4 Public Services and Utilities

Table 5-5 quantifies the public services and utilities impacts of Alternative 5.

Wastewater. Alternative 5 would generate up to 1.7 mgd of wastewater. This would result in a 29% decrease from the existing 2.4 mgd (3.3 mgd are available to the installation). No additional treatment capacity would be needed to accommodate the land uses.

Solid Waste. Alternative 5 would generate up to 19 tpd of solid waste, an 80% decrease from the existing 94 tpd. This amount of solid waste would extend the life of the Marina Landfill by approximately 9 years.

Telephone Service. Alternative 5 would not require the expansion of telephone service but may result in the deterioration of the existing telephone infrastructure due to lack of use and maintenance.

Gas and Electric Service. Alternative 5 would not require additional gas and electric service. Alternative 5 may result in the deterioration of gas and electric infrastructure due to lack of use and maintenance.

Cable Television. Alternative 5 would not require the expansion of cable television services. Alternative 5 may result in the deterioration of the cable television infrastructure due to lack of use and maintenance.

Storm Drainage System. Alternative 5 would require new storm drainage infrastructure for approximately 17,006 acres, in addition to upgrades and expansions to existing storm drainage infrastructure that may continue to be used or integrated with the new systems.

Water Distribution Infrastructure. Alternative 5 would not require the expansion or upgrade of the water distribution system's infrastructure. Alternative 5 may result in the deterioration of the water distribution system due to lack of use and maintenance.

5.6.5.5 Water Resources

Hydrology and Water Quality. Alternative 5 would convert only small amounts of land from open space to urban development. It would not cause significant increases in watershed runoff and peak floodflows. It also would not significantly degrade watershed water quality by generating pollutants associated with urban runoff.

Water Demand. Total water demand for Alternative 5 would be about 3,356 acre-feet per year (Table 5-6). This is about 27% of existing water use and is less than the safe yield of the groundwater system in the vicinity of Fort Ord.

5.6.5.6 Public Health and Safety

Table 5-7 quantifies the impact of Alternative 5 on the following services:

Law Enforcement. Alternative 5 would require up to 13 law enforcement officers and equipment to provide service to the proposed uses. This is a 91% decrease from the existing Fort Ord law enforcement staff of 144.

Fire Protection. Alternative 5 would require up to four firefighters and equipment and approximately one firefighting company to provide service to the proposed uses. This is an 89% decrease from the existing Fort Ord fire protection staff of 40.

Medical Services. Because no development is proposed under Alternative 5, the existing medical facilities in the area would be operating below capacity.

Emergency Medical Services. Because no development is proposed under Alternative 5, the existing medical facilities in the area would be operating below capacity and would have sufficient emergency medical services to provide adequate service to the area.

Seismic Safety. Alternative 5 proposes that most of the installation be placed in open space. This would result in an installation population less than what currently exists on the installation. Therefore, a smaller population would be exposed to potential seismic events.

5.6.5.7 Traffic and Circulation

Implementation of Alternative 5 would generate approximately 15,000 daily trips (Table 5-8). Alternative 5 would also generate travel demand of approximately 48,000 trips between Fort Ord and the surrounding communities, creating the need for between three and eight lanes of roadway; approximately 6,000 vehicle trips in the north-south direction on the installation, creating the need for between one and two lanes of roadway; and approximately 24,000 vehicle trips in the east-west direction on and through the installation, creating the need for between two and four lanes of roadway.

To describe the number of lanes of roadway that would be needed to fulfill the travel demand created by Alternative 5, ranges are presented rather than a single number. The lower end of the range describes the number of freeway lanes needed to fulfill the demand, and the upper end describes the number of arterial roadways. In reality, the capacity would likely be provided by an unknown combination of freeways, arterials, collector streets, and transit facilities. The provision of this capacity would be the joint responsibility of the public and private entities that would take ownership and be responsible for development of the uses under Alternative 5.

Implementation of Alternative 5 would create an incompatibility between existing local general plans and the reuse plans for Fort Ord. This incompatibility could be resolved by updating local general plans to include the roadway and transit improvements needed to accommodate the proposed reuse of Fort Ord.

5.6.5.8 Air Quality

Alternative 5 includes construction and use of 1,669 acres of recreational and institutional development. Construction and operation of these land uses will generate air emissions.

The air quality analysis assumes that construction would occur from 1995 through 2010 and that by 2010 all land uses would be fully developed. The operational emission estimates, which assume full buildout by 2010, focus on motor vehicle emissions. No residential units are associated with Alternative 5.

Construction and operational activities resulting from Alternative 5 would result in decreased emissions of all pollutants, including PM₁₀ and ozone precursors (Table 5-9). These decreases would

improve existing PM_{10} and ozone air quality. Alternative 5 would not result in violations of the ambient CO standards. Alternative 5 is consistent with the MBUAPCD's 1991 AQMP and the 1982 SIP developed jointly by the MBUAPCD and AMBAG (Table 5-9).

5.6.5.9 Noise

Under Alternative 5, development of Fort Ord would result in approximately 2,400 acres of construction-related land disturbance and would require little if any construction of major arterials within the bounds of the installation. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Under Alternative 5, construction would result in increased noise levels in areas around construction sites and along access roads to construction sites. These increased noise levels have the potential to adversely affect residences and other noise-sensitive land uses near these sites or roads. Ambient noise levels may be substantially increased or local noise standards may be exceeded.

Noise-sensitive land uses (primarily residential) exist adjacent to all of the existing roadway segments evaluated. Some of the noise-sensitive land uses adjacent to these roadways include educational, religious, and healthcare facilities. Residential land uses vary from rural residential uses with scattered houses adjacent to roadways to high-density urban residential development. Commercial, industrial, and recreational land uses also exist adjacent to some of the roads. However, impacts are evaluated based on the most sensitive land use that exists adjacent to a given roadway segment.

The 60-dB L_{dn} noise criterion for residential land uses is exceeded within 100 feet of all existing roadway segments evaluated. In most cases, this is also true under existing conditions. Although implementing Alternative 5 would substantially increase noise (by 5 dB or more relative to existing conditions) along only two of the existing roadway segments evaluated, this alternative would result in increased noise levels along roads where local noise standards are already exceeded. The combination of local noise standards being exceeded and a substantial increase in traffic noise along several roadway segments would have a substantial adverse effect on existing residences.

Under Alternative 5, very few noise-sensitive land uses are proposed that are related to human habitation, and most of the area within Fort Ord would remain open space. This analysis indicates that none of these proposed sensitive uses would be exposed to traffic noise levels in excess of 60-dB- L_{dn} .

Under Alternative 5, no land uses that may support activities that are sources of noise would be located adjacent to noise-sensitive land uses.

5.6.5.10 Hazardous and Toxic Waste Site Remediation

Implementing Alternative 5 would create approximately 11,700 acres of open space and parks and recreation areas. Public access and development would be limited in most of that area, thereby substantially reducing risks to public health and safety from development on unidentified hazardous waste or unexploded ordnance. Implementing this alternative also would reduce the potential for hazardous waste generation on the installation by limiting development.

The Superfund cleanup program at Fort Ord has resulted in increased efforts to locate and remediate hazardous waste. As a result of these remediation efforts, soil and groundwater quality have improved throughout the installation. Environmental quality at Fort Ord would be maintained through the preservation of open space.

5.6.5.11 Vegetation, Wildlife, and Wetland Resources

Common and Special Native Biological Communities. Alternative 5 would result in the removal of approximately 770 acres (10%) of common biological communities, including beaches, bluffs and blowouts, ice plant mats, coastal scrub, coast live oak woodland and savanna, and annual grassland. Approximately 1 acre (1%) of dune scrub and 30 acres (less than 1%) of the maritime chaparral at Fort Ord would be lost under Alternative 5. Losses of biological communities by alternative are shown in Table 5-11.

Special-Status Plant Species. Alternative 5 would result in the loss of approximately 110 acres of habitat occupied by sand gilia, a federally listed endangered species, and Monterey spineflower, a species proposed for federal listing as endangered. Habitat losses for all special-status plant species are shown in Table 5-11.

Approximately 45 acres, or less than 1% of habitat occupied by plants that are federal candidates for listing as threatened or endangered, would be lost under Alternative 5. Plant species affected would be Seaside bird's-beak, Toro manzanita, sandmat manzanita, Hickman's onion, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and wedge-leaved horkelia.

Alternative 5 would result in the loss of approximately 45 acres of habitat occupied by plant species that have no federal or state status but occur on CNPS List 1b or 4. The impacts on these species represent less than 1% of any one of the species' known range.

Special-Status Wildlife Species. Alternative 5 would result in the loss of approximately 1 acre (1%) of Smith's blue butterfly habitat. No California linderiella habitat would be affected. Smith's blue butterfly is federally listed as endangered. Nesting success of western snowy plovers, which are federally listed as threatened, could be adversely affected by activities associated with the increased public use of the beaches. Public use of dune habitats could also degrade habitat occupied by Smith's blue butterfly and black legless lizard. Habitat losses for all special-status wildlife species are shown in Table 5-11.

Between approximately 1% and 6% of the available habitat at Fort Ord for six federal candidate species would be eliminated under Alternative 5: black legless lizard, Monterey dusky-footed woodrat, Monterey ornate shrew, loggerhead shrike, tricolored blackbird, and California horned lark. California tiger salamander, California red-legged frog, and southwestern pond turtle would not be affected under Alternative 5.

Under Alternative 5, between approximately 1% and 7% of the available habitat at Fort Ord for seven California species of special concern would also be eliminated. Species affected include the burrowing owl, northern harrier, sharp-shinned hawk, golden eagle, prairie falcon, American badger, and coast horned lizard. No habitat would be lost for Cooper's hawk and yellow warbler.

Habitat losses for special-interest species range from no loss to 8% loss under Alternative 5. Approximately 8% of the available Salinas harvest mouse habitat at Fort Ord would be eliminated. Less than 1% of the available greater roadrunner habitat would be lost. No habitat loss would occur for Swainson's thrush and common yellowthroat. Special-interest species have no legal status but may be rare or declining in the region.

Wetlands and Other Waters of the United States. Alternative 5 would degrade or remove approximately 2,200 linear feet of streams at Fort Ord. Stream channels are potentially other waters of the United States protected under Section 404 of the Clean Water Act.

Plant and Butterfly Preserves and Significant Natural Areas. No plant or butterfly preserves or significant natural areas would be affected under Alternative 5.

5.6.5.12 Visual Resources

Under Alternative 5, much of Fort Ord would be retained as open space. Development would generally be limited to construction and building modification associated with military uses along the southeastern portion of State Route 1. Under this alternative, existing beach firing ranges would be removed from the coastal area. Additionally, lower intensity land uses would occupy most of the installation's interior. This alternative would preserve the visual quality and character of the region by retaining much of Fort Ord's natural character.

Removing the beach firing range would improve the visual quality of the coastal area. However, higher intensity land uses along the southeastern portion of State Route 1, outside of the coastal area, would reduce the vividness and intactness of this corridor.

Moderate visual change would occur in the extreme southern portion of the installation, in a visually sensitive area seen from State Route 68. However, generally lower intensity land use proposed for the installation's interior would reduce the visual impacts from primary and secondary travel routes.

5.6.5.13 Cultural Resources

This alternative has the potential to affect National Register-eligible historic buildings by loss of federal protection. Of all the alternatives proposed, the open space land uses recommended by Alternative 5 would have the least effect on any archeological sites or Native American traditional or sacred properties that might be present at Fort Ord. Under this alternative, nearly all these resources would be preserved in open spaces, institutional/public areas, or in parks. The areas of greatest archeological sensitivity include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible Canyons. All other installation lands are recommended as having low to medium potential for possessing archeological resources.

5.6.5.14 Subalternative A: No Presidio of Monterey Annex/No Reserve Center

Land Use

Land use impacts of Subalternative A would be similar to those described under Alternative 5.

Socioeconomics

- **Population and Housing.** Direct population and housing decreases countywide and in Marina and Seaside under Subalternative A would be similar to decreases under Alternative 5 (Table 5-3). The jobs/housing ratio under Subalternative A would be lower than the ratio under Alternative 5 but would be similar to the existing jobs/housing ratio within the county.
- **Regional Economy.** Employment, output, and personal income levels under this Subalternative A would be lower than those described under Alternative 5 (Table 5-3).
- **Social Services.** Implementation of Subalternative A would result in social services effects similar to those described under Alternative 5.

- **Schools.** Impacts on schools under Subalternative A would be similar to those described under Alternative 5 (Table 5-4).
- **Recreation.** In addition to the impacts described under Alternative 5, implementation of Subalternative A would also result in the loss of recreational opportunities in the Main Garrison area, resulting in a decrease of approximately 500 acres of developed recreational opportunities (Table 5-4).

Soils, Geology, Topography, and Seismicity

Impacts under Subalternative A would be similar to those described under Alternative 5.

Public Services and Utilities

Table 5-5 quantifies the public services and utility impacts of Subalternative A.

- **Wastewater.** Impacts on wastewater would be similar to those described for Alternative 5 except that Subalternative A would generate up to 0.02 mgd, a 99% decrease from existing levels. No additional treatment capacity would be needed.
- **Solid Waste.** Subalternative A would not generate any solid waste because there would not be a POM annex.
- **Telephone Service.** Subalternative A would not require additional telephone service area because there would not be a POM annex.
- **Gas and Electric Service.** Subalternative A would have impacts similar to those described under Alternative 5. Subalternative A would result in the reduction of gas and electricity consumption by 95% and 96%, respectively, compared to 1991 consumption levels.
- **Cable Television.** Subalternative A would have similar impacts to those described under Alternative 5. Subalternative A would not require expansion of the cable television service area.
- **Storm Drainage System.** Subalternative A would have impacts similar to those described under Alternative 5 except that 16,995 acres of storm drainage infrastructure would need to be upgraded or expanded.
- **Water Distribution Infrastructure.** Subalternative A would not require the expansion of the water distribution system's service area.

Water Resources

- **Hydrology and Water Quality.** Subalternative A would convert only small amounts of land from open space to urban development. It would not cause significant increases in watershed runoff and peak floodflows. Subalternative A would not significantly degrade watershed water quality by generating pollutants associated with urban runoff.
- **Water Supply and Demand.** Water demand for Subalternative A would be less than 60 acre-feet per year, or less than 3% of the demand under Alternative 5 (Table 5-6).

Public Health and Safety

Table 5-7 quantifies the impact of this alternative on the following services.

- **Law Enforcement.** Impacts on law enforcement under Subalternative A would be similar to those described under Alternative 5 except that Subalternative A would require a total of four law enforcement officers and equipment, a 97% decrease from existing levels.
- **Fire Protection.** Impacts on fire protection under Subalternative A would be similar to those described under Alternative 5 except that the firefighters and firefighting companies needed to provide service to the POM annex and reserve center would not be needed. Local jurisdictions would, however, be required to provide fire protection services to control wildfires on the installation.
- **Medical Services.** Impacts on medical services under Subalternative A would be similar to those described under Alternative 5.
- **Emergency Medical Services.** Impacts on emergency medical services under Subalternative A would be similar to those described under Alternative 5.
- **Seismic Safety.** Seismic safety impacts under Subalternative A would be similar to those described under Alternative 5.

Traffic and Circulation

The reuse impacts of Subalternative A would be similar, but less than, those described under Alternative 5 (Table 5-8). Subalternative A includes no proposed uses to replace the POM annex and reserve center; therefore, traffic would not be generated.

Air Quality

Subalternative A would result in a lower amount of construction emissions than Alternative 5 because less nonresidential development would occur (Table 5-9). Similarly, operational emissions of PM₁₀ and ozone precursors are less than those under Alternative 5 because of the less intensive land development. Subalternative A would not result in violations of the ambient CO standards. In addition, Subalternative A, like Alternative 5, is consistent with the MBUAPCD's 1991 AQMP and the 1982 SIP developed jointly by the MBUAPCD and AMBAG (Table 5-9).

Noise

The absence of the POM annex and the reserve center would not substantially affect traffic noise levels or the degree to which proposed noise-sensitive land uses are affected by noise. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Hazardous and Toxic Waste Site Remediation

No additional effects on hazardous and toxic waste site remediation would be caused by implementing Subalternative A.

Vegetation, Wildlife, and Wetland Resources

Under Subalternative A, the area proposed for the POM annex and reserve center would be designated as NPU. There would be no impacts (Table 5-11). However, once a use is designated, impacts will need to be assessed.

Visual Resources

Visual impacts under Subalternative A would be similar to those described under Alternative 5. The magnitude of impacts would be decreased for portions of areas east of State Route 1 and near North-South Road. Subalternative A would not substantially change visually sensitive areas of Fort Ord, it would improve the visual quality of the coastal zone, and it would help to preserve the region's and Fort Ord's visual character and quality.

Cultural Resources

Not having a POM annex will have no effect on National Register-eligible resources.

5.6.5.15 Impact Summary

- **Land Use.** Alternative 5 proposes that most of the installation remain in open space. Approximately 1% of the currently undeveloped portion of the installation is proposed for development and at buildout 39% of the installation would be open space. However, under this alternative 52% of the installation would remain in a caretaker status pending long-term disposition of the impact area and developed portions of the installation that were not incorporated into open space and recreation uses. If the impact area were cleared of unexploded ordnance and used for open space and recreation, the total open space and recreation land use would be 71%. Under Alternative 5, no uses are proposed that have major land use impacts from land use incompatibilities, and no inconsistencies with relevant state and local plans and policies would occur.
- **Socioeconomics.** Alternative 5 would result in a decrease in resident population from the existing 31,270 persons by approximately 30,000 and would result in a total population of 4,800 persons and decrease students in schools by approximately 5,000. Regional economic activity, as measured by countywide employment, personal income, and industrial output, would decrease over 1991 conditions by approximately 14% in countywide employment, 2% in direct output, and 10% in personal income. Approximately 4,100 new jobs would occur, but there would also be a loss of 27,000 jobs because of closure. Military retirees would be affected by the loss of medical services currently available at Fort Ord. Alternative 5 would reduce the need for school capacity through the 12th grade by 5,000 students. Alternative 5 would increase land available for undeveloped recreational opportunities by 4,200 acres and increase the areas of developed recreational opportunities by 1,000 acres.
- **Soils, Geology, Topography, and Seismicity.** The only impact identified under Alternative 5 would be the increased potential for loss of soil fertility. Existing problems with coastal wind and erosion would not be eliminated; however, the acceleration of their rates would be eliminated.
- **Public Services and Utilities.** Under Alternative 5, the extensive upgrade and expansion of the utility system would not be required because of a decrease in the demand for these services. However, Alternative 5 may result in the deterioration of the public services and utilities infrastructure caused by lack of use and maintenance.

- **Water Resources.** There would be no increase in impervious surfaces under Alternative 5; therefore, watershed flood problems from additional surface runoff would not occur under Alternative 5. Alternative 5 would decrease water demand to 62% of existing use at Fort Ord (from 5,400 acre-feet to about 3,356 acre-feet). The existing supply consists entirely of groundwater. Use under Alternative 5 would be less than the safe yield of the groundwater basin in the vicinity of Fort Ord.
- **Public Health and Safety.** Alternative 5 would require up to 13 law enforcement officers, four firefighters or one firefighting company and equipment, and emergency medical services for those on the installation for maintenance or recreational purposes. The installation is in a seismic and tsunami risk area, and people would be exposed to these risks and to risks from buildings subjected to ground shaking, but this risk would be less than under existing conditions.
- **Traffic and Circulation.** Alternative 5 would generate approximately 15,000 daily trips at full buildout. To serve this demand, up to two lanes of north-south roadways and four lanes of east-west roadways would need to be built. To serve travel between Fort Ord and surrounding communities, up to eight lanes of roadway would need to be built. These estimates should not be combined because one roadway could satisfy both on- and off-installation travel.
- **Air Quality.** Exposure to asbestos is possible if asbestos is not removed from buildings before demolition. Hazardous air pollutants and PM₁₀ could be emitted during hazardous waste cleanup and recovery of unexploded ordnance. Construction activities during reuse would generate increases in NO_x, ROG, CO, and PM₁₀ emissions. Alternative 5 would decrease levels of CO. Decreases in air emissions would result in decreases for NO_x, ROG, CO, and PM₁₀ emissions. Alternative 5 would be consistent with the MBUAPCD 1991 AQMP and the 1982 SIP developed jointly by the MBUAPCD and AMBAG.
- **Noise.** Under Alternative 5, very few noise-sensitive land uses are proposed in connection with human habitation, and most of the area within Fort Ord would remain open space. No land uses that may support sources of noise would be located next to noise-sensitive land uses.
- **Hazardous and Toxic Waste Site Remediation.** Alternative 5 would create approximately 11,700 acres of open space and parks and recreation areas. Public access and development would be limited in most of those areas, substantially reducing risks to public health and safety. Alternative 5 would reduce the potential for hazardous waste generation on the installation by limiting development.
- **Vegetation, Wildlife, and Wetland Resources.** Proposed uses under Alternative 5 would result in the loss of 10% of common biological communities at Fort Ord. Impacts include the loss of small portions of the ranges of federally listed and proposed and state-listed threatened and endangered species, the reduction in the ranges of several other special-status plant and wildlife species, the loss of less than 1% of all known central maritime chaparral habitat, and a 2,200-linear-foot loss of streams at Fort Ord. Biological resources would lose federal protection if lands are transferred to nonfederal entities. Avoidance and enhancement of resources during development or implementation of a multispecies HMP could be means of mitigating impacts.
- **Visual Resources.** Alternative 5 would preserve the visual quality and character of the region by retaining much of Fort Ord's natural character.

- **Cultural Resources.** All requirements for identification of historic properties under the provisions of the NHPA of 1966 have not been completed as of this writing. Therefore, the Army will adhere to the program outlined in the BRAC cultural resource programmatic agreement (1992) to meet its NHPA requirements.

Alternative 5 would have the least effect on buildings at Fort Ord recommended as eligible for listing in the National Register. Implementation of this alternative may split proposed National Register districts. Under Alternative 5, nearly all archeological sites or Native American traditional or sacred properties that might be found at Fort Ord would be preserved in open space. Native American groups will be contacted about the presence of these types of properties before initiating disposal or reuse actions.

- **Conclusions.** This alternative will not have significant impacts on most environmental resources. The large amount of open space and recreation resources would be a significant environmental benefit. Operation of this alternative would be costly. The economic effects on the region of the closure of Fort Ord would be significant and would not be offset by this alternative. Modifications in this alternative would be possible without destroying key biological resources, to allow development in previously developed areas and in the impact area after unexploded ordnance is removed. This would allow a combination of open space and economically beneficial uses to occur that would have many of the same environmentally positive effects while allowing for substantial economic recovery or expansion. Such an alternative would need to comply with federal laws and policies concerning air quality, endangered species, and floodplains; California coastal zone regulations; Monterey marine sanctuary requirements; historic preservation requirements; and noise standards.

5.6.5.16 Mitigation Summary

The following mitigation could be implemented by the Army, unless otherwise indicated. Other mitigation is available that could be implemented by other federal, state, or local agencies and private entities responsible for development; it is described in Volume II, "Detailed Analysis of Disposal and Reuse".

- Encourage additional CHAMPUS/PRIME providers.
- Reduce gas and electric service to proposed developed recreation areas only.
- Reduce cable service to proposed developed recreation areas only.
- Reduction in storm drainage system infrastructure to proposed developed recreation areas only.
- Avoid development in Smith's blue butterfly habitat.
- Determine whether remediation sites have been surveyed for archeological resources and conduct surveys where determined necessary and safe to do so.

5.6.6 Alternative 6R: Anticipated Reuse (Revised)

5.6.6.1 Land Use

Alternative 6R proposes reuse of the developed portion of the installation as well as an additional 10% of the undeveloped portion of the installation. The major land use impacts for Alternative 6R relate to

land use incompatibilities between proposed and existing land uses, incompatibilities between proposed land uses, and inconsistencies with relevant state and local plans and policies.

Alternative 6R proposes land uses that would be incompatible with existing land uses as well as other proposed land uses. Incompatibilities between existing and proposed land uses include the proposed transit center with the natural habitat resources in the coastal zone and the RV park/campground with structures in no proposed use status. Incompatibilities between proposed uses include the natural area expansion with the adjacent office park and corporation yard, the agri-center with the RV park/campground, the school expansion area with the transportation corridor, and the multi-use area with the disturbed habitat zone. Alternative 6R also proposes development that would be inconsistent with relevant state and local plans and policies. These policies include those related to creating development patterns that are not consistent with the 1991 AQMP the expansion of development in areas without adequate infrastructure, land use incompatibilities, protection of sensitive environmental habitats and resources, groundwater resources, and visual quality of the coastal area.

5.6.6.2 Socioeconomics

Population and Housing. Implementation of Alternative 6R would directly decrease the population and housing supplies of Monterey County, Marina, and Seaside. As shown in Table 5-3, countywide population would decrease by an estimated 7,000 (2%), and the housing supply would decrease by approximately 4,000 units (3%). This decline, when annualized over the assumed 50-year buildout period, would not exceed significance thresholds established for population and housing effects.

After accounting for the effects of closure, Marina's population would decrease by more than 5,000 residents, and its housing supply on installation property would decrease by approximately 1,000 units. Seaside's population would decrease by approximately 7,000 residents, and its housing supply on installation would decrease property by more than 3,000 units.

The ratio of jobs to housing within Monterey County would incrementally increase from 1.36 to 1.57. This effect is considered major because it increases the countywide ratio, which already exceeds the ratio of jobs to housing generally considered to be optimal for maintaining a jobs/housing balance.

Regional Economy. Implementation of Alternative 6R would result in the development of employment-generating land uses that would create an estimated 26,000 direct jobs and 27,000 secondary jobs within Monterey County. Subtracting the effects of closure results in a net increase of approximately 27,000 jobs (Table 5-3), representing a 16% increase in countywide employment. An estimated 10,000 of the jobs would be located in Marina, and 5,000 jobs would be located in Seaside.

After accounting for closure reductions, total output in Monterey County is estimated to increase by \$1.7 billion, representing a 14% increase over baseline conditions. Similarly, personal income is estimated to increase by \$152 million in Monterey County, representing a 3% increase over baseline conditions.

Social Services. Economic activity generated under Alternative 6R could benefit social service programs provided by Monterey County and nonprofit organizations, including welfare services and jobs training and placement programs, by increasing employment opportunities, decreasing unemployment, and generating increased income within the county.

Schools. Alternative 6R would generate the need for additional school capacity for up to approximately 4,300 students in kindergarten through 12th grade (Table 5-4). This would result in a demand for additional school facilities and staff.

Recreation. Alternative 6R proposes 17,723 acres of land that would be available for undeveloped recreational opportunities and 962 acres of developed recreational opportunities (Table 5-4). This would result in an increase of approximately 3,400 acres of land available for undeveloped recreational activities and an additional 500 acres for developed recreational opportunities.

Hospitals. Under Alternative 6R, three healthcare scenarios were evaluated for reuse of installation properties: a no-hospital scenario, a combined-care facility scenario, and an outpatient facility scenario.

Under the no-hospital scenario, no hospital facility would be developed onsite. Military retirees and their family members would use existing local healthcare facilities and receive partial reimbursement for costs through CHAMPUS or Medicare or travel to military medical treatment facilities outside of Monterey County. In either case, military beneficiaries currently using Silas B. Hays Army Community Hospital would face increased competition for available healthcare services and would experience greater out-of-pocket expenses or travel costs.

Under the combined-care facility scenario, a hospital would be operated onsite by a private provider, possibly offering a managed care plan to military beneficiaries through the Uniformed Services Treatment Facility system. Military retirees would still compete with the civilian population for medical services but would receive no- or low-cost health care similar to services provided by Silas B. Hays Army Community Hospital. The availability of services enjoyed by military retirees would be reduced relative to existing conditions, but health care costs would be similar to existing conditions.

Under the outpatient facility scenario, an outpatient clinic would be established at Silas B. Hays Army Community Hospital or at one of the existing clinics located at Fort Ord. Military retirees and their family members would be provided no- or low-cost outpatient services through a clinic located on installation properties. Military retirees, however, would experience greater competition and higher costs for inpatient services compared to existing conditions.

5.6.6.3 Soils, Geology, Topography, and Seismicity

Alternative 6R proposes new development that would result in a substantial disturbance or loss of the soil component of the natural ecosystem supporting natural habitats of limited extent and rare and endangered plant and animal communities. Proposed developments, particularly in the transportation corridor, could result in accelerated water erosion, sedimentation, and increased landslide potential in an area already heavily impacted by existing erosion.

Other lesser potential impacts include loss of soil fertility as a result of fire suppression, loss of reuse of Stilwell Hall as a result of coastal erosion, accelerated wind erosion from vegetation removal and soil surface disturbance, severe engineering limitations in the use of low strength, shrink-swell, excavation caving, and piping susceptible soils, and susceptibility of new and existing structures to damage from seismically induced ground shaking.

5.6.6.4 Public Services and Utilities

Table 5-5 quantifies the public service and utility impacts of Alternative 6R.

Wastewater. Alternative 6R would generate up to 5.0 mgd of wastewater. This 108% increase over the existing 2.4 mgd (a total of 3.3 mgd is available to the installation) would require 1.7 mgd of additional treatment capacity to accommodate the proposed land uses.

Solid Waste. Alternative 6R would generate up to 96 tpd of solid waste, a 2% increase over the existing 94 tpd. This amount of solid waste would reduce the life of the MRWMD's Marina Landfill by approximately 1 year.

Telephone Service. Telephone service exists only in the developed portions of the installation. Alternative 6R would only require telephone service in those portions of the installation where reuse is proposed and telephone service is necessary, reducing the existing service area by approximately 240 acres, a reduction of 5% of the existing service area.

Gas and Electric Service. Gas and electric service exists only in the developed portions of the installation. Alternative 6R would result in the demand for approximately 740 MCFH more gas and 87 MW more electricity, an increase of 507% more gas and 485% more electricity over existing conditions.

Cable Television. Cable television service exists only in the developed portions of the installation. Alternative 6R would only require cable television service in those portions of the installation where reuse is proposed and where cable television service is necessary, reducing the existing service area by approximately 1,660 acres, a reduction of 32% from the existing service area.

Storm Drainage System. Alternative 6R would require new storm drainage infrastructure for approximately 2,500 acres of proposed development in areas with no infrastructure. This would include upgrades and expansions to existing storm drainage infrastructure to be used with the new systems.

Water Distribution Infrastructure. Alternative 6R would require new water distribution infrastructure for approximately 2,500 acres of proposed development in areas with no infrastructure. This would result in an approximate 50% increase in water distribution service area from the existing conditions.

5.6.6.5 Water Resources

Hydrology and Water Quality. Alternative 6R would convert land from open space to urban development, which would increase watershed runoff and peak floodflows. Approximately 2,500 acres would be converted from open space to proposed uses, which would result in a 10% increase in disturbance of undeveloped areas over existing conditions.

Alternative 6R would not only increase watershed runoff but would degrade watershed water quality by generating additional urban pollutants. Surface runoff containing urban pollutants would degrade water quality on the installation and in Monterey Bay.

Water Supply and Demand. Total water demand on Fort Ord under Alternative 6R would be about 12,000 acre-feet per year (Table 5-6). This is about two times greater than existing water use, which already exceeds the safe yield of the groundwater system in the vicinity of Fort Ord. In addition, water demand in communities near Fort Ord would probably increase by about 2,700 acre-feet per year as a result of university students and employees moving to the area and living off campus.

5.6.6.6 Public Health and Safety

Table 5-7 quantifies the impacts of Alternative 6R on the following services:

Law Enforcement. Alternative 6R would require up to 39 law enforcement officers and equipment to provide service to the proposed uses. This is a 73% decrease over the existing Fort Ord law enforcement staff of 144.

Fire Protection. Alternative 6R would require up to 18 firefighters and equipment and approximately five firefighting companies to provide service to the proposed uses. This is a 52% decrease over the existing Fort Ord fire protection staff of 40.

Medical Services. Alternative 6R would generate a population of approximately 22,770 who would require medical services. The existing medical facilities in the Monterey area would be capable of providing these services.

Emergency Medical Services. Alternative 6R would generate a population of approximately 22,770 who would require emergency medical services. The existing emergency medical facilities in the Monterey area would be capable of providing these services.

Seismic Safety. Under Alternative 6R, approximately 44,500 people could be exposed to seismic events.

5.6.6.7 Traffic and Circulation

Implementation of the Alternative 6R would generate approximately 228,000 daily trips (Table 5-8). This alternative would also generate travel demand of approximately 131,000 vehicle trips between Fort Ord and the surrounding communities (including through-trips), creating the need for between nine and 22 lanes of roadway; approximately 40,000 vehicle trips in the north-south direction on and through the installation, creating the need for between three and seven lanes of roadway; and approximately 22,000 vehicle trips in the east-west direction on and through the installation, creating the need for between two and four lanes of roadway.

With the provision of transit service and aggressive measures to reduce single-occupant driving, the need for roadways could be reduced by approximately 10%.

To describe the number of lanes of roadway that would be needed to meet the travel demand created under Alternative 6R, ranges are presented rather than a single number. The lower end of the range describes the number of freeway lanes needed to meet the demand, and the upper end describes the total number of arterial roadway lanes. In reality, the capacity would likely be provided by an unknown combination of freeways, arterials, collector streets, and transit facilities. The provision of this capacity would be the joint responsibility of the public and private entities that would take ownership and be responsible for developing the uses under Alternative 6R.

Implementation of Alternative 6R would create an incompatibility between existing local general plans and the reuse plans for Fort Ord. This incompatibility could be resolved by updating local general plans to include the roadway and transit improvements needed to accommodate the proposed reuse of Fort Ord.

5.6.6.8 Air Quality

Implementation of Alternative 6R would result in the construction and use of 168 medium density residential units and 4,926 acres of office, industrial, educational, tourist, and institutional facilities. Construction and operation of these land uses generate air emissions.

The air quality analysis assumes that construction would occur from 1995 through 2010 and that, by 2010, all land uses would be fully developed. The operational emissions estimates, which assume full buildout by 2010, focus on motor vehicles, residential area sources, and aircraft emissions associated with general aviation use of Fritzsche Army Airfield.

Construction of Alternative 6R would increase NO_x emissions in excess of the MBUAPCD threshold of 150 pounds per day. Operation of Alternative 6R would, when compared to existing Fort Ord emissions, result in decreases of all pollutants. Alternative 6R would not result in violations of the ambient CO standards.

The population growth under Alternative 6R would be consistent with the population forecasts used to prepare the MBUAPCD's 1991 AQMP (designed to meet the California ambient ozone standards) because the population growth associated with Alternative 6R is less than the population forecasts used to prepare the 1991 AQMP. Alternative 6R is also consistent with the population forecasts used to prepare the MBUAPCD's 1982 SIP (designed to meet federal ozone standards) (Table 5-9).

5.6.6.9 Noise

Under Alternative 6R, proposed development of Fort Ord would result in approximately 7,465 acres of construction related land disturbance and would require the construction of new major arterials within the bounds of the installation. Refer to Table 5-10 for a comparison of reuse alternatives relative to noise.

Under Alternative 6R, construction would result in increased noise levels in areas around construction sites and along access roads to construction sites. These increased noise levels have the potential to adversely affect residences and other noise-sensitive land uses near these sites or roads. Ambient noise levels may be substantially increased or local noise standards may be exceeded.

Traffic noise levels have been evaluated along existing roadway segments and other roadway segments proposed under Alternative 6R that would be located within the boundaries of Fort Ord. Noise-sensitive land uses (primarily residential uses) are adjacent to all of the existing roadway segments evaluated. The noise-sensitive land uses adjacent to these roadways include educational, religious, and health care facilities. Residential land uses vary from rural residential with scattered houses adjacent to roadways to high-density urban residential development. Commercial, industrial, and recreational land uses also are adjacent to some of the roads. However, impacts are evaluated based on the most sensitive land use adjacent to a given roadway segment.

Under Alternative 6R, the noise criterion for residential land uses of 60-dB L_{dn} would be exceeded within 100 feet of all existing roadway segments evaluated. In most cases, this is also true under existing conditions. Although implementing Alternative 6R would substantially increase noise (by 5 dB or more relative to existing conditions) along only four of the existing roadway segments evaluated, Alternative 6R would result in increased noise levels along roads where local noise standards are already exceeded. The combination of local noise standards being exceeded and a substantial traffic noise increase along several roadway segments would have a substantial adverse effect on existing residences.

Major arterials would cross or be adjacent to all of the noise-sensitive land uses proposed under Alternative 6R. These noise-sensitive uses include residential and educational land uses. Noise-sensitive land uses would be exposed to noise levels that exceed local noise standards for these uses.

Under Alternative 6R, land uses that may support activities that are sources of noise would be located adjacent to noise-sensitive land uses. Substantial noise impacts could occur as a result of these adjacent uses. The following noise-sensitive land uses are adjacent to land uses that may support noise-generating activities are identified as follows: Recreational land uses would be located adjacent to an agri-center (noise from operations at the agri-center could be incompatible with these recreational uses and could exceed the noise standard for recreational land uses); the university science office and university research area would also be located adjacent to an airport (noise from aircraft accessing the airport could be incompatible with these land uses and could adversely affect these adjacent land uses); and a community

park and natural area expansion would be located adjacent to a corporation yard (noise from operations of the corporation yard could be incompatible with these uses).

5.6.6.10 Hazardous and Toxic Waste Site Remediation

Proposed land reuse patterns under Alternative 6R would be similar to existing land use patterns; reuse would occur primarily in previously developed areas of the installation with known land use and hazardous waste histories and in areas that have been investigated as part of the Superfund cleanup process. With the exception of the proposed SR 68 corridor in the southern portion of the installation, development on former inland trainfire ranges would be limited. Risks to public health and safety from development on unidentified hazardous waste or unexploded ordnance would be slight under Alternative 6R.

The cleanup and certification process required for land transfer by EPA and the Army reduces the potential for unidentified hazardous waste and unexploded ordnance to remain on the installation. In addition, under the Defense Environmental Restoration Program for Formerly Used Defense Sites, the Army is responsible for cleanup of contamination or unexploded ordnance discovered subsequent to land transfers.

Several buildings on the installation would be demolished under Alternative 6R. Many buildings contain asbestos; some may contain lead-based paint and other potentially hazardous materials. Demolition activities would release asbestos into the environment; building debris generated during demolition could be classified as hazardous waste. Generation and disposal of hazardous waste during building demolition could affect compliance with federal and state laws and regulations regarding the handling of hazardous wastes and materials.

Proposed reuse for the landfill as a university research area and environmental restoration research site may be inconsistent with state and federal regulations regarding landfill closure, and could increase risks to human health and the environment. The Army would ensure compliance with applicable regulations regarding landfill closure and post-closure activities.

5.6.6.11 Vegetation, Wildlife, and Wetland Resources

Common and Special Native Biological Communities. Alternative 6R would result in the removal of approximately 1,550 acres (15%) of common biological communities, including beaches, bluffs and blowouts, ice plant mats, disturbed dune, coastal scrub, coast live oak woodland and savanna, and annual grassland. The following habitat losses would result for special native biological communities: approximately 1 acre (1%) of native coastal strand and dune scrub, 925 acres (7%) of maritime chaparral, 30 acres (5%) of perennial grassland, and 5 acres (2%) of riparian forest. Losses of biological communities by alternative are shown in Table 5-11.

Special-Status Plant Species. Alternative 6R would result in the loss of approximately 150 acres of habitat occupied by sand gilia, a federally listed endangered species, and 940 acres of habitat occupied by Monterey spineflower, a species proposed for federal listing as endangered. Habitat losses for all special-status plant species are shown in Table 5-11.

Approximately 2,190 acres of habitat occupied by federal candidates for listing as threatened or endangered would also be lost under Alternative 6R. The species affected would be Seaside bird's-beak, Toro manzanita, sandmat manzanita, Hickman's onion, Monterey ceanothus, Eastwood's ericameria, coast wallflower, and wedge-leaved horkelia.

Alternative 6R would result in the loss of approximately 1,210 acres of habitat occupied by the following nine plant species that have no federal or state status but occur on CNPS Lists 1b or 4: Hooker's

manzanita, Monterey Indian paintbrush, Douglas' spineflower, Lewis' clarkia, virgate eriastrum, small-leaved lomatium, Santa Cruz County monkey flower, curly-leaved monardella, and purple-flowered piperia.

Special-Status Wildlife Species. Alternative 6R would result in the loss of approximately 1 acre (1%) of Smith's blue butterfly habitat and 2 acres (3%) of California linderiella habitat at Fort Ord. None of the five known California linderiella breeding sites would be affected. Smith's blue butterfly is federally listed as endangered, and the California linderiella is federally proposed for endangered status. Nesting success of western snowy plovers, a species federally listed as threatened, could be adversely affected by activities associated with the increased public use of the beaches. Public use on dune habitats could also degrade habitat occupied by Smith's blue butterfly and black legless lizard. Habitat losses for all special-status wildlife species are shown in Table 5-11.

Approximately 12% of the available Monterey orate shrew habitat and roughly 17% of the black legless lizard habitat at Fort Ord would be eliminated under Alternative 6R. Both species are federal Category 2 candidates for threatened or endangered status. Between 3% and 10% of the available habitat for seven other federal candidate species would be eliminated under Alternative 6R. Species affected include the Monterey dusky-footed woodrat, loggerhead shrike, California horned lark, California tiger salamander, tricolored blackbird, California red-legged frog, and southwestern pond turtle. One of the eight known tiger salamander breeding ponds at Fort Ord would be eliminated.

Under Alternative 6R, approximately 4% of the available Cooper's hawk and yellow warbler habitat at Fort Ord would be lost. Cooper's hawk and yellow warbler are California species of special concern. Between 3% and 14% of the available habitat at Fort Ord for seven other California species of special concern would also be eliminated: burrowing owl, northern harrier, prairie falcon, American badger, golden eagle, sharp-shinned hawk, and coast horned lizard.

Between 5% and 28% of the available habitat for four special interest species would also be eliminated under Alternative 6R: Salinas harvest mouse, Swainson's thrush, common yellowthroat, and greater roadrunner habitat. Special-interest species have no legal status, but may be rare or declining in the region.

Wetlands and Other Waters of the United States. Alternative 6R would result in the degradation or removal of 1 acre (34%) of vernal pools, approximately 1 acre (1%) of freshwater marsh and ponds, and about 2,350 linear feet of streams at Fort Ord. Vernal pools and freshwater marsh are potentially jurisdictional wetlands, and stream channels and ponds are potentially other waters of the United States protected under Section 404 of the Clean Water Act.

5.6.6.12 Visual Resources

Implementation of Alternative 6R would require construction of buildings, renovation of existing buildings, and modification of infrastructure. These activities would produce short-term visual impacts and could produce long-term visual impacts. Short-term visual impacts would occur from construction activities, including location of equipment storage areas; removal of vegetation; and infrastructure modifications. Long-term visual impacts could occur from removal of vegetation; construction of new buildings; alternation of the appearances of buildings and other structures; and construction of improvements such as recreation facilities, parking areas, lighting standards, and fences.

Under Alternative 6R, development would occur principally in the northeastern portion of the installation and along the installation's southern boundary. Development proposed for these areas would introduce numerous built elements including buildings, parking lots, and roads into the Fort Ord viewshed. The forms, lines, colors, and textures of these built elements would sharply contrast the existing landscape.

which has a predominant natural character. Extensive vegetation removal and grading would be required to facilitate this development. Lower intensity land uses would occupy most of the installation's interior.

Proposed development would reduce the visual quality of some areas seen from SR 68 and SR 1. Land uses of high and medium visual impact potential would be located in the foreground and middleground distance zones of these roadways.

Views of Fort Ord from the Salinas Valley would be reduced in visual quality by encroaching land uses of potentially high and medium visual impact potential. Buildings and structures associated with the university/science office park and airport land uses would be visible in the middleground distance zones of this viewshed. Additional areas of high visual impact would occur in the East Garrison area because of the proposed agri-center.

5.6.6.13 Cultural Resources

Alternative 6R has the potential to affect Fort Ord buildings recommended as potentially eligible for listing in the National Register by loss of federal protection and by splitting a proposed National Register district. Alternative 6R and Alternative 2 would have similar effects on any archeological and Native American resources that may be present at Fort Ord. If archeological sites or Native American traditional or sacred properties are found at Fort Ord. Alternative 6R will result in considerably more of them being preserved in open spaces, institutional/public areas, or in parks than would occur under Alternative 1. The areas of greatest archeological sensitivity include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible Canyons. All other installation lands are recommended as having low to medium potential for possessing archeological resources.

5.6.6.14 Coastal Resources

Potential inconsistencies with sections of the California Coastal Act of 1972 would result from public construction of the service area, transit center, and recreation facilities; and from construction east of SR 1.

Increased public access could degrade sensitive habitat for special-status plant and wildlife species and could also disturb special-status wildlife species. Public access could also result in the accumulation of litter in the coastal zone, which could degrade aesthetic values.

The potential reuse of Stilwell Hall would create a risk to the lives of visitors because of the instable foundation of the structure. Stabilizing the structure by constructing protective devices to prevent further erosion could be inconsistent with the Coastal Act.

Construction of the service area and recreation facilities would result in a loss of Monterey spineflower habitat and coastal strand community. Construction of these facilities and the transit center would adversely affect the visual resources of the coastal zone.

Construction of the POM annex and other development east of SR 1 would adversely affect marine resources because of increased urban runoff and the possibility that the runoff could carry hazardous materials exposed during reconstruction into the ocean. Development east of SR 1 would also increase the area's demand for potable water, which could degrade groundwater resources in the coastal zone.

5.6.7.15 Monterey Bay National Marine Sanctuary

Alternative 6R would potentially result in additional wastewater discharge into the Monterey Bay; continued erosion of Fort Ord's Aromas and Paso Robles formations and, thus, continued sedimentation

of the Salinas River which discharges into the Monterey Bay; and an increase in stormwater and industrial runoff from outfalls discharging into both the sanctuary and the Salinas River.

5.6.7.16 Impact Summary

- **Land Use.** Under Alternative 6R, approximately 59% of Fort Ord would remain in open space land uses. The remaining area would be developed and/or reused for parks and recreational; commercial/business park; industrial; institutional/public uses; the POM Annex and Reserve Center; and McKinney Act homeless housing.

Some development is proposed for areas that may potentially disturb significant habitat for rare and endangered plant and wildlife species or have physical constraints. Other development is proposed in areas where infrastructure is inadequate and substantial upgrades of the existing infrastructure may be required to provide adequate service.

- **Socioeconomics.** Alternative 6R would decrease the resident population from the existing 31,270 persons by 8,500 persons to a buildout population of approximately 22,770 persons and 10,210 housing units. This would require school capacity through the 12th grade for approximately 4,300 additional students. Regional economic activity, as measured by countywide employment, personal income, and industrial output, would increase substantially over 1991 conditions, with increases of approximately 16% in employment, 14% in direct output, and 3% in personal income. Approximately 27,000 new jobs would occur, with an increase in personal income of \$152 million. Total output within Monterey County also would increase by \$1.7 billion. Military retirees would be affected by the loss of medical services currently available at Fort Ord.

Alternative 6R would increase the land available for undeveloped recreational opportunities by 3,400 acres, and increase developed recreational opportunities by 340 acres.

- **Soils, Geology, Topography, and Seismicity.** Alternative 6R proposes new development that would result in a substantial disturbance or loss of the soil component of the natural ecosystem supporting natural habitats of limited extent and rare and endangered plant and animal communities. Proposed developments, particularly in the transportation corridor, could result in accelerated water erosion, sedimentation, and increased landslide potential in an area already heavily affected by existing erosion.

Other lesser potential impacts include loss of soil fertility as a result of fire suppression, loss of reuse of Stilwell Hall as a result of coastal erosion, accelerated wind erosion from vegetation removal and soil surface disturbance, severe engineering limitations in the use of low strength, shrink-swell, excavation caving, and piping susceptible soils, and susceptibility of new and existing structures to damage from seismically induced ground shaking.

- **Public Services and Utilities.** Upgrades of some existing utility systems would be required to provide adequate service under Alternative 6R. Increased wastewater treatment capacity; an increased demand for gas and electricity service; and expanded stormdrain and water supply infrastructure would be required for this alternative. Public or private utility companies would be required to upgrade, replace, and/or expand existing infrastructure to provide service to the proposed uses in this alternative. However, this alternative would reduce the demand for telephone and cable television services and generate approximately the same amount of solid waste as baseline conditions.

- **Water Resources.** Increases in impervious surfaces under Alternative 6R would cause additional surface runoff that could contribute to watershed flood problems. Areas within existing FEMA 100-year floodplains are particularly sensitive to flood damage from increased runoff and generally contribute to water quality degradation in the area and potentially in Monterey Bay, a designated national marine sanctuary.

Alternative 6R would increase annual water demand on Fort Ord from the existing demand of approximately 5,400 acre-feet to about 12,000 acre-feet. The existing supply consists entirely of groundwater and existing demand already exceeds the safe yield of the groundwater basin in the vicinity of Fort Ord, as indicated by the occurrence of seawater intrusion. Local groundwater could not supply the water needed for this alternative.

- **Public Health and Safety.** Alternative 6R would require up to 39 law enforcement officers, 18 firefighters or five firefighting companies and equipment, and no additional medical or emergency medical services for the proposed uses.

The installation is in a seismic and tsunami risk area, and people would be exposed to these risks from buildings subject to ground shaking.

- **Traffic and Circulation.** Alternative 6R would generate approximately 228,000 daily trips at full buildout. To serve this demand, up to seven lanes of north-south roadways and four lanes of east-west roadways would need to be built. To serve travel between Fort Ord and surrounding communities, up to 22 lanes of roadway would need to be built. These estimates should not be combined because one roadway could satisfy both on- and off-installation travel.
- **Air Quality.** Exposure to asbestos is possible if asbestos is not removed from buildings before demolition. Hazardous air pollutants and PM₁₀ could be emitted during hazardous waste cleanup and recovery of unexploded ordnance. Construction activities during reuse would generate substantial increases in NO_x emissions. Alternative 6R would not create excessive levels of CO at locations where people live or work. Operational increases in air emissions would be lower than under existing conditions, resulting in a net decrease in NO_x, ROG, and PM₁₀ emissions. Alternative 6R would be consistent with the MBUAPCD 1991 AQMP and the 1982 SIP.
- **Noise.** Noise impacts from Alternative 6R would include traffic noise impacts on existing new noise-sensitive land uses and the noise impacts of incompatible land uses. The traffic noise impacts on existing and new noise-sensitive land uses would exceed the 60-dB L_{dn} criterion for all evaluated road segments that would have noise-sensitive land uses. Other noise sources such as the airport, corporation yard, and agri-center may also have noise levels that exceed the criterion for noise-sensitive land uses. Sensitive land uses, such as recreational, open space, and educational uses, are projected to be located adjacent to such noise-generating land uses as an airport, corporation yard, and agri-center.

Cumulative noise impacts would result from the intensity of the reuse development on Fort Ord combined with other noise-producing development outside Fort Ord. Approximately four roadway segments are projected to have noise increases with substantial cumulative effects under Alternative 6R.

- **Hazardous and Toxic Waste Site Remediation.** After hazardous and toxic waste remediation activities are complete at Fort Ord, reuse of former hazardous and toxic waste sites would pose slight risks to public health and safety. Development could occur on unidentified hazardous

waste or unexploded ordnance. Additional hazardous waste would be generated on the installation by demolishing buildings that may contain asbestos and other potentially hazardous materials. Reuse of the landfill for university research purposes could increase soil and groundwater contamination and risks to human health and the environment. The amount of hazardous waste generated at Fritzsche Army Airfield also could increase after the airport is converted to civilian use.

- **Vegetation, Wildlife, and Wetland Resources.** Land development proposed for reuse under Alternative 6R would result in the loss of approximately 15% of common biological communities at Fort Ord. Impacts include the loss of portions of the ranges of federally listed and proposed and state-listed threatened and endangered species and reduction in the ranges of numerous other special-status plant and wildlife species. Proposed land development would result in the loss of less than 5% of all known central maritime chaparral habitat, less than 1% loss of vernal pools, and a 3% loss of other types of wetlands and riparian habitats at Fort Ord. Biological resources would lose federal protection if lands are transferred to nonfederal entities.
- **Visual Resources.** The development proposed under Alternative 6R would reduce the visual quality of some areas of Fort Ord seen from the Salinas Valley. Proposed development would reduce the amount and diversity of natural vegetation cover and introduce built elements with contrasting attributes of form, line, color, and texture. Views from state-designated and proposed scenic routes heavily travelled by tourists and recreationists would be reduced in visual quality by proposed development along these roadways.
- **Cultural Resources.** It was not possible to complete all the requirements of the NHPA within the timeframe allotted for this EIS. Therefore, the Army will follow the provisions of the BRAC cultural resource programmatic agreement (1992) to meet its NHPA requirements before initiating land disposal or reuse actions.

Alternative 6R would affect buildings at Fort Ord recommended as eligible for listing in the National Register and may split proposed national Register districts. Alternative 6R proposes development in areas considered to have potential to contain archeological resources.

No studies have yet been conducted to determine whether culturally sensitive Native American properties are present at Fort Ord. Alternative 6R has a potential to affect such properties because of the development proposed. Native American groups will be contacted about the presence of these types of properties before initiating disposal or reuse actions.

- **Coastal Zone Resources.** Alternative 6R would be inconsistent with several sections of the California Coastal Act. Degradation of sensitive natural resources and aesthetic values of the coastal zone would result from public access. Reusing Stilwell Hall as a multi-use area would create a risk to the lives of visitors and a potential need to construct protective devices to prevent further beach erosion. Construction of the service area, transit center, and recreation facilities would adversely affect aesthetic values of the coastal zone and would result in a loss of sensitive plant species and animal habitat. Development east of SR 1 would increase urban runoff into the ocean and could carry hazardous materials unearthed during construction.
- **Monterey Bay National Marine Sanctuary.** Alternative 6R would potentially result in additional wastewater discharge into the Monterey Bay, continued erosion of Fort Ord's Aromas and Paso Robles formations, continued sedimentation of the Salinas River which discharges into the Monterey Bay, and an increase in stormwater and industrial runoff from outfalls discharging into both the sanctuary and the Salinas River.

- **Conclusions.** This alternative would result in the transfer of most sensitive environmental areas to other federal and state agencies that are able to manage the lands without significant environmental impacts. Transfer of portions of Fort Ord to local agencies would allow development of educational, recreational, airport business, and institutional uses that would offset the economic effects of closure of Fort Ord.

5.6.7.17 Mitigation Summary

The following mitigation will be implemented by the Army. Other mitigation is available that could be implemented by other federal, state, or local agencies and private entities responsible for development; it is described in Section 6.0, "Detailed Analysis of Alternative 6R" in this volume.

- Limit properties that may be outgranted and restrict access to remediation areas.
- Encourage additional CHAMPUS/PRIME providers.
- Provide for public utilities easements.
- Maintain facilities that collect wastewater from areas outside of the POM annex and reserve center.
- Provide for public utilities easements.
- Disclose information on buried utilities to the Underground Service Alert.
- Conduct periodic maintenance.
- Maintain cable service.
- Create a joint powers agreement to ensure proper oversight and maintenance.
- Disclose information on buried water distribution infrastructure to the Underground Service Alert.
- Implement measures during renovation to minimize NO_x emissions (for establishment of the POM annex only).
- Develop and coordinate an installation-wide multispecies habitat management plan. (Agencies and entities receiving Fort Ord lands would implement the HMP.)
- Maintain historic buildings and condition their sale or transfer with protective covenants.
- Conduct archeological surveys of Fort Ord lands.
- Contact California Native American groups that may have traditional cultural properties located on Fort Ord lands.

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
LAND USE								
	Potential incompatibility of remediation action with leases of property before disposal	X	X	X	X	X	X	X
	Incompatibility between proposed residential uses and existing agricultural uses	X	X	X	X	-	-	-
	Incompatibility between proposed light industrial areas and proposed recreational vehicle park/campground, university, and community park	X	X	-	-	-	-	-
	Incompatibility between proposed office park and proposed natural area expansion	X	-	-	-	-	-	X
	Incompatibility between proposed amphitheater and proposed residential area	X	X	-	-	-	-	-
	Inconsistency with policies concerning the expansion of development into areas without adequate infrastructure	X	X	X	X	X	-	X
	Potential inconsistency with policies concerning the expansion of development into areas not designated for growth and development, areas outside urban service areas, or areas not intended for development	X	X	X	X	X	-	-
	Potential inconsistency with policies concerning the infill of existing vacant or underused land	X	X	X	X	-	-	-
	Potential inconsistency with policies concerning the adequate provision of open space between different land uses	X	X	X	X	-	-	-
	Potential inconsistency with policies concerning the protection from land use incompatibilities	X	X	X	X	-	-	X
	Inconsistency with policies concerning the protection of sensitive environmental habitat and resources	X	X	X	X	-	-	X
	Inconsistency with policies concerning the protection of ridgelines and steep slopes (30% and over) from development	X	X	-	-	-	-	-
	Inconsistency with policies concerning groundwater resources	X	X	X	X	X	-	X

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
LAND USE (Cont'd.)	Inconsistency with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of the coastal area	X	X	X	-	-	-	X
	Incompatibility of proposed land uses in the coastal zone with the coastal zone	-	X	-	-	-	-	X
	Potential inconsistency with Policy 30232 of the California Coastal Act of 1976 concerning protection against spills	-	X	-	-	-	-	-
	Incompatibility between the proposed agri-center and proposed residential uses, regional park, and habitat preserve	-	-	X	-	-	-	-
	Incompatibility between the proposed agri-center and proposed recreational vehicle park/campground	-	-	-	X	-	-	X
	Potential incompatibility between proposed aqua-culture facility/multi-use area and proposed disturbed habitat zone in the coastal zone	-	-	-	X	-	-	X
	Potential incompatibility between proposed correctional facility and proposed residential uses	-	-	-	-	-	-	-
Potential incompatibility between proposed school expansion and proposed transportation corridor	-	-	-	-	-	-	X	
SOCIOECONOMICS								
Population and Housing	Potential need for temporary and permanent housing	X	X	X	X	X	X	X
	Direct increase (decrease) of Monterey County population	212,000	>212,000	78,000	48,000	(4,000)	(30,000)	(7,200)
	Direct increase (decrease) of number of housing units to the Monterey County housing supply	68,000	>68,000	22,000	15,000	25,000	-	(4,000)
	Unmet need for housing units	-	-	-	-	-	-	18,000
	Reduced demand for housing	-	-	-	-	-	X	-
Change in the countywide jobs/housing ratio (from 1.36 to)		1.10	1.31	1.52	1.31	1.43	1.32	1.57
Regional Economy	Net increase (decrease) of jobs	100,000	>100,000	108,000	48,000	36,000	(23,000)	27,000
	Net increase (decrease) in total county output	\$7.2 billion	>\$7.2 billion	\$8 billion	\$3.3 billion	\$1.8 billion	(\$3 billion)	1.7 billion
	Net increase (decrease) in county personal income	\$1 billion	>\$1 billion	\$1.3 billion	\$200 million	\$100 million	(\$500 million)	(152 million)

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
Social Services	Decreased demand for community services	X	X	X	X	X	X	X
	Decreased demand for job development programs	X	X	X	X	X	X	X
	Reduction in homeless services	X	X	X	X	X	X	-
	Reduction in the availability of healthcare services for military retirees	X	X	X	X	X	X	X
	Increase in costs for medical care to retirees and their family members	X	X	X	X	X	X	X
	Increased demand for community services	-	-	-	-	-	X	-
Schools	Potential loss of Monterey Peninsula Unified School District land	X	X	X	X	X	X	-
	Potential loss of Monterey Peninsula College's lower division general education program facilities	X	X	X	X	X	X	-
	Insufficient Monterey Peninsula Unified School District staff to maintain facilities on the installation	X	X	X	X	X	X	X
	Demand for additional school capacity (for up to __ students)	54,200	64,830	19,500	7,100	9,700	-	4,300
	Potential closure of schools due to lack of students	-	-	-	-	-	X	-
	Competition between new and existing colleges and universities	-	-	-	-	X	-	-
Recreation	Loss of land available for undeveloped recreational opportunities (acres)	12,000	>12,000	7,200	2,800	450	4,200	-
	Increase of developed recreational opportunities (acres)	3,400	>3,400	1,500	1,500	800	1,000	490
SOILS, GEOLOGY, TOPOGRAPHY, AND SEISMICITY								
	Loss of natural soil ecosystem component	X	X	X	X	X	X	X
	Long-term loss of soil fertility due to fire suppression	X	X	X	X	X	X	X
	Potential increase from existing rate in coastal erosion	-	X	-	-	-	-	-
	Potential loss of existing facilities from coastal erosion	X	X	X	X	X	X	X
	Accelerated wind erosion	X	X	X	X	X	X	X
	Accelerated water erosion	X	X	X	X	X	X	X
	Increased landslide susceptibility	X	X	X	X	X	X	X

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
SOILS, GEOLOGY, TOPOGRAPHY, AND SEISMICITY (Cont'd.)								
	Increased sedimentation and flood hazard	X	X	X	X	X	X	X
	Use of unsuitable soil types for agriculture	X	X	-	-	-	-	-
	Severe engineering limitations on use of soils	X	X	X	X	X	X	X
	Severe substrate limitation to water storage	X	X	-	-	-	-	-
	Susceptibility of existing and new structures to damage from ground shaking	X	X	X	X	X	X	X
	Susceptibility of new development to liquefaction and landslides	X	X	X	X	X	-	-
PUBLIC SERVICES AND UTILITIES								
Wastewater	Inadequate access to maintain wastewater collection facilities	X	X	X	X	X	X	X
	Need for expansion of the wastewater collection system	X	X	X	X	X	<	X
	Potential degradation of wastewater service to areas outside of the Presidio of Monterey annex and reserve center	X	X	X	X	X	X	-
	Increased generation of wastewater from the existing 2.4 million gallons per day of wastewater generation (million gallons per day/% increase)	19.5 712%	19.9 730%	13.1 445%	8.9 270%	7.7 220%	1.7 -29%	5.0 108%
	Potential damage to wastewater collection system because of reduced flows	-	-	-	-	-	X	-
	Need to upgrade and expand the wastewater collection system	X	X	X	X	X	-	X
	Inadequate access to maintain wastewater collection facilities	X	X	X	X	X	X	X
Solid Waste	Generation of solid waste from existing 94 tons per day [tons per day/% increase (decrease)]	1,010 974%	1,180 1,156%	460 389%	252 168%	132 41%	19 (41%)	96 (2%)
	Need for additional solid waste hauling service	X	X	X	X	X	-	-
	Generation of demolition waste	X	X	X	X	X	-	X

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
Telephone Service	Inadequate telephone facilities to provide service to interim uses outside the Presidio of Monterey annex	X	X	X	X	X	X	X
	Need for additional telephone service outside of the Presidio of Monterey annex (for __ acres/% increase of the existing service area)	21,400 425%	22,000 435%	18,760 370%	8,120 160%	9,830 195%	-- --	240 5%
	Lack of utility corridors or restriction of access to existing utility corridors	X	X	X	X	X	--	X
	Disruption of service because of construction	X	X	X	X	X	--	X
	Restricted access to telephone infrastructure caused by lack of clear ownership of infrastructure	X	X	X	X	X	--	X
	Deterioration of telephone infrastructure	--	--	--	--	--	X	--
Gas and Electric Service	Inadequate electric and gas facilities to provide service to the Presidio of Monterey Annex	X	--	X	X	X	X	--
	Potential service continuity problems resulting from the Army-operated system	X	--	X	X	X	X	X
	Increased demand for gas (thousand cubic feet per hour/% increase from existing demand)	5,650 3,900%	4,120 2,800%	3,695 2,500%	1,278 875%	807 550%	-- --	740 507%
	Increased demand for electric service (megawatts/% increase above existing demand)	545 3,100%	440 2,500%	392 2,200%	130 730%	141 790%	-- --	87 483%
	Deterioration of gas and electric infrastructure	--	--	--	--	--	X	--
	Lack of utility corridors or restriction of access to existing utility corridors	X	X	X	X	X	X	X
	Disruption of service because of construction	X	X	X	X	X	--	X
Cable Television	Potential loss of cable service to the Presidio of Monterey annex, reserve center, Main Garrison, and barracks around the Silas B. Hays Army Community Hospital	X	--	X	X	X	X	X
	Need for additional cable service (for __ acres/% increase of the existing service area)	21,400 425%	22,000 435%	18,760 370%	8,120 160%	9,830 195%	-- --	1,660 --
	Deterioration of cable infrastructure	--	--	--	--	--	X	X
	Lack of utility corridors or restriction of access to existing utility corridors	X	X	X	X	X	--	X

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
Storm Drainage System	Increased site runoff	X	X	X	X	X	-	X
	Deterioration of storm drainage system infrastructure	-	-	-	-	-	X	-
	Increase in erosion potential due to detention basin construction or culvert and stormdrain replacement	#	#	#	#	#	#	X
	Segmentation of storm drainage system management	X	X	X	X	X	-	X
Water Supply Distribution Infrastructure	Need for additional water distribution infrastructure outside of the Presidio of Monterey annex (for __ acres/% increase of the existing service area)	21,400 425%	22,000 435%	18,760 370%	8,120 160%	9,830 195%	- -	2,500 50%
	Deterioration of water distribution infrastructure	-	-	-	-	-	X	X
	Disruption of service due to construction	X	X	X	X	X	-	X
WATER RESOURCES								
Hydrology and Water Quality	Increases in site runoff	X	X	X	X	X	-	X
	Risk of flood damage from development in the 100-year floodplain	X	X	X	X	X	-	X
	Water quality degradation from urban runoff	X	X	X	X	X	-	X
	Water quality degradation from increased erosion during construction	X	X	X	X	X	-	X
	Water quality degradation from hazardous material spills during construction	X	X	X	X	X	-	X
Water Supply and Demand	Total demand for water (approximate acre-feet per year)	36,626	37,732	23,022	17,582	13,360	3,356	12,000
	Changes in groundwater recharge	X	X	X	X	X	X	X
PUBLIC HEALTH AND SAFETY								
Law Enforcement	Need for additional law enforcement to support interim leases and outgrants	X	X	X	X	X	X	X
	Increased potential for trespassing and vandalism	X	X	X	X	X	X	X
	Need for law enforcement officers and equipment [up to __ officers needed/% increase (decrease) from the existing staff of 144]	495 244%	566 293%	228 58%	170 18%	65 (55%)	13 (91%)	39 (73%)

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
Fire Protection	Increased wildland and structural fire hazards following disposal of property by the Army	X	X	X	X	X	X	X
	Need for firefighters and equipment [(up to __ firefighters needed/% increase (decrease) from existing staff of 40	247 517%	283 606%	113 182%	83 107%	31 (22%)	4 (89%)	18 (52%)
Medical Services	Need for additional medical services for users of leased space	X	X	X	X	X	X	X
	Need for additional medical services (for approximately __ residents)	70,000	127,500	-	-	-	-	23,000
	Exposure of people to Lyme disease hazards	X	X	X	X	X	X	X
Emergency Medical Services	Need for additional emergency medical services (for approximately __ residents)	160,000	217,500	26,000	-	31,000	-	-
	Potential for increased response times for emergency services at Fort Ord	X	X	X	X	X	-	X
Seismic Safety	Exposure of people to seismic events through issuance of interim leases of outgrants	X	X	X	X	X	X	X
	Exposure of people to seismic events (approximately __ people)	283,000	>283,000	124,000	83,000	31,000	-	44,500
	Exposure of coastline development to tsunamis	-	X	-	-	-	-	X
TRAFFIC AND CIRCULATION								
	Increased travel demand between Fort Ord and the surrounding communities (to approximately __ trips per day)	750,000	>750,000	307,000	285,000	188,000	48,000	131,000
	North-south daily travel demand on Fort Ord (of approximately __ vehicles)	218,000	>218,000	81,000	32,000	16,000	6,000	40,000
	East-west daily travel demand on Fort Ord (of approximately __ vehicles)	270,000	>270,000	103,000	93,000	50,000	24,000	22,000
	Incompatibility between the existing local general plans and the reuse plans for Fort Ord	X	X	X	X	X	X	X
AIR QUALITY								
	Asbestos emissions during demolition	X	X	X	X	X	X	X
	Emissions of PM ₁₀ and hazardous air pollutants exceeding Monterey Bay Unified Air Pollution Control district thresholds	X	X	X	X	X	X	X

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
AIR QUALITY (Cont'd.)	Generation of NO _x and PM ₁₀ that exceeds the emission thresholds during construction (NO _x pounds per day/PM ₁₀ pounds per day)	486 256	471 247	368 194	212 111	212 111	-- --	157 --
	Carbon monoxide emissions and concentrations exceeding the federal and California 8-hour ambient air quality standards	X	X	--	--	--	--	--
	Net increases of reactive organic compounds, NO _x , and PM ₁₀ that exceed the emission thresholds from reuse (ROG/NO _x /PM ₁₀ in pounds per day)	6,844 6,660 3,358	8,578 7,186 3,531	-- 729 1,210	-- -- --	-- -- --	-- -- --	-- -- --
	Population increases exceeding Association of Monterey Bay Area Governments projections	X	X	X	X	--	--	--
	NOISE							
	Excessive noise from remediation activities	X	X	X	<	<	<	X
	Excessive noise from construction activities	X	X	X	<	<	<	X
	Increased and excessive noise from traffic on existing noise-sensitive land uses	X	X	X	<	<	<	X
	Excessive noise from traffic on new noise-sensitive land uses	X	X	X	X	<	<	X
	Exposure of new noise-sensitive land uses to noise from Monterey Peninsula Airport	X	X	X	--	X	--	--
	Exposure of noise-sensitive land uses to concert sound from the amphitheater	X	X	X	--	X	--	--
	Exposure of noise-sensitive land uses (including schools, Asilomar-type facility, recreation vehicle park/campground, and university) to noise from the transit center	X	--	X	--	X	--	--
	Exposure of residential land uses to noise from activities at sports fields and the sports complex	X	X	X	--	--	--	--
	Exposure of the resort hotel to noise from the film complex and the theme park	X	X	--	--	--	--	--
	Exposure of noise-sensitive land uses (including residential and recreation area) to noise from activities at the police academy or agricenter	X	X	X	--	X	--	X

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
NOISE (Cont'd.)	Exposure of uses (including commercial center, business park, trade schools, etc., depending on the alternative) to noise from the airport (currently Fritzsche Army Airfield)	X	X	X	X	X	-	X
	Exposure of uses (including a community park and natural area expansion) to noise from the corporation yard	-	-	-	-	-	-	X
	Exposure of students in the peace officer standards and training academy classrooms to noise from firing ranges	-	-	-	X	-	-	-
HAZARDOUS AND TOXIC WASTE SITE REMEDIATION								
	Potential risks to public health and safety associated with unidentified hazardous waste sites or unexploded ordnance	X	X	X	X	X	-	X
	Potential for generation of hazardous waste during building demolition	X	X	X	X	X	-	X
	Potential for increased hazardous waste generation at the airport	#	#	#	#	#	#	X
	Potential for increased risks to human health and the environment from existing landfill	#	#	#	#	#	#	X
VEGETATION, WILDLIFE, AND WETLAND RESOURCES								
	Loss of common biological communities (acres/%)	7,790 (75%)	>7,790 (>75%)	6,350 (60%)	4,230 (40%)	3,150 (30%)	770 (10%)	1,550 (15%)
	Loss of special native biological communities (acres)	12,570	>12,570	6,710	1,820	1,290	30	955
	Loss of habitat occupied by plant species that are federally listed as endangered or proposed for federal listing as threatened or endangered (acres)	11,060	Similar to Alternative 1	6,620	3,450	2,230	110	1,090
	Loss of habitat occupied by plant species that are federal candidates for listing as threatened or endangered (acres)	14,130	Similar to Alternative 1	7,680	2,740	1,890	45	2,190
	Loss of other special-status plant species with no federal or state status (acres)	11,800	Similar to Alternative 1	11,950	11,800	1,220	45	1,210
	Loss of habitat available for wildlife species that are federally listed as threatened or endangered or proposed for federal listing as threatened or endangered	23-92%	67-92%	14-23%	1-6%	8-14%	0-1%	1-3%

Issue Area	General Description of Impact	Reuse Alternatives						
		1	1C	2	3	4	5	6R
VEGETATION, WILDLIFE, AND WETLAND RESOURCES (Cont'd.)								
	Loss of habitat available for wildlife species that are federal candidates for listing as threatened or endangered	41-96%	41-96%	23-91%	6-50%	1-33%	1-6%	3-18%
	Loss of habitat available for wildlife species that are California species of special concern	67-97%	67-97%	21-89%	0-44%	0-34%	0-7%	3-14%
	Loss of habitat available for special interest wildlife species with no legal status	94-100%	94-100%	49-100%	0-71%	0-46%	0-8%	5-28%
	Loss of wetlands and other waters of the United States (acres of wetlands/linear feet of streams)	55 96,400	55 96,400	15 71,400	4 4,000	7 10,500	0 2,200	2 2,350
	Loss of plant and butterfly preserves and significant natural areas	X	X	X	X	X	-	-
	Conflict with wildlife in the Monterey Bay National Marine Sanctuary	-	X	-	-	-	-	-
VISUAL RESOURCES								
	Reduced visual unity and intactness associated with long- and short-term construction impacts	X	X	X	X	X	X	X
	Reduced regional visual quality	X	X	X	X	X	-	-
	Reduced visual quality of the Fort Ord coastal area and of seen areas from State Route 1	X	X	X	-	X	-	X
	Improved visual quality of coastal areas	-	-	-	X	X	X	-
	Reduced visual quality of areas seen from important tourist and recreation areas	X	X	X	X	X	-	-
	Reduced visual quality of areas seen from State Route 68	X	X	X	X	X	-	X
	Reduced visual quality of areas seen from important secondary travel routes	X	X	X	X	X	-	-
	Reduced visual quality of areas seen from the Salinas Valley	X	X	X	X	X	-	X
CULTURAL RESOURCES								
	Potential effects on National Register-eligible historic buildings and potential archeological sites within archeologically sensitive areas	X	X	X	X	X	-	X

Issue Area	General Description of Impact	Reuse Alternatives						6R
		1	1C	2	3	4	5	
CULTURAL RESOURCES (Cont'd.)								
	Potential loss of access to, damage to, or destruction of sites or resources important to Native Americans	X	X	X	X	X	-	X
COASTAL RESOURCES								
	Inconsistency with Coastal Act Subsections 30212(a) and 30214 (a) and Section 30240	#	#	#	#	#	#	X
	Potential inconsistency with Coastal Act Sections 30220 and 30221	#	#	#	#	#	#	X
	Inconsistency with Coastal Act Sections 30230 and 30231	#	#	#	#	#	#	X
	Potential inconsistency with Coastal Act Subsection 30233(a) and Section 30255	#	#	#	#	#	#	X
	Inconsistency with Coastal Act Section 30251	#	#	#	#	#	#	X
	Inconsistency with Coastal Act Section 30253	#	#	#	#	#	#	X
MONTEREY BAY NATIONAL MARINE SANCTUARY								
	Incremental increase in urban pollutant load levels in stormwater runoff	#	#	#	#	#	#	X
	Incremental contribution of sediment from Fort Ord lands to the Salinas River	#	#	#	#	#	#	X
	Potential increase of wastewater discharge into the sanctuary from MRWPCA's Marina Treatment Plant	#	#	#	#	#	#	X

Notes: X = Impact applies to this alternative. Refer to text in this section and in Volume II, "Detailed Analysis of Disposal and Reuse", for the extent of the impact.

- = Impact not applicable to this alternative.

() = Indicates a decrease

= Issue area only analyzed for the Alternative 6R, as a result of comments received on the draft EIS.

Section 6.0 Detailed Analysis of Alternative 6R

Alternative 5, "Anticipated Reuse", was revised based on the results of the federal, state, and local real estate screening process, which was completed on February 8, 1993. This section contains the detailed analysis of revised Alternative 6 (Alternative 6R).

The detailed analyses of Alternatives 1 through 6 are contained in Volume II, which has not been reprinted for the final EIS. After review of the EIS, and as a result of the comments received on the draft EIS, Alternatives 1 through 6 were eliminated from further consideration because they would result in significant environmental or economic impacts. Therefore, no new analyses of these reuse alternatives have been conducted.

Water Supply

Infrastructure
Pipes

Biology

Air

Traffic - FO road system bad



6.1 LAND USE

6.1.1 Introduction

This analysis assumes the proposed action and Alternative 6R would have a substantial effect if it resulted in:

- substantial conflicts between proposed land uses or
- substantial conflicts between proposed and existing adjacent land uses.

The potentially inconsistent policies are described briefly in Table II.1-1 in Section II.1, "Land Use", Volume II. However, determining policy consistency is speculative because a majority of the reuse proposals of Alternative 6R are general and have not been fully developed into policy documents.

6.1.2 Disposal Impacts

Outgranting real property would result in the following land use compatibility impacts:

- *Impact: Potential Incompatibility of Remediation Action with Leases of Property Before Disposal*

Fort Ord property may be outgranted to either private or public agencies before reuse. Remediation actions that occur in the vicinity of outgranted property may be incompatible with the uses of the outgranted property.

- *Mitigation: Limit Properties That May Be Outgranted and Restrict Access to Remediation Areas*

The properties that may be outgranted on an interim basis will be limited to those properties adequately buffered from areas needing remediation. Access to areas that require remediation action will be restricted so that users of outgranted property in the vicinity would not be susceptible to hazards from those areas. This will be achieved by fencing and placing signs in the remediation areas or employing security guards to prevent trespassing. (Army)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure except that a financial burden on the Army may be possible if certain properties are not able to be reused in the interim because of remediation activities.

6.1.3 Reuse Impacts

Alternative 6R proposes to develop a majority of the already developed portion of the installation plus approximately 10% of the currently undeveloped area. However, the installation at buildout of this alternative, would be less dense than current conditions.

Land Use Compatibility

- *Impact: Incompatibility of Proposed Transit Center With Natural Habitat Resources in the Coastal Zone West of State Route 1*

Alternative 6R proposes a 36-acre transit center that would involve development of approximately 20 acres west of State Route (SR) 1, in the coastal zone. The area west of SR 1 is potential habitat for several special status species of wildlife and plants. These areas are considered to have significant environmental resources and development in this area would either destroy or disturb these resources.

This impact and any recommended mitigation are described in Section 6.11, "Vegetation, Wildlife, and Wetland Resources".

- ***Impact: Incompatibility of Proposed Natural Area Expansion With Proposed Office Park and Corporation Yard***

Alternative 6R proposes a 53-acre natural area expansion in the southwesternmost portion of the installation, which may be incompatible with the proposed 352-acre office park to the northeast and the 46-acre corporation yard to the east. The natural area expansion should be surrounded by like uses, such as additional open space or recreation uses. Those uses that would occur in an office park area, such as office buildings and parking lots, and those in or adjacent to the corporation yard, such as vehicle maintenance and storage, would not complement the natural area expansion and may create nuisances including, but not limited to, increases of light and glare, noise, traffic, and air pollution.

- ***Mitigation: Provide a Landscaped Open Space Buffer***

A landscaped (with native species), open space buffer could be provided around the office park and corporation yard. The buffer should be wide enough to accommodate extensive open space. A 200-foot-wide (minimum) buffer zone is recommended. (Local agencies and private entities responsible for development)

This is considered feasible mitigation for this impact. Both the office park and corporation yard uses have a substantial amount of acreage (352 and 46 acres, respectively) to provide an open space buffer zone between the uses. There would be no adverse environmental impacts associated with this mitigation measure as long as the existing native vegetation is not disturbed in the process of creating the buffer zone area.

- ***Impact: Incompatibility between the Proposed Agri-Center and the Proposed RV Park/Campground***

The proposed 890 agri-center would be similar to a light industrial uses because it could involve light manufacturing and labor-intensive uses and could create nuisances, including increased noise and air pollution. This would be incompatible with the proposed adjacent RV park/campground.

- ***Mitigation: Provide a Landscaped Open Space Buffer***

A landscaped open space buffer could be provided around the agri-center's light industrial facilities or other uses that may produce the above described impacts. The buffer should be wide enough to adequately shield the agri-center uses from the RV park/campground. Native trees that would grow large enough to effectively shield uses could be planted. A 300-foot-wide buffer area running the length of the boundary of the two uses is recommended. (Local agencies and private entities responsible for development)

This is considered feasible mitigation for this impact. The proponents of the agri-center proposes to develop approximately 25% of the area, retaining a substantial amount of area as open space and the provision of a landscaped, open space buffer zone between the uses. There would be no adverse environmental impacts associated with this mitigation measure as long as the existing native vegetation is not disturbed in the process of creating the buffer zone area.

- ***Impact: Incompatibility between Proposed Multi-Use Area and the Disturbed Habitat Zone in the Coastal Zone***

Alternative 6R proposes a 29-acre multi-use area in the coastal zone in between two proposed disturbed habitat zones (127 and 411 acres, respectively). The proposed multi-use area which would potentially include Stilwell Hall and a regional visitors center may create an obstacle preventing public access in between the two disturbed habitat zones. Since this zone would provide public access, the disturbed habitat zone should be continuous.

- ***Mitigation: Create a Disturbed Habitat Zone Access Corridor***

A corridor connecting the two disturbed habitat zones could be created so that access to the two areas is not interrupted by the multi-use area. (Local agencies and private entities responsible for development with approval from the California Coastal Commission)

This is considered feasible mitigation for this impact. However, the California Coastal Commission would need to review the plan to determine the adequacy of the corridor. There would be no adverse impacts associated with this mitigation measure.

- ***Impact: Incompatibility between Proposed School Expansion and Proposed Transportation Corridor***

Alternative 6R includes a 150-acre expansion area for the York School, which is located south of the installation in the City of Monterey, into the southern portion of the inland range area. The proposed transportation corridor would extend between the school expansion area and the existing school facilities. The separation of the school expansion area from the existing school facility because of the transportation corridor, creates an incompatibility between the proposed school expansion and transportation corridor uses. Students would have to cross the transportation corridor to access to the expansion area, which could create substantial safety issues for students at York School.

- ***Mitigation: Require the Construction of a Highway Underpass or Overpass***

York School should coordinate with Caltrans to construct an overpass or underpass at the transportation corridor. This would provide safe access for the students between the existing school facility and the school expansion area. (York School and Caltrans)

This mitigation measure is considered feasible. The construction of the overpass or underpass would result in various construction-related impacts, such as the potential loss of biological habitat, depending on which bypass is chosen.

Policy Consistency

- ***Impact: Inconsistency with Policies Concerning the Protection of Sensitive Environmental Habitat and Resources***

Alternative 6R would be inconsistent with the following relevant plans and policies: 30240(a), 30240(b), and 30232 of the California Coastal Act of 1976 (CCA); Resource Protection Measure "C" of the Monterey Bay National Marine Sanctuary-Final Environmental Impact Statement (MB-FEIS); 1.1.3, 7.1.4, 40.2.7, and 40.2.9(d) of the Greater Monterey Peninsula Area Plan (GMPAP); 4.3.4, 4.3.6.A1, 4.3.6.A2, and Recreation Management Measure 1 of the Monterey County Local Coastal Program - North County Land Use Plan (MCLCP); and A, A4.b, A4.c, and A4.d of the Association of Monterey Bay Area Governments - Regional Land Use Element (AMBAG-RLU).

Alternative 6R proposes development in some environmentally sensitive habitats. These habitats include the areas west of SR 1, the southernmost portion of the installation where the transportation corridor is proposed, and some oak woodland areas where the fire training area is proposed. Alternative 6R proposes potential development in these areas that would either disturb or destroy these environmentally sensitive habitats.

This impact and any recommended mitigation are described in Section 6.11, "Vegetation, Wildlife, and Wetland Resources".

- ***Impact: Inconsistency With Policies Concerning the Expansion of Development into Areas Without Adequate Infrastructure***

Alternative 6R would be inconsistent with the following relevant plans and policies: 30250 of the CCA; 26.1.4, 26.1.14, 26.1.18, and 31.1.1 of the MCGP; 4.3.6.D2 and 4.3.6.D5 of the MCLCP; 1 of the Monterey County Growth Management Policy (MCGMP); B3.c, C1.b, and C4.c of the AMBAG-RLU; and policies III.1 and III.8 of LAFCO's Spheres of Influence Policies and Criteria.

Alternative 6R proposes some development in areas where adequate public services and facilities are not available. Although the Army owns and operates some services and facilities, they do not provide services to the southwestern portion of the installation where the 352-acre office park and the 46-acre corporation yard are proposed. Additional proposed uses on the installation will require utility service from existing Fort Ord infrastructure. Much of the utilities and infrastructure is below standard and in poor operating condition, therefore additional infrastructure will be required to service the various proposed land uses in both areas that are currently developed as well as in those areas that are undeveloped but proposed for development.

This impact and any recommended mitigation are described in Section 6.4, "Public Services and Utilities".

- ***Impact: Inconsistency with Policies Concerning the Protection From Land Use Incompatibilities***

Alternative 6R is inconsistent with the following policies: 27.3.1, 29.3, and 29.3.1 of the MCGP; and 4.3.6.C6 and 4.3.6.G3 of the MCLCP.

Alternative 6R proposes several land uses that are internally incompatible. These uses, their respective impacts, and any recommended mitigation are described under Land Use Compatibility above.

- ***Impact: Inconsistency with Policies Concerning Groundwater Resources***

Alternative 6R is inconsistent with the following policies: 4.3.4 and 4.3.5.7 of the MCLCP; and A3.b and A3.e of the AMBAG-RLU.

Alternative 6R proposes water and groundwater-dependent uses such as the Presidio of Monterey (POM) annex, the university, and the agri-center. A water shortage exists in the Monterey area, and Alternative 6R proposes the development that would require additional water supply that currently does not exist and limits the safe utilization of groundwater resources within those resource's ability to recharge.

This impact and any recommended mitigation are described in Section 6.5, "Water Resources".

- *Impact: Inconsistency with Policy 30251 of the California Coastal Act of 1976 concerning the Protection of Scenic and Visual Qualities of the Coastal Area*

Alternative 6R proposes a 36-acre transit center that would involve development of approximately 20 acres west of SR 1, in the coastal zone. Development in this area may degrade the scenic and visual qualities of the coastal area. This impact and any recommended mitigation measures are described in Section 6.12, "Visual Resources".

6.1.4 Cumulative Effects

Extensive development is expected in the area, based on projected growth of the Monterey Peninsula area and development of the installation. This development would place pressure on local communities that plan to limit growth. Development of the installation would redirect growth away from communities either seeking or not seeking growth. This growth pressure could, however, eventually jeopardize the natural resources of the Monterey Bay coastline. Strict adherence to locally adopted plans and policies on development and growth needs to continue to retain the existing character of the Monterey Peninsula.

6.1.5 Summary Comparison of Reuse Alternatives

Alternatives 1 and 2 would result in the greatest land use impacts because of the extensive development proposed for reuse. Alternatives 3 and 4 would also result in land use impacts similar to Alternatives 1 and 2, but with lesser effects. Alternatives 5 and 6R would have the least land use impacts of the reuse alternatives. Alternative 5 proposes to retain a majority of the installation in open space and would therefore have the least impacts on the undeveloped portions of the installation, whereas the Alternative 6R proposes to continue to use several developed areas, contributing to some impacts in the developed areas, and only a small amount of development in the currently undeveloped areas.

6.2 SOCIOECONOMICS

6.2.1 Population and Housing

6.2.1.1 Introduction

This section describes changes to the population, housing, and housing supply within Monterey County and the Cities of Marina and Seaside as a result of the closure, disposal, and reuse of Fort Ord.

6.2.1.2 Disposal Impacts

- *Impact: Potential Need for Temporary and Permanent Housing*

Disposal of parcels of land could occur immediately. However, not all Fort Ord lands would be disposed of at one time. Hazardous material remediation would have to occur before installation property could be disposed and reused. The process would likely span many years. In addition, many uncontaminated installation facilities could be used by other federal agencies or leased to private concerns in the interim before disposal.

Population and housing effects of the disposal process cannot be fully determined but would likely be substantial. Hazardous waste cleanup crews may be brought in from outside the county for extended periods and would require semipermanent lodging in the local area. Federal agencies that would use the facilities also would likely increase local population, thereby increasing local housing demand. This increase would be considered beneficial because it would lessen adverse closure effects.

- *Mitigation: None Required*

6.2.1.3 Reuse Impacts

- *Impact: Net Decrease of Approximately 7,000 Monterey County Residents*

Implementation of Alternative 6R would result in the construction or rehabilitation of housing that would accommodate a population of approximately 23,000. Closure effects would reduce this to a net population decrease of approximately 7,000. This net decrease in population would represent a 1% decrease from Monterey County's 1991 population. Spread over the 50-year buildout period this decline results in an average annual decrease of less than 0.1%. This effect is not considered major because it does not exceed the threshold growth rate of 2.3%.

The City of Marina would be the location of the construction or rehabilitation of enough housing to support over 4,000 people, resulting in a net population decrease of over 5,000 after subtracting the population decrease resulting from the installation closure.

The population of the City of Seaside would grow by over 9,000 by buildout of Alternative 6R, resulting in a net population decrease of 2,000 after subtracting the population decrease resulting from the installation closure.

- *Mitigation: None Required*

- *Impact: Direct Loss of Approximately 4,000 Housing Units within Monterey County*

Implementation of Alternative 6R would result in the construction or rehabilitation of over 10,000 housing units. Subtracting the closure effect of the loss of about 14,000 units would result in the net decrease of 4,000 units in the county housing supply. This represents a 3% decrease in the total county housing supply. This effect is not considered major because, over the 50-year buildout period the annual decline does not exceed the threshold change of 2.3%.

Over 2,000 housing units would be constructed or rehabilitated within the City of Marina under Alternative 6R and would result in a net decrease of approximately 1,000 units.

The City of Seaside would be the location of almost 4,000 housing units under Alternative 6R. Subtracting the closure effects results in a net decrease of approximately 3,000 in the city's housing supply.

- *Mitigation: None Required*

- *Impact: Unmet Need for Approximately 18,000 Housing Units*

Implementation of Alternative 6R would result in the development of employment-generating land uses with no accompanying housing construction. Applying the county average of 1.45 workers per household to the number of employment positions directly generated by this alternative (26,149) results in a demand for an additional 18,000 housing units. This effect is considered major because buildout of the alternative would result in a substantial increase in housing demand in an area already experiencing a housing shortage. This impact is unavoidable but could be reduced by implementing the following mitigation.

- *Mitigation: Compensate for Increased Housing Demand by Retaining Existing Residential Areas Designated for No Proposed Use*

The increased demand for housing likely generated by onsite employment would be compensated for by retaining the existing onsite housing in areas designated for no proposed use. (Local agencies)

This is considered feasible mitigation for this impact. County population would increase, as would potential student generation, but no adverse impacts requiring additional mitigation would occur with this mitigation measure.

- *Impact: Increase in Countywide Jobs/Housing Ratio from 1.36 to 1.57*

Implementation of Alternative 6R would result in an increase from 1.36 to 1.57 in the county's ratio of jobs to housing. This effect is considered major because it increases the countywide ratio that already exceeds the ratio of jobs to housing generally considered optimal for maintaining a jobs/housing balance.

- *Mitigation: Compensate for Increased Housing Demand by Retaining Existing Residential Areas Designated for No Proposed Use*

The increased demand for housing likely generated by onsite employment could be compensated for by retaining existing onsite housing that is designated under Alternative 6R for no proposed use. (Local Agencies)

This is considered feasible mitigation for this impact. County population would increase, as would potential student generation, but no adverse impacts requiring additional mitigation would occur with this mitigation measure.

6.2.2 Regional Economy

6.2.2.1 Introduction

This section describes estimated effects of closure, disposal, and reuse on the regional economy. Economic variables used to measure effects on the regional economy include employment, personal income, and total output (i.e., business volume).

The detailed analysis for Alternative 6R socioeconomic analysis does not allow for comparison between alternatives because data used for the analysis of Alternative 6R required a change to several employment generation assumptions used in the analysis of all other alternatives. These changes were made based on more detailed and accurate information available at the time of the subsequent analysis. Employment generation rates changed for the agri-center, office park, fire training, POST academy, and the transit center. These changes are highlighted in changes to Table I-2, Appendix I (Volume IV, Section 6.0) of this document. All other assumptions and the methodology used in the analysis of Alternative 6R remained identical to those used in the analyses of the other reuse alternatives in Volume II, Section II.2 of the EIS.

6.2.2.2 Disposal Impacts

Regional economic activity effects of the disposal process cannot be precisely determined, but would likely be substantial. Remediation is expected to cost hundreds of millions of dollars. Although the majority of the remediation contracting would be fulfilled by firms located outside the county, crews would be required to spend extended periods near the installation and would incur substantial expenditures for

lodging, meals, recreation, clothing, and other services. This economic activity would be considered beneficial because it would lessen adverse closure effects. No mitigation would be required.

6.2.2.3 Reuse Impacts

- ***Impact: Net Increase of Approximately 27,000 Jobs***

Implementation of Alternative 6R would result in the development of employment-generating land uses that would directly increase the existing number of jobs in Monterey County by more than 26,000. Over 5,000 of those jobs would be located within the City of Seaside and just over 10,000 within the City of Marina. Indirect and induced employment generated by onsite development would generate an estimated 27,000 additional jobs within the county. The effects of closure results in a net increase of approximately 27,000 jobs. This represents a 16% increase in employment over existing conditions, or an average annual employment increase of 0.3%. Based on the FSI threshold for employment, this annual growth rate would not be considered to represent major growth. Employment growth is generally considered a beneficial effect.

- ***Mitigation: None Required***

- ***Impact: Net Increase of over \$1.7 Billion in County Output***

Implementation of Alternative 6R would result in a direct incremental increase of \$1.2 billion and indirect increase of approximately \$0.9 billion over existing Monterey County output. The City of Seaside would experience over \$177 million of that increase and the City of Marina would experience over \$470 million of the incremental increase in output. Applying the installation closure effects to this increase results in a countywide net output increase of over \$1.7 billion. This would represent a 14% increase over the existing county output of approximately \$12.2 billion. This annual increase, though beneficial, would not exceed the FSI threshold for industrial output.

- ***Mitigation: None Required***

- ***Impact: Net Increase of \$152 Million in County Personal Income***

Implementation of Alternative 6R would result in an incremental increase of over \$695 million in county personal income. The City of Seaside would benefit from approximately \$43 million of this increase and the City of Marina by just over \$183 million of the incremental increase in personal income. Closure effects would reduce this to a countywide net increase of \$152 million. This would represent a 3% increase, an average annual increase of less than 0.1%, over the existing county income of approximately \$4.8 billion. This annual increase would not exceed the FSI threshold for personal income changes.

- ***Mitigation: None Required***

6.2.3 Social Services

6.2.3.1 Introduction

This section discusses the countywide effects on community services and military retiree benefits of closure, disposal, and reuse of Fort Ord.

6.2.3.2 Disposal Impacts

Disposal activities, including hazardous waste cleanup and temporary use or interim use of installation facilities by other federal agencies, would result in increased local employment in certain sectors and slightly reduced demand for community services and job development programs than would occur under closure conditions. Homeless services and retiree benefits are not expected to be affected by the disposal process.

6.2.3.3 Reuse Impacts

- *Impact: Decreased Demand for Community Services*

Alternative 6R would result in decreased unemployment and increased economic activity throughout the region. Increased economic development would result in decreased growth in the demand for community services such as welfare payments and crisis intervention programs.

- *Mitigation: None Required*

- *Impact: Decreased Demand for Job Development Programs*

Alternative 6R would result in decreased unemployment and increased economic activity throughout the region. Employment growth related to onsite development would benefit programs designed to assist unemployed and under-trained persons seeking employment opportunities within Monterey County.

- *Mitigation: None Required*

- *Impact: Reduction in the Availability of Healthcare Services for Military Retirees*

The regional medical center that would be developed under Alternative 6R is assumed to provide medical services similar to those provided by Silas B. Hays Army Community Hospital in 1991, but it would not be a CHAMPUS-contract hospital. Retirees and their family members could use this facility and apply for partial reimbursement of costs through CHAMPUS Standard or Medicare. Beneficiaries enrolled in the CHAMPUS/PRIME program would not be able to use this facility.

The regional medical center would increase the supply of medical services available to most retirees and family members; however, population growth generated by development under Alternative 6R would increase the regional demand for medical services, as described in Section 4.6.3, "Medical Services". Because the competition for regional medical services would increase under Alternative 6R, impacts on the availability of healthcare services for military retirees and their family members would be similar to those described under Section II.2.4.2, "Closure Effects", in Volume II. Retirees that reach the age where they are eligible for Medicare would not have access to CHAMPUS and many have pre-existing conditions that would prohibit them from obtaining supplemental Medicare coverage.

- *Mitigation: None Available without Changing Legislation*

Current legislation would not allow the U.S. Department of Defense (DOD) to compensate for the loss of inpatient medical services.

- **Impact: Increase in Costs for Medical Care to Retirees and their Family Members**

Because the regional medical center developed under this alternative would not be a CHAMPUS-contract facility, medical cost impacts on military retirees and their family members would be the same as those described under Section II.2.4.2, "Closure Effects", in Volume II.

- **Mitigation: Encourage the Number of Civilian Health and Medical Program of the Uniformed Services PRIME Providers**

To limit the increase in healthcare costs to retirees and their family members, Foundation Health will be encouraged to increase the number of hospitals and physicians under contract to provide services to CHAMPUS/PRIME patients. Beneficiaries also will be encouraged to enroll in the CHAMPUS/PRIME program by providing additional information to retirees on the cost benefits associated with CHAMPUS/PRIME. The impact of increased cost to CHAMPUS-eligible retirees and their family members for medical care would be partially mitigated by enrolling in the CHAMPUS/PRIME program; however, the impact on beneficiaries over the age of 64 would not be reduced. (U.S. Department of Defense)

This is considered feasible mitigation for this impact. There would be no adverse impacts associated with this mitigation measure.

- **Mitigation: None Available without Changing Legislation**

Current legislation would not allow DOD to compensate for the loss of inpatient medical services.

6.2.4 Schools

6.2.4.1 Introduction

The quantified impacts described in this section were derived by determining the range of dwelling units and other student generating uses proposed in each of the various reuse alternatives and multiplying those numbers by the following student generation rates: 0.2 student per dwelling unit for high schools and middle schools and 0.4 student per dwelling unit for elementary schools. Additional information was obtained from the economic impact analysis prepared by RKG Associates (RKG Associates 1992) and conversations with local school officials.

This analysis assumes that the proposed action and Alternative 6R would have a substantial effect if it resulted in the need for the expansion or substantial alteration of the existing school system.

6.2.4.2 Disposal Impacts

- **Impact: Insufficient Monterey Peninsula Unified School District Staff to Maintain Facilities on the Installation**

There would likely be a reduction of MPUSD staff because of the loss of students. This could result in insufficient staff to either teach at or maintain each of the MPUSD facilities on the installation.

- **Mitigation: Consolidate Monterey Peninsula Unified School District Schools**

The MPUSD schools could be consolidated to maximize the remaining staff and adequately serve the remaining students. This could allow remaining support staff and teachers to focus on fully utilized facilities with sufficient numbers of students to maintain the standard ratio of staff to students. (Monterey Peninsula Unified School District)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

6.2.4.3 Reuse Impacts

- ***Impact: Demand for Additional School Capacity for Up to Approximately 4,300 Students***

Alternative 6R does not propose any new residential development. However, Alternative 6R does propose institutional and office development on the installation. This development would create new jobs that would require new families to relocate to the Monterey area. Generation of students from additional employment opportunities combined with the number of students generated by installation uses, generates a total of approximately 13,100 new students in the MPUSD (Table 6.2-1).

- ***Mitigation: Plan and Construct New School Facilities***

Additional school facilities within walking distance and consistent with local plans and policies could be planned and constructed to provide adequate capacity for the additional students generated by this alternative. (Local agencies and private entities responsible for development and Monterey Peninsula Unified School District)

This is considered feasible mitigation for this impact. Impacts associated with this measure may include growth-inducing impacts and various construction-related impacts.

- ***Mitigation: Require Concurrent Development of School Facilities and Residential Development***

Concurrent development of school facilities and residential development in the Monterey area could be required to enable MPUSD to accommodate the additional students generated by buildout and employment opportunities. (Local agencies and private entities responsible for development and Monterey Peninsula Unified School District)

This is considered feasible mitigation for this impact. Concurrent development of school facilities with growth in Monterey County would have to address the long-term needs of county school districts. This mitigation measure would not apply solely to this reuse alternative, but to growth in general. There would be no adverse environmental impacts associated with this mitigation measure except for growth-inducing impacts and various construction-related impacts as a result of new facilities being built to accommodate growth in the region.

- ***Mitigation: Coordinate with Adjacent School Districts to Assess Additional Capacity***

A plan could be developed to coordinate with adjacent school districts to assess the feasibility of acquiring additional capacity that may be available in those adjacent districts. (Monterey Peninsula Unified School District)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

**Table 6.2-1 Estimated Additional Student Capacity Needed
per Reuse Alternative**

Reuse Alternative	Maximum Projected Number of Students Generated from Proposed Uses	Maximum Additional Student Capacity Required*
Alternative 1	63,000	54,200
Subalternative A	66,760	57,960
Subalternative B	63,400	54,600
Subalternative C	74,000	65,000
Alternative 2	28,700	19,500
Subalternative A	32,860	24,060
Subalternative B	31,240	22,440
Alternative 3	16,000	7,100
Alternative 4	--	9,700
Alternative 5	--	0
Subalternative A	--	0
Alternative 6R	13,100	4,300

Note: -- = no residential development proposed.

* Monterey Peninsula Unified School District has an approximate capacity of 8,500 after disposal. North County Unified School District has an approximate capacity of 300 after disposal. All five school districts in Salinas are operating at levels above capacity.

6.2.5 Recreation

6.2.5.1 Introduction

This analysis addresses the effects of the proposed action and Alternative 6R on existing recreational opportunities. It is assumed the proposed action and Alternative 6R would have a substantial effect if it resulted in:

- the need for substantial additional parks to conform to acceptable local standards or
- a substantially decreased quality and/or quantity of existing recreational opportunities.

The average local standard of required developed park acreage is presented in Table 6.2-2. The proposed developed and undeveloped recreational area for Alternative 6R is presented in Table 6.2-3.

6.2.5.2 Disposal Impacts

There would not be disposal impacts to recreation.

6.2.5.3 Reuse Impacts

Alternative 6R proposes 17,873 acres of land available for undeveloped recreational opportunities and 812 (including 440 in the Army's proposed POM annex) acres of developed recreation.

- *Impact: Increase of Approximately 3,400 Acres of Land Available for Undeveloped Recreational Opportunities*

Alternative 6R proposes 17,723 acres of land available for undeveloped recreational opportunities, which would be approximately 3,400 acres more than is currently available on the installation.

- *Mitigation: None required*
- *Impact: Increase of Approximately 490 Acres of Developed Recreational Opportunities*

Alternative 6R proposes 962 acres of developed recreational opportunities which would be more than is currently available on the installation and approximately 894 acres more than required to meet park acreage standards.

- *Mitigation: None required*

6.2.6 Cumulative Effects

6.2.6.1 Regional Economy, Population and Housing, and Social Services

Full development of Fort Ord properties under the reuse alternatives is assumed to occur over a 50-year period. Economic growth, including residential, commercial, and industrial development, would presumably occur simultaneously throughout Monterey County over this period. The population and housing growth, and the related growth in employment, personal income, and industrial output, generated by reuse of Fort Ord properties would cumulatively add to growth elsewhere in the region.

Because of the long period anticipated for disposal and reuse of installation properties, the amount of economic growth that could occur within Monterey County over the buildout period is highly speculative. To a great extent, market forces will dictate the amount of economic growth that will occur within Monterey County over the 50-year period. In addition, physical and environmental considerations such as water

Table 6.2-2 Required Developed Park Acreage by Reuse Alternative

Reuse Alternative	Maximum Required Developed Park Acreage*
Alternative 1	709
Subalternative A	751
Subalternative B	713
Subalternative C	828
Alternative 2	323
Subalternative A	370
Subalternative B	351
Alternative 3	177
Alternative 4	108
Alternative 5	2
Subalternative A	no acreage required
Alternative 6R	68

* Based on 3 acres of developed park and recreational area per 1,000 population. This was determined by averaging the required park acreages per 1,000 population in each of the local jurisdictions adjacent to Fort Ord.

Table 6.2-3 Proposed Developed and Undeveloped
Recreational Area by Reuse Alternative

Reuse Alternative	Proposed Developed Recreational Area (acres)	Proposed Undeveloped Recreational Area (acres)
Alternative 1	3,899 ^a	2,885
Subalternative A	3,891	2,885
Subalternative B	3,911 ^b	2,885
Subalternative C	4,022	2,507
Alternative 2	1,931 ^a	7,301
Subalternative A	1,889	7,301
Subalternative B	1,909 ^b	7,301
Alternative 3	1,969 ^a	17,268
Alternative 4	1,267 ^a	14,053
Alternative 5	1,494 ^a	18,667
Subalternative A	1,054	18,682
Alternative 6R	962	17,723

Note: Fort Ord existing conditions:
Developed recreational area: 470 acres
Undeveloped recreational area: 14,500 acres

^a Includes 440 acres of developed recreation in the Army's proposed POM annex.

^b Includes 20 acres of developed recreation in Seaside's recommended POM annex.

availability, air quality, and protection of natural resources will indirectly affect the amount and location of economic growth that will occur.

Reuse of Fort Ord properties could affect cumulative development in two ways. First, development of Fort Ord properties could affect the overall levels of population, housing, and economic growth that could occur within Monterey County over the buildout period. Second, development of Fort Ord properties could shift development patterns within the county.

U.S. Bureau of Economic Analysis (1990) population projections prepared prior to the Fort Ord closure announcement predicted a population increase of 125,000 within Monterey County by 2040. Estimates of the net population change that could be directly generated by installation closure and development of Fort Ord properties range from a decrease of 30,000 under Alternative 5 to an increase of 225,000 under Alternative 1.

The implementation of Alternative 4, 5, or 6R could result in the cumulative decrease of future population levels within Monterey County, with an accompanying decrease in housing demand. Economic growth, reflected in employment, personal income, and output levels, could also be lower than expected under Alternatives 4 and 5. Implementation of Alternative 1 could result in population, housing, and economic growth levels substantially higher than expected if the demand for residential, commercial, and industrial land supports development of Fort Ord properties as well as other properties within the county. Alternatives 2 and 3 would support growth levels well within those projected by the U.S. Bureau of Economic Analysis.

The likely outcome of implementing Alternative 1, and possibly Alternative 2, would be to shift development within the region rather than result in substantially higher levels of cumulative growth. Fort Ord properties will compete with other properties for development dollars within the county. Because of the availability of large, contiguous parcels of land at Fort Ord, development may shift from other areas of the region to Fort Ord. Countywide population, housing, employment, personal income, and output levels may not change substantially; however, economic growth could be concentrated in the Fort Ord area. Implementation of Alternative 3, 4, 5 or 6R would probably not result in major economic shifts within the county.

In summary, implementation of Alternative 1 could result in greater cumulative development within Monterey County over the 50-year buildout period; implementation of Alternative 4 or 5 could result in lower levels of cumulative economic growth. The high levels of development associated with Alternative 1, and possibly Alternative 2, could have an adverse cumulative effect on other communities within the county by drawing population and economic activity away from these areas, resulting in decreased economic activity and the deterioration of older communities within the county.

6.2.6.2 Schools and Recreation

Based on the projected growth rate of the Monterey Peninsula area and the development of Fort Ord, there would be a need for additional school capacity for approximately 130,000 students. The school districts in the Monterey Peninsula Area are currently operating at near capacity levels. Additional facilities would have to be constructed to accommodate 130,000 additional students based on future population projections by the Association of Monterey Bay Area Governments. The Monterey area school districts would have to construct more schools to ensure adequate capacity for the number of students generated by future development.

Based on the projected growth rate of the Monterey Peninsula area and the development of the Fort Ord installation, there would not be a cumulative need for additional recreational opportunities. However, the continued growth of the Monterey Peninsula area may reduce the amount of land available for undeveloped recreational opportunities. This loss of land available for undeveloped recreational opportunities would be an unavoidable impact. No mitigation is available.

6.2.7 Summary Comparison of Reuse Alternatives

6.2.7.1 Regional Economy, Population, Housing, and Social Services

Figures 6.2-1 through 6.2-5 depict the net population, housing, employment, output, and personal income effects of the reuse alternatives at buildout. These effects are also summarized in Tables 6.2-4 and 6.2-5.

The implementation of Alternative 1 and its subalternatives would generate the largest net increases in direct population and housing. Alternative 2 would also result in large increases in population and housing. Alternatives 4, 5, and 6R would result in net decreases in direct population and housing because little or no housing would be developed onsite under these alternatives to offset closure effects.

The economic activity generated by redevelopment of installation properties, as characterized by employment, output, and personal income, would be greatest under Alternatives 1 and 2 and their subalternatives. Alternative 5 and Subalternative A would generate the least amount of employment, output, and personal income. Because of the small number of jobs generated by Alternative 5, economic conditions would remain similar to those experienced after closure of the installation. Growth generated elsewhere in the local or regional area would be needed to help local communities rebound from closure impacts.

No judgment is made here regarding the quality of life associated with growth generated by implementation of the reuse alternatives.

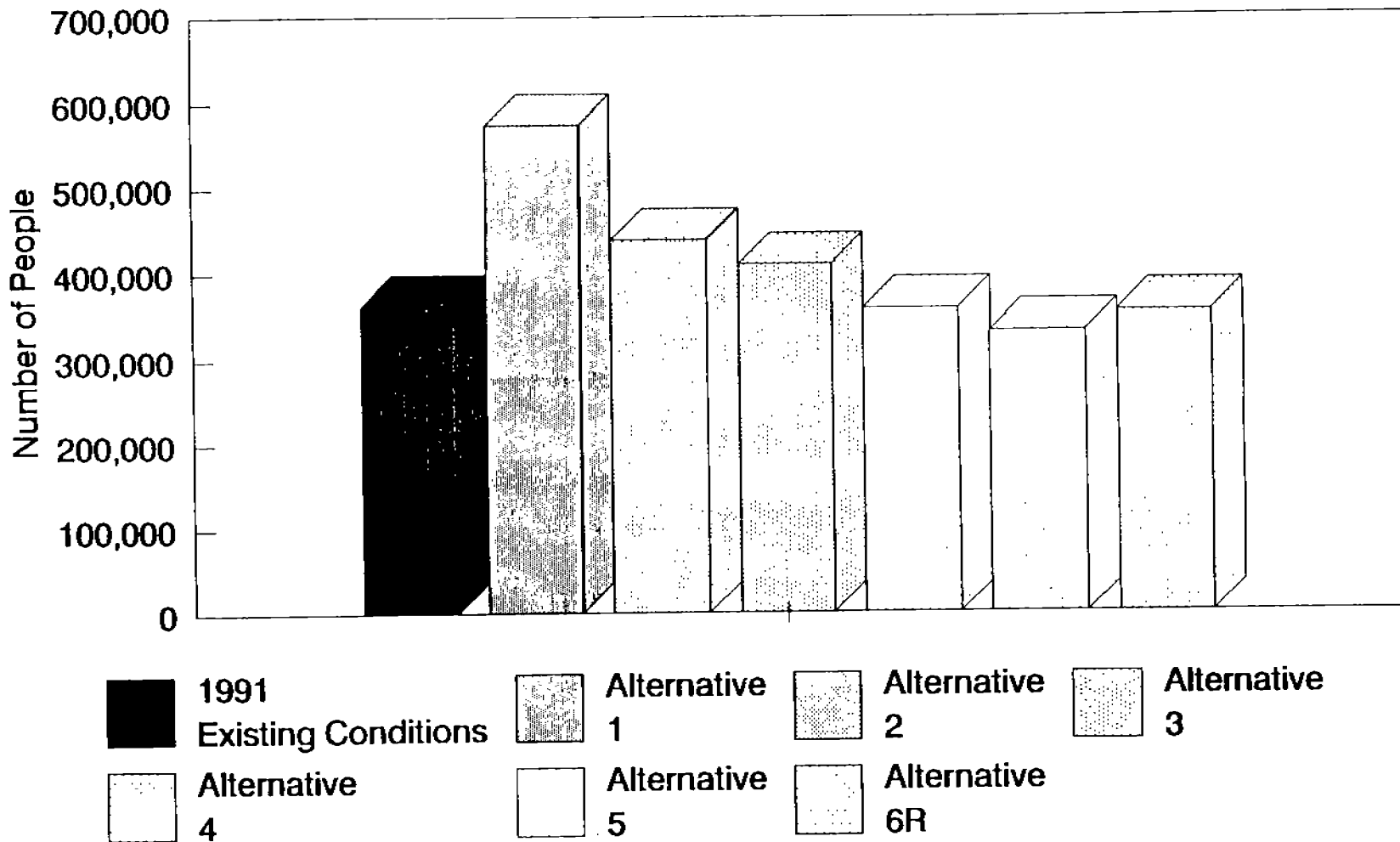
6.2.7.2 Schools and Recreation

Alternative 1 would have the greatest impact on the schools in the Monterey Peninsula area. Alternative 1 and its subalternatives would generate the need for additional school capacity for up to approximately 65,000 students. Alternative 2 would have the next greatest impact of schools, generating the need for additional school capacity for up to approximately 24,000 students. Alternative 4 would generate a need for additional school capacity for approximately 9,700 students, and Alternative 3 would generate the need for additional school capacity for up to approximately 7,000 students. Alternative 6R would require the least amount of school capacity of the developed alternatives, requiring school capacity for 4,300 additional students. Alternative 5 would not generate a need for additional school capacity.

Alternative 1 would result in the greatest loss of land for undeveloped recreational opportunities; however, this alternative provide the greatest amount of additional developed recreational facilities, exceeding what would be required by local park acreage standards. Alternative 2 would result in the next greatest loss of land available for undeveloped recreational opportunities; however, this alternative also would provide additional developed recreational facilities, exceeding what would be required by local park acreage standards, but approximately one-third the amount proposed by Alternative 1. Alternative 4 would result in the next greatest loss of land available for undeveloped recreational opportunities but only slightly less than what is currently available on the installation. Alternative 4 proposes to provide additional developed recreational facilities in excess of what would be required by local park acreage standards but approximately one-third the amount proposed by Alternative 1. Alternative 3 would result in an increase of both developed and undeveloped recreational opportunities. Alternative 6R proposes the least amount of developed recreational opportunities, but the proposal is approximately 490 acres more than existing conditions. Alternative 5 would result in the greatest increase of both developed and undeveloped recreational opportunities and the least amount of developed recreational opportunities.

Figure 6.2-1

Comparison of Population under Existing Conditions to Population under Reuse Alternative 1 through Alternative 6R



6-19

Figure 6.2-2
 Comparison of Housing under Existing Conditions to Housing
 under Reuse Alternative 1 through Alternative 6R

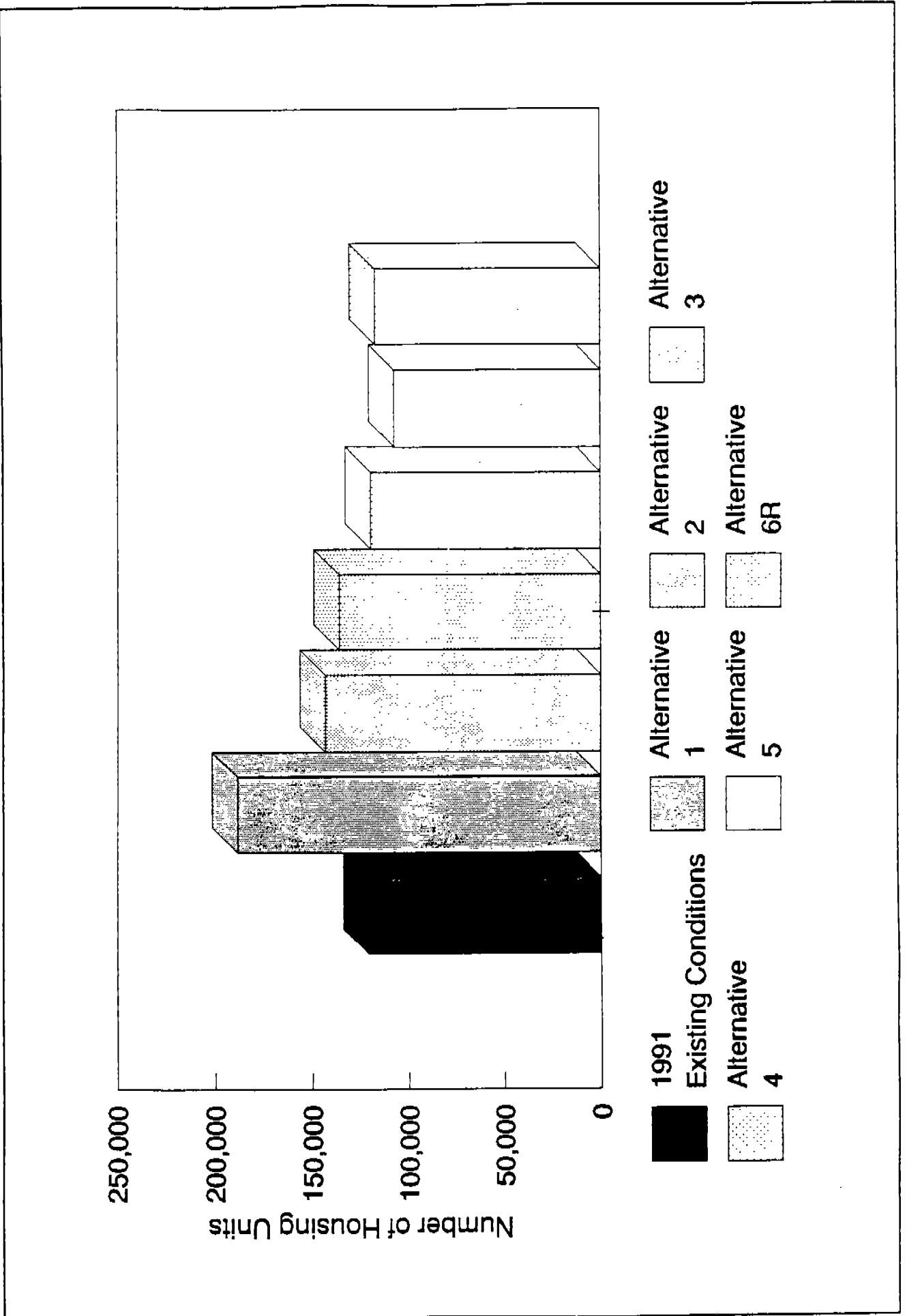


Figure 6.2-3

Comparison of Output under Existing Conditions to Output under Reuse Alternative 1 through Alternative 6R

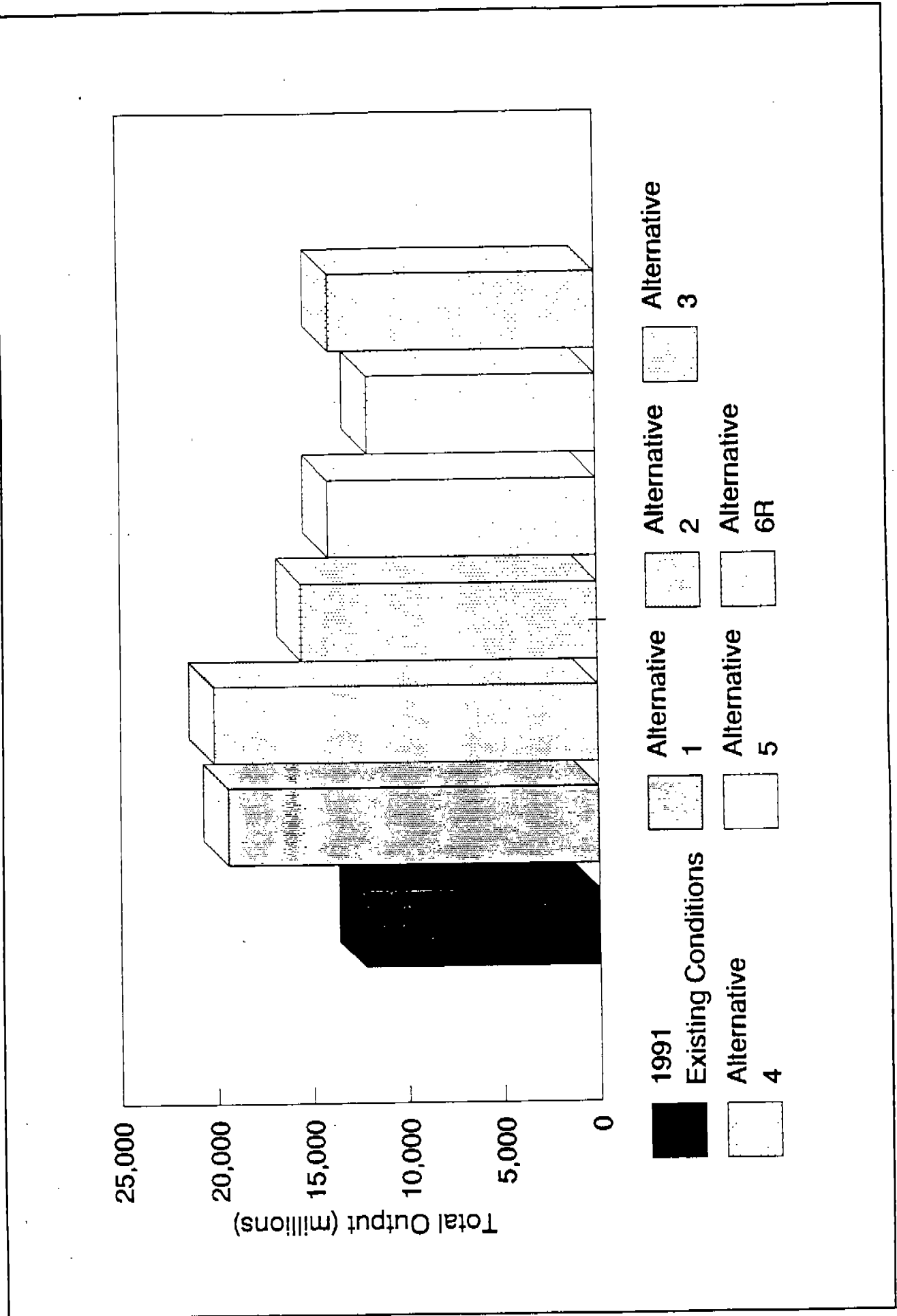


Figure 6.2-4

Comparison of Income under Existing Conditions to Income under Reuse Alternative 1 through Alternative 6R

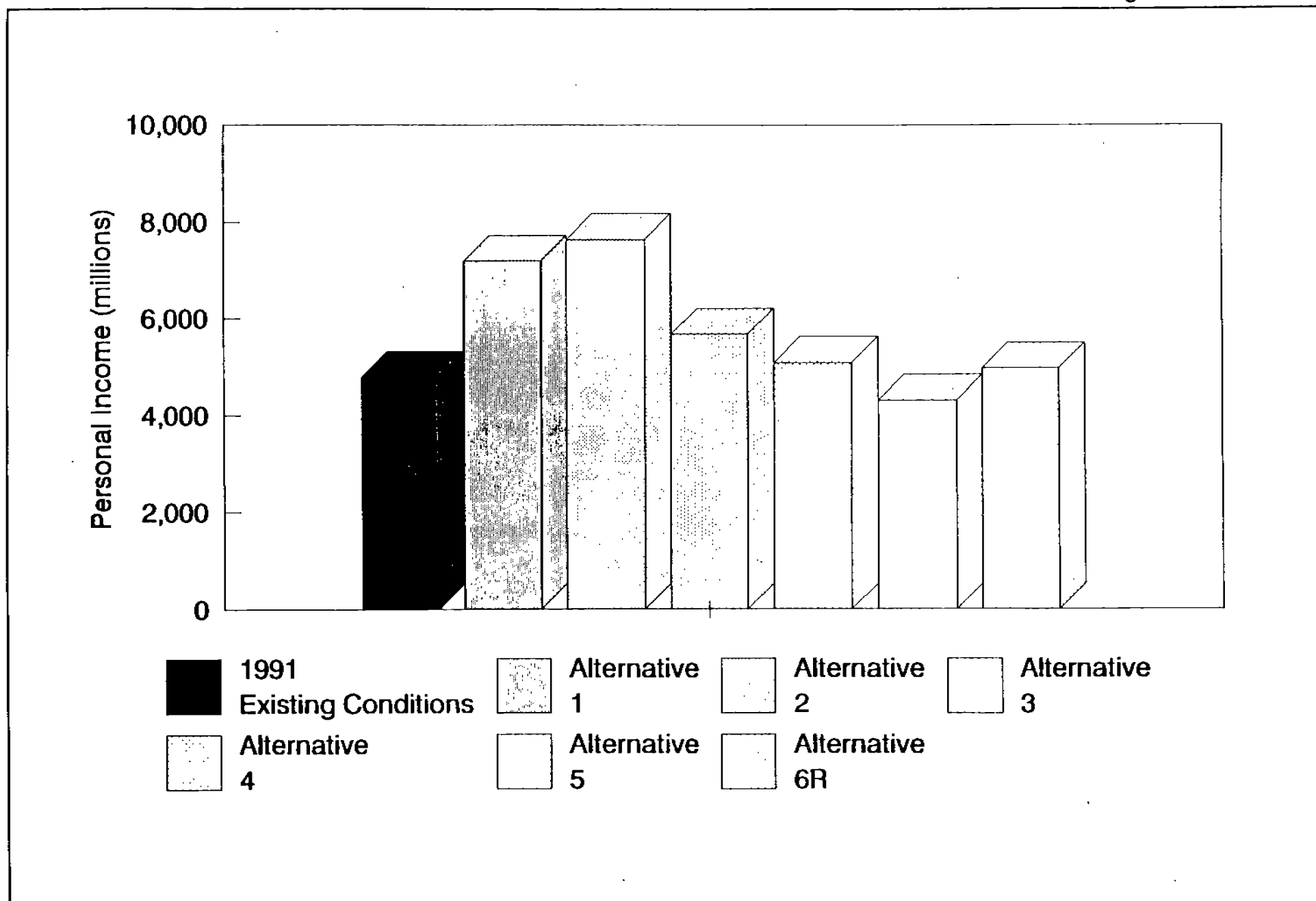


Figure 6.2-5

Comparison of Employment under Existing Conditions to Employment under Reuse Alternative 1 through Alternative 6R

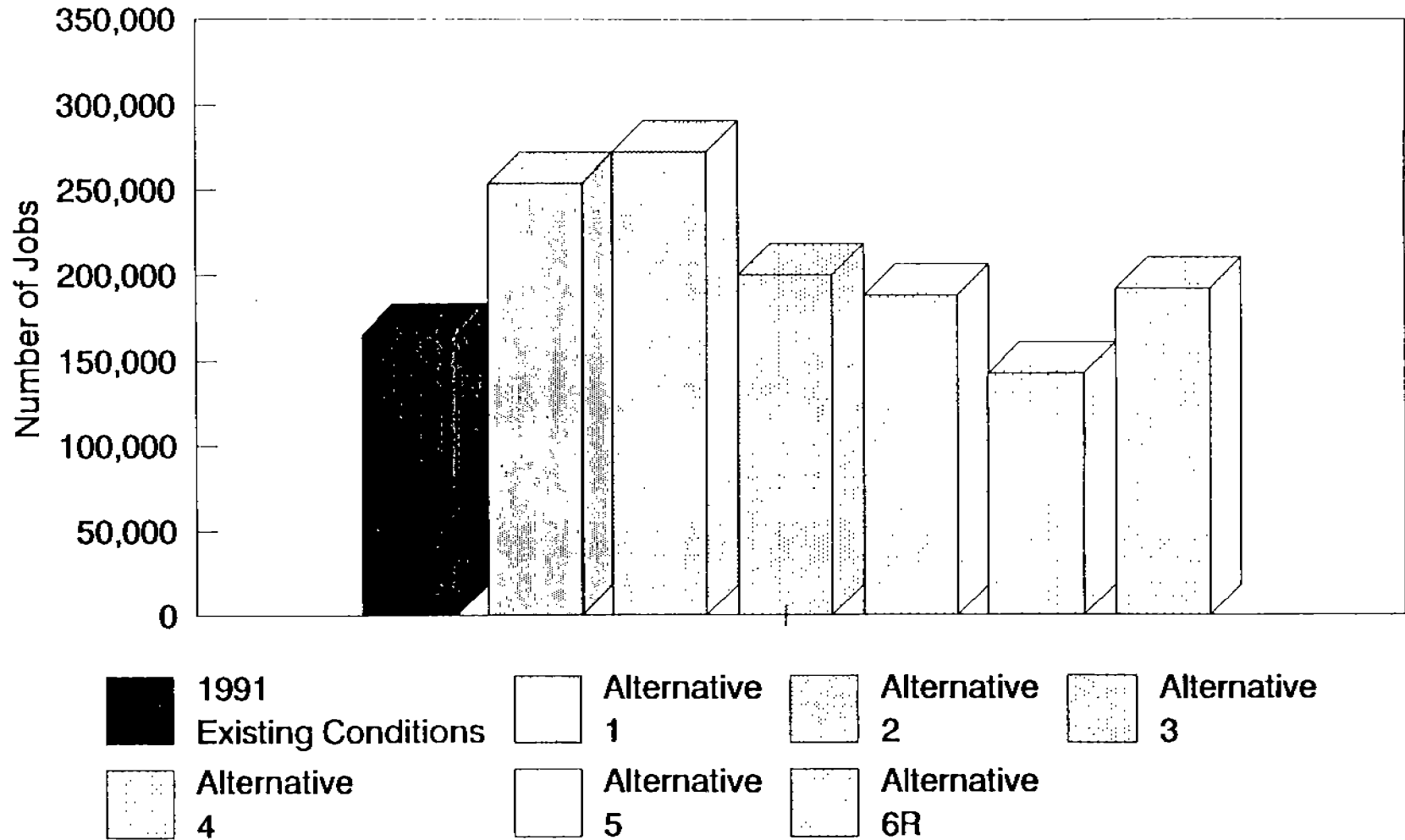


Table 6.2-4 Projected Countywide Population and Housing Estimates by Reuse Alternative

Reuse Alternative	1991 Conditions	Direct Closure Effects	Direct Reuse Effect	Buildout Conditions	Percentage Increase from 1991
Population					
Alternative 1	361,560	(29,970)	242,205	573,795	58.70
Subalternative A	361,560	(29,970)	256,881	588,471	62.76
Subalternative B	361,560	(29,970)	242,745	574,335	58.85
Subalternative C	361,560	(29,970)	282,627	614,217	69.88
Alternative 2	361,560	(29,970)	108,002	439,592	21.58
Subalternative A	361,560	(29,970)	123,602	455,192	25.90
Subalternative B	361,560	(29,970)	117,523	449,113	24.22
Alternative 3	361,560	(29,970)	78,168	409,758	13.33
Alternative 4	361,560	(29,970)	26,200	357,790	(1.04)
Alternative 5	361,560	(29,970)	0	331,590	(8.29)
Subalternative A	361,560	(29,970)	0	331,590	(8.29)
Alternative 6R	361,560	(29,970)	22,770	354,360	(2.00)
Housing					
Alternative 1	121,224	(13,868)	81,510	188,866	55.80
Subalternative A	121,224	(15,458)	86,477	192,243	58.58
Subalternative B	121,224	(13,868)	81,565	188,921	55.84
Subalternative C	121,224	(15,458)	95,059	200,825	65.66
Alternative 2	121,224	(13,868)	36,051	143,407	18.30
Subalternative A	121,224	(15,458)	41,251	147,017	21.28
Subalternative B	121,224	(13,868)	39,221	146,577	20.91
Alternative 3	121,224	(13,868)	28,556	135,912	12.12
Alternative 4	121,224	(13,868)	12,400	119,756	(1.21)
Alternative 5	121,224	(13,868)	0	107,356	(11.44)
Subalternative A	121,224	(13,868)	0	107,356	(11.44)
Alternative 6R	121,224	(13,868)	10,208	117,564	(3.00)

Note: Secondary effects of population and housing effects were not estimated. Refer to explanation in text.

Sources: Economic Impact and Forecast System and Impact Analysis for Planning model runs 1991; Population and Housing Conditions: California Department of Finance 1992.

Table 6.2-5 Projected Countywide Employment, Output, and Personal Income Estimates by Reuse Alternative

Reuse Alternative	1991 Conditions*	Total Closure Effects	Direct Reuse Effect	Secondary Reuse Effect	Buildout Conditions	Percentage Increase from 1991
Employment						
Alternative 1	164,900	(26,985)	69,710	46,290	253,915	53.98
Subalternative A	164,900	(26,985)	69,241	45,739	252,895	53.36
Subalternative B	164,900	(26,985)	113,032	64,435	315,382	91.26
Subalternative C	164,900	(26,985)	123,326	70,681	331,922	101.29
Alternative 2	164,900	(26,985)	79,541	54,916	272,372	65.17
Subalternative A	164,900	(26,985)	81,032	55,329	274,276	66.33
Subalternative B	164,900	(26,985)	66,236	47,361	251,512	52.52
Alternative 3	164,900	(26,985)	39,319	22,774	200,008	21.29
Alternative 4	164,900	(26,985)	31,931	17,839	187,685	13.82
Alternative 5	164,900	(26,985)	2,392	1,668	141,975	(13.90)
Subalternative A	164,900	(26,985)	121	61	138,097	(19.41)
Alternative 6R	164,900	(26,985)	26,149	27,485	191,549	16.16
Output (in millions of 1991 dollars)						
Alternative 1	\$12,250	(\$402)	\$4,631	\$2,937	\$19,416	58.85
Subalternative A	12,250	(402)	4,662	2,966	19,476	58.99
Subalternative B	12,250	(402)	7,731	3,965	23,544	92.20
Subalternative C	12,250	(402)	8,530	4,465	24,843	102.80
Alternative 2	12,250	(402)	5,081	3,202	20,131	64.33
Subalternative A	12,250	(402)	5,241	3,291	20,380	66.37
Subalternative B	12,250	(402)	4,449	2,880	19,177	56.55
Alternative 3	12,250	(402)	2,199	1,464	15,511	26.62
Alternative 4	12,250	(402)	1,292	913	14,053	14.72
Alternative 5	12,250	(402)	73	44	11,965	(2.33)
Subalternative A	12,250	(402)	4	3	11,855	(3.33)
Alternative 6R	12,250	(402)	1,204	903	13,955	13.92

Table 6.2-5 Continued

Reuse Alternative	1991 Conditions	Total Closure Effects	Direct Reuse Effect	Buildout Conditions	Percentage Increase from 1991
Personal income (in millions of 1991 dollars)					
Alternative 1	4,809	(543)	\$2,930	\$7,196	49.64
Subalternative A	4,809	(543)	2,969	7,235	50.45
Subalternative B	4,809	(543)	4,713	8,979	86.71
Subalternative C	4,809	(543)	5,225	9,491	97.36
Alternative 2	4,809	(543)	3,380	7,646	58.99
Subalternative A	4,809	(543)	3,477	7,743	61.01
Subalternative B	4,809	(543)	3,005	7,271	51.20
Alternative 3	4,809	(543)	1,407	5,673	17.97
Alternative 4	4,809	(543)	818	5,084	5.72
Alternative 5	4,809	(543)	38	4,304	(10.50)
Subalternative A	4,809	(543)	3	4,269	(11.23)
Alternative 6R	4,809	(543)	695	4,961	3.16

Note: Output and personal income converted to 1991 dollars using the consumer price index. Personal income is defined as employee compensation plus proprietary income.

* Includes an estimated 21,608 military personnel employed by the military.

Sources: Economic Impact Forecast System and Impact Analysis for Planning model runs; California Employment Development Department 1992; IMPLAN Data Base 1985; U.S. Bureau of Economic Analysis 1989.

6.3 SOILS, GEOLOGY, TOPOGRAPHY, AND SEISMICITY

6.3.1 Introduction

This analysis is based on the Soils Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992d); the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992e); the Soil Survey of Monterey County, reports and publications of the U.S. Geological Survey and the California State Division of Mines and Geology, and other government and private sector documents. Other sources of information include conversations with Army personnel, limited on-site reconnaissance, and standard practices in the fields of geology and soil science.

This analysis assumes the proposed action and Alternative 6R would have a substantial effect if it resulted in:

- degradation of a soil type that is an ecosystem component of a distinct natural habitat of limited extent and that supports rare and endangered plant and animal species;
- vegetation removal or soil surface disturbance that would increase wind erodibility;
- accelerated rates of water-induced soil erosion;
- loss of facilities due to coastal erosion;
- sedimentation of water bodies or land deposition of transported sediment;
- exposure of structures or property to geologic hazards, including seismic ground shaking and landslides;
- overall decline in soil fertility resulting from exclusion of wildfire from fire-dependent ecosystems; or
- use of unsuitable soil or substrate types for buildings, roads, and all other engineering works.

6.3.2 Disposal Impacts

There would be no soil, geologic, topographic, or seismic effects resulting from disposal.

6.3.3 Reuse Impacts

Soil/Geologic Ecosystem Relationships

- *Impact: Loss of Soil Component of the Natural Ecosystem*

Substantial areas of proposed new development would result in the disturbance or loss of the soil substrate as a component of the natural ecosystem supporting natural habitats and rare plant communities (refer to Section 6.11, "Vegetation, Wildlife, and Wetland Resources", for more information), through grading, excavation, contouring, paving, landscaping, etc. Areas affected include 337 acres of the office park, 19.5 acres of the corporation yard, 29 acres of the community park, 97 acres of the fairgrounds, 223 acres of the agri-center, 20+ acres of the recreation area expansion, 300 acres of the university, and 500 acres of the university research area and university science office. Additional areas include the 1,000-foot-wide

transportation corridor and the two 500-foot airport runway extensions and may include portions of the fire training area, POST Academy, transit center, multi-use area, and service area. Portions of the natural resource management area and the no proposed use areas may be subject to future similar impacts presently unspecified.

- ***Mitigation: Avoid Disturbance and Preserve Soil***

Disturbance could be avoided by limiting development to existing urban areas and degraded open space and preserving the soil component of the remaining natural ecosystem to maintain a suitable substrate for natural habitats and rare plant communities. Mitigation by creation of suitable natural habitat on dissimilar soil types elsewhere is generally infeasible due to the uniqueness of soil types and environmental factors found on Fort Ord. Restoration of existing degraded habitat on suitable yet disturbed soil types could be attempted but the feasibility has not been demonstrated. (Various government natural resource agencies, such as the U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, California Department of Parks and Recreation, California Department of Fish and Game, or private organizations such as The Nature Conservancy)

- ***Impact: Long-term Loss of Soil Fertility***

The suppression of low-temperature natural wildfires resulting in a build-up of fuel and eventual high-temperature wildfire could severely deplete the soil surface horizon reserve of organic matter. In sandy soils such as Oceano, Baywood, and Arnold series with very low clay content, organic matter represents the primary reserve of soil fertility and its loss could severely reduce the soil's ability to support rare plant communities. This reduced ability could result from the suspension of the controlled burns of the current fire management program (U.S. Army Corps of Engineers, Sacramento District 1992a). This impact would primarily pertain to the natural resource management area, but would also pertain to presently undeveloped no proposed use and other areas, and remaining natural areas within areas of future development.

- ***Mitigation: Preserve the Fire Management Program***

The existing controlled-burn fire management program could be continued and expanded to reduce fuel-loading and the potential for a high-temperature, soil-depleting wildfire. (U.S. Bureau of Land Management, California Department of Forestry and Fire Protection, or a local fire department or district)

Erosion

- ***Impact: Loss of Coastal Facilities***

The potential reuse of Stilwell Hall as a visitor's center in the multi-use area could be affected by the loss of the facility because of the rapid rate of coastal erosion. The service area may eventually be similarly affected.

- ***Mitigation: Evaluate Reuse in Master Plan***

The State Department of Parks and Recreation will prepare a master plan for the coastal area that will evaluate the feasibility of maintenance of Stilwell Hall for reuse, relocation of Stilwell Hall, or construction of a new visitor's center and other facilities inland.

- ***Impact: Accelerated Wind Erosion***

Soil surface disturbance and removal of vegetation from relatively undisturbed areas would result in an increased hazard of wind erosion of the predominately sandy and poorly aggregated soils of Fort Ord,

specifically the Baywood, Oceano, and Arnold series. Areas most likely to be affected include the extension of the airport runway, the university, university research areas, university science office, agri-center, transportation corridor, transit center, office park, fairgrounds, and corporation yard. Additional areas may also be affected depending on the extent of future development. Wind erosion and blowing sand may impact aviation use of the airport and damage existing vegetation and existing structures in all areas.

- ***Mitigation: Restore Soil Cover through Revegetation***

Potential wind erosion areas could be revegetated. Revegetation is the most effective means of reducing wind erosion impacts. Revegetation may be hindered by the instability of the wind-eroding soil surface, very low water-holding capacity of the sandy soils, and damage to young plants from blowing sand. Iceplant has been used successfully for revegetation at Fort Ord and has the advantage of requiring little water; however, it provides poor habitat for special-status species. Once the soil surface has stabilized, additional wind erosion protection is provided by planting trees that can grow in the sandy soils and serve as windbreaks, such as the native Monterey pine and Monterey cypress. Kikuyu grass has also been used to control wind erosion, but the aggressive growth habit of this introduced species can cause damage to structures. Native vegetation is preferred for restoration and should be used wherever feasible. (Local agencies and private entities responsible for development)

- ***Impact: Accelerated Water Erosion***

Proposed development on moderate to highly erodible lands (Figure 4.3-3 in Section 4.3) and on steep slopes ranging from 15% to nearly vertical in a few places (Figure 4.3-14 in Section 4.3) would necessitate the removal of vegetation, disruption and excavation of the soil surface, and concentration and redirection of runoff. This would result in greatly accelerated water-induced soil erosion that would cause environmental damage and ultimately be a hazard to the stability of the proposed developments. This impact especially pertains to the transportation corridor. Existing road construction in the same area has resulted in extremely severe ongoing erosion (Section 4.3.2.3 and Figures 4.3-4 and 4.3-6). Other areas such as the natural resource management area, agri-center, fire training area, POST academy, recreation area expansion, office park, corporation yard, community park, and fairgrounds may be impacted to a lesser extent.

- ***Mitigation: Implement Erosion-Control Structures***

New construction in highly water erosion susceptible areas, specifically the transportation corridor, would require minimal and carefully designed surface disturbance, paving of road and other bare surfaces, construction of paved drainage ditches, conveyance of runoff to nonsloped areas, and timely revegetation of disturbed areas. Existing severe gully erosion that threatens reuse must be mitigated with headcut repair techniques including runoff diversion, shaping, rock riprap, and revegetation. Gully downcutting must be mitigated with checkdams, drop inlets, and revegetation. Some areas of erosion are so severe that restoration will be costly and of uncertain success; therefore the mitigation may be infeasible and does not completely mitigate the impact. The alternative is the continued expansion of badlands. (California Department of Transportation, U.S. Bureau of Land Management, other government agencies, new property owners, and their contractors, with assistance from the U.S. Department of Agriculture (USDA) Soil Conservation Service)

- ***Impact: Increased Landslide Susceptibility***

Proposed development in areas of recent and active landslides, particularly the transportation corridor, are susceptible to damage and loss from existing and potential landslides, both rainfall and seismically induced. Other proposed developments identified above under the accelerated water erosion

impact may also be subject to landslides. The potential reuse of Stilwell Hall as a visitor's center may also be impacted by a seismically induced landslide potential along the coastal dune cliff face.

- ***Mitigation: Implement Landslide Stabilization Measures***

Landslide stabilization measures that could be implemented include head excavation, buttressing, subsurface drainage on active landslides, and redirection of surface runoff, subsurface drainage, removal of unstable earth materials, and slope reduction on areas of potential landslides. This mitigation would be costly, unreliable, and potentially infeasible; it does not completely mitigate the impact. Development should be avoided on steep slopes highly susceptible to landslides. (California Department of Transportation, U.S. Bureau of Land Management, other government agencies, new property owners, and their contractors, with assistance from the USDA Soil Conservation Service)

- ***Impact: Increased Sedimentation and Flood Hazard***

Increased water erosion and landslide susceptibility as a result of proposed developments would result in increased creek channel sedimentation downslope and downstream of the developments. The primary impact would be from the transportation corridor; other potential source areas of impact would be the natural resource management area, agri-center, fire training area, POST academy, recreation area expansion, office park, corporation yard, community park, and fairgrounds. Affected creeks would include those in Impossible Canyon, Barloy Canyon, Pilarcitos Canyon, other smaller drainages in the southeast quadrant of Fort Ord, and the small drainage near the southwestern boundary of Fort Ord. Most affected would be Toro Creek, where current sedimentation is increasing the potential flood hazard to existing developments.

- ***Mitigation: Implement Sediment-Control Structures***

Constructing sediment-control structures, such as sediment traps and basins, straw bale barriers, and silt fences could be employed to reduce sediment loss from construction sites. Sources of existing sedimentation could be controlled with check dams and revegetation. Water erosion and landslide mitigation measures described above would also mitigate increased sedimentation. (California Department of Transportation, U.S. Bureau of Land Management, other government agencies, new property owners, and their contractors, with assistance from the USDA Soil Conservation Service)

Engineering Uses

- ***Impact: Severe Engineering Limitations Because of Use of Low Strength and Shrink-Swell Soils***

The transportation corridor crosses mapped areas of Santa Ynez and Diablo soil series, soils with high shrink-swell clay contents in the subsoil or throughout the profile that have severe limitations to engineering use due to low strength and shrink-swell properties (Figures 4.3-15 and 4.3-16 in Section 4.3).

- ***Mitigation: Implement Appropriate Engineering Techniques***

Engineering design techniques appropriate for low strength and shrink-swell soil limitations could be employed on Santa Ynez and Diablo soils include barriers to water infiltration and evaporation, removal of constraining soil materials, and deep foundation support could be implemented. While such techniques are feasible, a severe limitation rating implies a major increase in construction effort, design, cost, and maintenance. The high potential for erosion, landslides, and sedimentation as a direct consequence of road construction on the mapped areas of Santa Ynez and Diablo soils together with low strength and shrink-swell limitations, would make such a development costly and hazardous. Site specific soil and geologic investigation must be conducted before any development is undertaken. (California Department of Transportation)

- **Impact: Severe Engineering Limitations Because of Use of Sandy, Unaggregated Soils**

Areas of proposed new development on Baywood, Oceano, and Arnold soil series, sandy soils with weak or no aggregation, have severe limitations to engineering use due to excavation caving and slope and embankment piping potential (Figure 4.3-17 in Section 4.3).

- **Mitigation: Implement Appropriate Engineering Techniques**

On the Oceano, Baywood, and Arnold soils, mitigation for excavation and piping potential could include excavation-supporting structures, and embankment avoidance or drainage redirection. Such mitigation is feasible. (Other federal, state, and local agencies and private entities responsible for development)

Seismicity

- **Impact: Susceptibility of Existing and New Structures to Damage from Ground Shaking**

All new construction on Fort Ord and all reused existing structures would be subject to a moderately high to very high ground shaking potential.

- **Mitigation: Construct New or Modify Existing Structures to Meet Building Codes**

To limit susceptibility of structural damage, new structures could be built and existing structures could be modified to meet current building codes for seismic safety. Existing buildings may require structural modification depending on reuse. A specific review of each building could be conducted to determine the status of compliance with current building codes. This review could also require structural analysis of buildings by qualified engineers to determine the extent of necessary modifications. New building construction would be required to comply with seismic codes. However, this does not fully mitigate the impact of structural damage from ground shaking. (Other federal, state, and local agencies and private entities responsible for development)

6.3.4 Cumulative Effects

There would be two cumulative effects on soils from disposal and reuse of Fort Ord. The first is accelerated water erosion and downstream sedimentation from soils of the Aromas and Paso Robles formations on Fort Ord combined with existing severe erosion and the present extensive loss of the soil natural resource. This cumulative effect would have the most impact on Toro Creek with other smaller creeks also impacted. The second cumulative impact is the loss of rare soil types that support natural habitats of limited extent and rare and endangered plant and animal species. Areas of occurrence of these soil types outside of Fort Ord are already substantially impacted; additional loss or alteration of the natural soil resource on Fort Ord further reduces the total available to support natural habitats.

The relative ranking of Alternatives 1 through 6R for cumulative effects runs sequentially as Alternatives 1, 2, 4, 6R, 3, and 5, with Alternative 1 having the most and Alternative 5 having the least effects.

6.3.5 Summary Comparison of Reuse Alternatives

The relative ranking of Alternatives 1 through 6R for total impacts runs sequentially as Alternatives 1, 2, 4, 6R, 3, and 5 with Alternative 1 having the most effects and Alternative 5 having the least effects.

6.4 PUBLIC SERVICES AND UTILITIES

6.4.1 Wastewater

6.4.1.1 Introduction

Wastewater impacts were assessed based chiefly on information in the Fort Ord Task Force report on water, sewer, and solid waste (Fort Ord Task Force, Sewer and Solid Waste Committee 1992) and the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992e). Other information was gathered from the Monterey Regional Water Pollution Control Agency (MRWPCA).

The following assumptions have been made for this analysis:

- Wastewater generation has historically been approximately 51% of groundwater pumped for potable use. For the purposes of this analysis, each proposed land use was assigned an expected wastewater generation rate based on the percentage of potable water use. Table J-1 in Appendix J (Volume IV, Section 6.0) describes the methodology used to calculate the wastewater that would be generated by the proposed land uses under each reuse alternative.
- Wastewater collection system maintenance by the Army would be performed only on facilities needed to serve Army uses.
- The regional wastewater treatment plant has a capacity of 29.6 million gallons per day (mgd), is permitted to treat 27 mgd, and receives an average of 20 mgd. Fort Ord has purchased 3.3 mgd of treatment capacity.
- The existing 3.3 mgd of MRWPCA regional wastewater treatment plant capacity that was purchased by Fort Ord would be retained through interim use. The purchased capacity may be transferred or sold subject to the review and approval of the contractor (Monterey Regional Water Pollution Control Agency pers. comm.) during disposal (Table 6.4-1).
- The MRWPCA, Marina County Water District, Seaside County Sanitary District, county service area, a future wastewater service agency, or developers could be responsible for treating the wastewater generated by reuse.
- Table 6.4-1 provides information on the estimated total wastewater flow including flows generated by the reuse alternatives. The table also provides information on the necessary additional allocation beyond the current 3.3 mgd and the total additional capacity needed to meet the estimated total wastewater flow into the MRWPCA treatment plant in Marina at buildout of the reuse alternatives.
- Allocation of wastewater treatment capacity can be approved only if the project is consistent with the 1991 Air Quality Management Plan for the Monterey Bay Region. Refer to Section II.8, "Air Quality", in Volume II for more information. (Monterey Regional Water Pollution Control Agency pers. comm.)

This analysis assumes the proposed action and Alternative 6R would have a substantial effect if it resulted in:

- a need for substantial expansion of wastewater treatment plant and collection capacity or alteration of the existing system;
- a substantial disruption to existing wastewater service; or
- a violation of national, state, or local wastewater standards.

Table 6.4-1 Estimated Total Wastewater Flow and Necessary Capacity

Reuse Alternative	Expected Wastewater Generation	Additional Allocation Needed ^a	Total Wastewater Flow ^b	Additional Capacity Needed ^c
1	19.5	16.2	37.1	10.1
2	13.1	9.8	30.7	3.7
3	8.9	5.6	26.5	(0.5)
4	7.7	4.4	25.3	(1.7)
5	1.7	(1.6)	19.3	(7.7)
6R	5.0	1.7	22.6	(4.4)

Notes: The regional wastewater treatment facility has a total capacity of 27 mgd. The facility is currently treating 20 mgd, leaving 7 mgd of available capacity. Fort Ord has been allocated 3.3 mgd of which the installation used only 2.4 mgd, leaving 0.9 mgd of wastewater treatment allocation available for Fort Ord uses. The 3.3 mgd that has been allocated to Fort Ord may be transferred upon sale to the new landowner(s) or sold, subject to review and approval of the contractor.

All numbers are in million gallons per day.

- ^a This represents the additional wastewater treatment allocation necessary to provide wastewater treatment to the reuse alternatives above the 3.3 mgd already allocated to Fort Ord.
- ^b This represents the total wastewater flow of the reuse alternative plus the 17.6 mgd of wastewater flow from all other uses.
- ^c This represents the additional wastewater treatment capacity necessary to provide wastewater treatment to the reuse alternatives above the 27-mgd capacity of the facility.

6.4.1.2 Disposal Impacts

- ***Impact: Inadequate Access to Maintain Wastewater Collection Facilities***

Issuing leases or outgrants to interim land uses could restrict access to wastewater pump stations, collection lines, and other facilities necessary to provide wastewater collection service to the POM annex, reserve center, and other interim land uses. Access is necessary to maintain these facilities.

Loss of access could have a substantial effect because without maintenance, wastewater facilities could degrade, resulting in violations of federal, state, or local standards related to wastewater disposal.

- ***Mitigation: Provide for Public Utilities Easements***

Public utilities easements will be written into leases and outgrants to ensure that access to wastewater collection facilities would be maintained to provide service to the POM annex and reserve center. (Army)

This is considered feasible mitigation for this impact. There are no adverse environmental impacts associated with this mitigation measure.

- ***Impact: Need for Expansion of the Wastewater Collection System***

Interim uses could generate a substantial quantity of wastewater, exceeding the capacity of nearby sewer mains and pump stations and creating a need for additional capacity in the wastewater collection system. Expansions and upgrades of the system could be expensive.

- ***Mitigation: Prepare and Implement a Wastewater Master Plan***

A wastewater master plan could be prepared before allowing interim uses. The plan could identify necessary upgrades for reusable facilities, facilities that need to be replaced, and new facilities that would be necessary to serve the interim land uses. The plan could also indicate how the facilities would be funded. Funding mechanisms could include connection and user fees, community facilities districts, or other mechanisms. (Monterey County Local Agency Formation Commission or other local agency or a new agency created for this purpose)

This is considered feasible mitigation for this impact. There are no adverse environmental impacts associated with this mitigation measure.

- ***Impact: Potential Degradation of Wastewater Service to Areas outside of the Presidio of Monterey Annex and Reserve Center***

Wastewater facilities serving the POM annex and reserve center would be maintained by Army personnel or a contracted entity. However, a reduction in wastewater collection system maintenance and decreased flows in the system outside the POM annex and reserve center after disposal could allow these wastewater collection facilities to degrade enough to render service inadequate. Degradation of the system could occur from the mechanisms discussed above. Some of these problems may exist presently because of the limited capabilities of the existing maintenance personnel.

Degradation of the wastewater collection system after disposal could result in violations of federal, state, or local wastewater standards.

- **Mitigation: Maintain Facilities to Collect Wastewater from Areas Outside of the Presidio of Monterey Annex and Reserve Center**

The system of pipes, pump stations, and other facilities that are necessary to collect wastewater from the POM annex and reserve center and pump it to the MRWPCA's regional treatment plant, will be maintained and upgraded (as necessary). A service inventory of the elements of the system outside these areas could be conducted to identify what types of maintenance or upgrades are necessary. Following the inventory, a maintenance schedule could be developed to ensure that the system does not substantially degrade before reuse. (Army, the Marina County Water District, the Seaside County Sanitation District, or a new wastewater entity)

This is considered feasible mitigation for this impact. There are no adverse environmental impacts associated with this mitigation measure.

6.4.1.3 Reuse Impacts

- **Impact: Generation of Up to 5.0 Million Gallons per Day of Wastewater (a 108% Increase from the Existing 2.4 Million Gallons per Day of Wastewater Generation)**

Alternative 6R proposes reuses that could generate up to 4.8 mgd of wastewater. Fort Ord has purchased 3.3 mgd of wastewater treatment capacity at the MRWPCA regional treatment plant, so an additional purchase of approximately 1.5 mgd of treatment capacity would be needed to accommodate the land uses proposed in this alternative. The existing plant has the capability to provide for an increased average daily flow of 7 mgd, assuming no other users increase their allocation or average flows. The additional 1.5 mgd of flow represents a substantial increase in the demand for wastewater service. Refer to Table 6.4-1 (Volume IV, Section 6.0).

- **Mitigation: Expand the Regional Treatment Plant**

The MRWPCA could expand the regional treatment plant to accommodate the wastewater generated by the new uses. The feasibility of expansion is constrained by the necessity of receiving a permit to expand from the Monterey Bay Unified Air Pollution Control District and limited treatment plant site area. The permit can be issued only if the population that could be supported by the expansion of the treatment plant could be consistent with Association of Monterey Bay Area Governments (AMBAG) projections. Therefore, this mitigation may be infeasible without an adjustment in AMBAG's projections for the Fort Ord area. A conditional use permit from Monterey County could also be required to allow the plant to use this increased capacity. Full treatment plant buildout is limited to 37 mgd on the current site. A new treatment plant would have to be constructed. (Monterey Regional Water Pollution Control Agency)

This mitigation is considered feasible. The existing treatment plant can only physically expand by approximately 10 mgd. This expansion would be sufficient to treat the additional wastewater generated by this alternative as well as accommodate additional future demand in the area. The expansion of the treatment plant would contribute to various growth-inducing impacts for the Monterey region. OR

- **Mitigation: Replace Installation Treatment Plants**

The future use and reuse of the Ord Village, East Garrison, Main Garrison, and Fritzsche Army Airfield treatment plants is not feasible as a result of these facilities' current condition. Only the East Garrison plant is operational, but only at a very low capacity. Ord Village is now only a pump station and Fritzsche has been dismantled. Permits from the Central Coastal Regional Water Quality Control Board and Monterey Bay Unified Air Pollution Control District would likely be necessary to enable MRWPCA to replace

the plants. (Monterey Regional Water Pollution Control Agency, Central Valley Regional Water Quality Control Board, and Monterey Bay Unified Air Pollution Control District)

This mitigation measure is potentially unfeasible because of the extreme growth-inducing impacts that would be associated with new wastewater treatment plants. The MRWPCB would most likely not approve any new treatment facilities until population projections for the Monterey region warranted additional facilities. OR

▪ ***Mitigation: Build New Treatment Plants***

New treatment plants could be constructed to provide wastewater treatment service to the new uses. These plants would require permits from the Central Valley Regional Water Quality Control Board, Monterey Bay Unified Air Pollution Control District, and possibly the local jurisdiction in which they would be located. (Monterey Regional Water Pollution Control Agency, the Marina County Water District, the Seaside County Sanitation District, or a new wastewater entity)

This mitigation measure is potentially unfeasible because of the extreme growth-inducing impacts that would be associated with new wastewater treatment plants. The MRWPCB would most likely not approve any new treatment facilities until population projections for the Monterey region warranted additional facilities. AND

▪ ***Mitigation: Implement Wastewater-Reducing Measures***

Wastewater-reducing measures could lessen the amount of wastewater treatment capacity that would be necessary to serve the new uses. These measures could include the following (Monterey Bay Unified Air Pollution Control District, a new wastewater entity, or the existing county and city public works departments):

- Require new uses to employ dual water systems, which enable potable water to be used for drinking and other essentials, but also allow nonseptic water (gray water) to be reused for irrigation or other nonpotable uses. This eliminates the need to treat gray water at a central wastewater treatment plant.
- Require new uses to employ low-flow showerheads, toilets, and faucets.
- Require hot water pipes to be insulated to reduce the amount of water wasted (and the wastewater generated) from waiting for the hot water to travel from the heater to the user.

This is considered feasible mitigation for this impact. There are no adverse environmental impacts associated with this mitigation measure.

▪ ***Impact: Need to Upgrade and Expand the Wastewater Collection System***

The wastewater collection system remaining outside of the POM annex and reserve center will need major expansion and renovation to serve the uses proposed under Alternative 6R. The existing collection system may not meet state and local standards for design and materials. The volume of wastewater to be transported may also require expansion of the regional collection system that passes through Fort Ord to the MRWPCA regional treatment plant.

- **Mitigation: Prepare and Implement a Wastewater Master Plan**

The mitigation is described for the "Need for Expansion of the Wastewater Collection System" impact under "Disposal Impacts" above.

- **Mitigation: Implement Wastewater-Reducing Measures**

Wastewater-reducing measures could lessen the amount of wastewater treatment capacity that would be necessary to serve the new uses. These measures could include the following (Monterey Bay Unified Air Pollution Control District, a new wastewater entity, or the existing county and city public works departments):

- Require new uses to employ dual water systems, which enable potable water to be used for drinking and other essentials, but also allow nonseptic water (gray water) to be reused for irrigation or other nonpotable uses. This eliminates the need to treat gray water at a central wastewater treatment plant.
- Require new uses to employ low-flow showerheads, toilets, and faucets.
- Require hot water pipes to be insulated to reduce the amount of water wasted (and the wastewater generated) from waiting for the hot water to travel from the heater to the user.

- **Impact: Inadequate Access to Maintain Wastewater Collection Facilities**

Proposed reuse of portions of the installation could restrict access to wastewater pump stations, collection lines, and other facilities outside of the POM annex. These facilities are necessary to provide wastewater collection service to the POM annex, reserve center, and other land uses. Access is necessary to maintain these facilities.

Loss of access could have a substantial effect because without maintenance, wastewater facilities could degrade, resulting in violations of federal, state, or local standards related to wastewater disposal.

- **Mitigation: Provide for Public Utilities Easements**

Public utilities easements will be written into leases and use agreements to ensure that access to wastewater collection facilities would be maintained to provide service to the POM annex. (Army)

This is considered feasible mitigation for this impact. There are no adverse environmental impacts associated with this mitigation measure.

6.4.1.4 Cumulative Effects

Wastewater treatment capacity at the MRWPCA facility has been purchased by all jurisdictions in its service area, including 3.3 mgd by Fort Ord. This capacity has been allocated to absorb future growth as projected by AMBAG. The existing treatment plant has a permitted capacity of 27 mgd and average flow of 20 mgd, including 2.4 mgd from Fort Ord. Alternatives 1, 2, 3, 4, and 6R would create a demand for wastewater treatment plant capacity above the 3.3 mgd purchased by Fort Ord. When combined with future increases in other parts of the service area, these alternatives would exceed current plans for providing adequate wastewater service. This demand for capacity beyond current plans would have an adverse cumulative effect if other local entities plan for and allow growth to exceed current AMBAG projections.

A wastewater treatment master plan would be developed and implemented to serve projected growth in MRWPCA's service area. The plan would identify how additional plant capacity would be financed and phased to meet the demands of future development. The plan would identify how measures such as use of gray water systems and low-flow fixtures would be required in new development to reduce wastewater treatment demands. The plan would identify methods that would be used to dispose of wastewater in compliance with state and local guidelines. Reclaiming wastewater for irrigation would be considered in this plan. Approval of new development projects would be conditioned on the availability of wastewater treatment capacity consistent with the master plan.

6.4.1.5 Summary Comparison of Reuse Alternatives

Alternative 1, Subalternative C would have the greatest impact on the wastewater collection and treatment facilities on Fort Ord and in the vicinity. This alternative would require the need for up to 16.6 mgd of additional wastewater treatment capacity, a need for an additional 10.5 mgd of capacity. Alternative 2 would have the next greatest impact on wastewater collection and treatment facilities, generating the need for up to 9.8 mgd of additional wastewater treatment capacity, a need for an additional 5.9 mgd of capacity. Alternative 3 would have less impact than Alternatives 1 and 2 on wastewater collection and treatment facilities, generating the need for up to 5.6 mgd of additional wastewater treatment capacity and no need for capacity beyond that available at the regional treatment plant. Alternative 4 would have less impact than Alternative 3 on wastewater collection and treatment facilities, generating the need for up to 4.4 mgd of additional wastewater treatment capacity. Alternative 6R would require an additional treatment capacity of 1.7 mgd, the least required by the developed reuse alternatives. Alternative 5 would not generate a need for additional wastewater treatment allocation; the alternative would make allocation available for use in other areas.

6.4.2 Solid Waste

6.4.2.1 Introduction

Solid waste impacts were assessed based chiefly on information in the Fort Ord Task Force report on water, sewer, and solid waste (Fort Ord Task Force, Sewer and Solid Waste Committee 1992) and the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992e). Other information was gathered from the Monterey Regional Waste Management District (Monterey Regional Waste Management District pers. comm.) and from the Monterey County Solid Waste Management Plan.

This analysis is based on the following assumptions:

- The Fort Ord area is served by the Monterey Regional Waste Management District (MRWMD), which provides landfill space.
- The solid waste generation rate (based on an approximate permanent base population of 31,270 and an existing base-wide solid waste generation rate of 94 tons per day [tpd]) is approximately 6 pounds per person per day (lb/cap/day). In 1988, the solid waste generation rate in the MRWMD service area was approximately 8.55 lb/cap/day. The target rate is 5.4 lb/cap/day if Monterey County is to meet the reductions in solid waste generation mandated by Assembly Bill 939. Therefore, this analysis assumes a target rate of 5.4 lb/cap/day and a maximum generation rate of 8.55 lb/cap/day. Table J-2 in Appendix J (Volume IV, Section 6.0) describes the methodology used to calculate solid waste that would be generated by the proposed land uses under each reuse alternative.

- To simplify the analysis for solid waste generation, each reuse alternative and subalternative was assumed to be at buildout.
- Landfill life calculations assume that waste-to-landfill rates continue at 1,000 tpd for 100 years to determine the baseline amount of solid waste that would be generated under future no project conditions (Table J-3, Appendix J. [Volume IV, Section 6.0]). This also assumes no growth over this period and no reduction in waste-to-landfill rates from the opening of a materials recovery facility (that would recover recyclable and compostable material from the waste stream) or from other waste reduction activities.

Even though MRWMD plans to reduce solid waste generation through a variety of activities and growth will continue over the life of the landfill, the above assumptions allow impacts of reuse to be compared to a baseline.

This analysis assumes the proposed action and Alternative 6R would have a substantial effect if it resulted in:

- generation of a substantial amount of additional solid waste or
- substantial decrease in landfill life.

6.4.2.2 Disposal Impacts

There would be no disposal impacts on solid waste.

6.4.2.3 Reuse Impacts

- *Impact: Generation of Up to 96 Tons per Day of Solid Waste (2% Increase from the Existing 94 Tons per Day)*

The land uses proposed under this alternative would generate a maximum of 96 tons per day (tpd) of solid waste, 2 tpd more than the existing generation rate. This volume of waste is similar to present conditions; it would reduce the life of the Marina Landfill by approximately 1 year if all waste would continue to be disposed of at that site.

- *Mitigation: None Required*
- *Impact: Generation of Demolition Waste*

Buildings, roads, and other facilities could be demolished during disposal if they would not be compatible with reuses or could not be upgraded to meet state and local standards.

- *Mitigation: Recycle Demolition Waste*

During demolition, waste wood, metal, concrete, asphalt, and any other recyclable materials generated could be recycled. (Local agencies and private entities responsible for development)

This is considered feasible mitigation for this impact. However, it would be necessary to contract out to a solid waste disposal purveyor to accommodate this additional recyclable waste. There would be no adverse environmental impacts associated with this mitigation measure apart from any impacts as a result of the disposal or reuse of this waste.

6.4.2.4 Cumulative Effects

Because the Marina Landfill has a life of 100 years, assuming successful waste reduction and recycling measures, the cumulative effects of reuse would be similar to the direct impacts of reuse. Alternatives generating less than the existing 94 tpd of refuse generated at Fort Ord would not contribute to cumulative impacts. Alternatives generating more than that amount would contribute to cumulative effects. Mitigation would be similar to those identified for each reuse alternative.

6.4.2.5 Summary Comparison of Reuse Alternatives

Alternative 1, Subalternative C would have the greatest impact on the solid waste collection and disposal service in the Fort Ord vicinity. This alternative would generate up to 1,086 tpd of additional solid waste. Alternative 2, Subalternative A would have less impact than Alternative 2 on solid waste collection and disposal service, generating up to 433 tpd of additional solid waste. Alternative 3 would have the next greatest impact on solid waste collection and disposal service, generating up to 158 tpd of additional solid waste. Alternative 4 would have less impact than Alternative 3 on solid waste collection and disposal service, generating up to 38 tpd of additional solid waste. Alternative 6R would generate approximately 2 tons a day of solid waste beyond what Fort Ord currently generates, reducing the landfill life by only one year. Alternative 6R generates the least amount of additional solid waste of all the developed reuse alternatives. Alternative 5 would not generate additional solid waste.

6.4.3 Telephone Service

6.4.3.1 Introduction

For reuse alternatives, the acres of telephone service area needing upgraded utilities were estimated by subtracting the acres of proposed undeveloped land uses (no proposed use and open space) from the total acres at Fort Ord. The POM annex and reserve center already have telephone service. This was compared to existing land uses, which consist of 5,181 acres of developed land and 22,545 acres of undeveloped land.

The following assumptions were made for this analysis:

- impacts on telephone service are based on telephone service area, not on proposed land uses and
- the service area is based on proposed developed areas that may require telephone services.

6.4.3.2 Disposal Impacts

- *Impact: Potentially Inadequate Telephone Facilities to Provide Service to Interim Uses outside the Presidio of Monterey Annex*

Telephone facilities at Fort Ord could be potentially inadequate to serve interim uses such as the university, McKinney Act, and POM annex.

- *Mitigation: Upgrade or Replace Telephone Facilities Needed to Provide Service to Interim Uses*

Telephone facilities could be upgraded or replaced as needed to provide adequate telephone service for interim uses. A detailed engineering study should be prepared to assess the Army's existing telephone system's ability to provide service to interim uses. The system may prove to be adequate for proposed interim uses but may need some upgrades and maintenance to continue this service. (Pacific Bell, lessees)

This mitigation measure is feasible, however, the Army most likely will not upgrade the system, and Pacific Bell has stated that it would not take over the system until it was upgraded at no cost to them. The upgrade and/or replacement of the telephone system may have other adverse environmental impacts such as impacts related to replacing the system including disruptions in existing service and potential disturbance of biological resources.

- ***Mitigation: Replace or Upgrade Army Infrastructure***

The Army system is deficient because it is substandard, the modules used are obsolete (Fort Ord Community Task Force 1992), and some poles need to be replaced (Pacific Gas and Electric Company pers. comm.). This infrastructure, used by state agencies, local agencies, or private entities, could be replaced or upgraded to meet California Public Utilities Commission standards. (Pacific Bell, City of Seaside, City of Marina, and local agencies and private entities responsible for development)

This mitigation measure is feasible, however, the Army most likely will not upgrade the system, and Pacific Bell has stated that it would not take over the system until it was upgraded at no cost to them. The upgrade and/or replacement of the telephone system may have other adverse environmental impacts such as impacts related to replacing the system including disruptions in existing service and potential disturbance of biological resources.

- ***Mitigation: Expand Existing Pacific Bell Service into Areas With Existing Army Service***

Pacific Bell could expand its existing service area to provide upgraded service to those reuse areas that are currently provided Army service. This could be accomplished by gradually phasing out the Army's service in those areas that Pacific Bell expands. This would be the case with the university uses, the McKinney Act uses, the POM annex and various other uses that are currently in the Army's service area. Coordination between the reuses and Pacific Bell's expansion would enable the Army to gradually abandon its system as Pacific Bell expands and prevent any lapse of service.

This mitigation measure is considered feasible. Pacific Bell could expand their service area into the POM annex area. Since telephone is not a finite resource, this expansion is feasible if Pacific Bell is willing to do so. The expansion of Pacific Bell's system may have adverse environmental impacts such as impacts related to replacing the system including disruptions in existing service and potential disturbance of biological resources.

- ***Mitigation: Create a Special Utilities District***

To provide funding for construction, operation, and maintenance of the upgraded system, a special utilities district could be created that could include the proposed Army POM annex. (Pacific Bell and local agencies)

This is not a feasible mitigation measure because it would require cooperation from all entities in the Fort Ord area. The City of Seaside has already stated that they would be against any such district. There may be impacts to franchise existing agreements in the area if a special utilities district was created.

- ***Mitigation: Continue Pacific Bell Service to Existing Service Areas***

The existing arrangement with Pacific Bell could ensure continued telephone maintenance and service to most of the existing residential areas that are proposed for reuse. (Pacific Bell)

This is considered a feasible mitigation measure and would not have any adverse environmental impacts associated with it, since all it would consist of is continuing an existing service.

6.4.3.3 Reuse Impacts

- **Impact: Reduction of Approximately 240 Acres of Telephone Service Area**

Alternative 6R requires that telephone service be provided to approximately 4,950 acres of developed uses. This is a decrease of approximately 240 acres (95% of the existing service area) from existing conditions.

- **Mitigation: None Required**

- **Impact: Lack of Utility Corridors or Restriction of Access to Existing Utility Corridors**

The lack of public utility easements may limit providers' ability to provide additional or upgraded telephone infrastructure.

- **Mitigation: Establish Easement Rights and Maintenance Access for Utilities on Nonfederal Lands**

Public utility easements could provide corridors for telephone lines. This action could also establish specific guidelines for maintaining access to those corridors. (Pacific Bell, City of Seaside, City of Marina, and local agencies and private entities responsible for development)

This is a feasible mitigation measure for this impact and would have no adverse environmental impact associated with it.

- **Impact: Disruption of Service Because of Construction**

Underground utilities could be affected during construction, disrupting service.

- **Mitigation: Disclose Information on Buried Utilities to the Underground Service Alert**

The Army will provide copies of utility maps and as-built drawings to future utility managers and other information on buried utilities to the Underground Service Alert before construction of reuse alternatives. (Army and Pacific Bell)

This is a feasible mitigation measure for this impact and would have no adverse environmental impact associated with it.

- **Impact: Restricted Access to Telephone Infrastructure from Lack of Clear Ownership of Infrastructure**

Ownership of the telephone infrastructure is unclear because the utility poles contain telephone, cable television, and electrical infrastructure. This infrastructure is currently owned by the Army, Pacific Bell, and Pacific Gas and Electric Company (PG&E). Because it is unclear which entity owns which lines, access could be delayed or restricted.

- **Mitigation: Determine Ownership of Infrastructure**

The determination of the ownership of telephone infrastructure upon disposal could make access to the infrastructure less difficult because it would be known which entity owns which lines, thereby improving maintenance time and access. (Pacific Bell)

This is a feasible mitigation measure for this impact and would have no adverse environmental impact associated with it.

6.4.3.4 Cumulative Effects

The projected growth rate of the Monterey Peninsula area and the development of the Fort Ord installation would not result in any additional adverse cumulative effects on telephone resources because there is no limitation to the provision of this element of infrastructure.

6.4.3.5 Summary Comparison of Reuse Alternatives

Alternative 1 would result in the greatest need for additional areas of telephone service. Alternative 2 would result in the next greatest need, followed by Alternatives 3, and 4. Alternatives 5 and 6R would result in a decrease in the existing telephone service area. Alternative 5 would result in the greatest decrease.

6.4.4 Gas and Electric Service

6.4.4.1 Introduction

Estimates for gas and electric consumption for the various alternatives were developed in consultation with Pacific Gas and Electric Company (PG&E) (Pacific Gas and Electric Company pers. comm.) and were based on floor area ratios and energy use factors for different land uses (Table J-4, Appendix J [Volume IV, Section 6.0]). The consumption estimates should be used for planning purposes only and to compare alternatives. Additional energy use analyses will be necessary before reuse alternatives are implemented.

This analysis assumes the proposed action and Alternative 6R would have a substantial effect if it resulted in a substantial increase in energy consumption or energy waste.

6.4.4.2 Disposal Impacts

- *Impact: Potential Service Continuity Problems Resulting from the Army-Operated System*

Service problems are likely to arise if the Army and PG&E operate different systems. To ensure systems are compatible, the following mitigation is recommended:

- *Mitigation: Conduct Periodic Maintenance*

Maintenance and calibration of Army systems to PG&E standards will ensure greater continuity of service. A service and support agreement will allow for the periodic maintenance, repair, and service of Army systems. (Army and PG&E Company)

This is considered feasible mitigation for this impact. Maintaining Army facilities would assist the Army in providing these services to interim users. There would be no adverse environmental impacts associated with this mitigation measure.

6.4.4.3 Reuse Impacts

- *Impact: Demand for Approximately 740 Thousand Cubic Feet per Hour of Gas and Approximately 87 Megawatts of Electric Service (an Increase of Approximately 507% More Gas and Approximately 483% More Electric Service Demand)*

Implementation of Alternative 6R would result in a need for 507% more gas service and 483% more electric service (based on the existing consumption on Fort Ord of 146 thousand cubic feet per hour (MCFH) of gas and 17.6 Megawatts of electricity). PG&E Company is capable of serving all future demand requirements (Pacific Gas and Electric Company pers. comm.).

- **Mitigation: Require an Evaluation of Individual Metering Site Requirements, Operability, and Costs**

Before Army facilities are transferred, individual metering requirements, operability, and costs could be determined. A study could be required prior to reuse. (Pacific Gas and Electric Company, City of Seaside, City of Marina, City of Sand City, and other local agencies and private entities responsible for development)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

- **Mitigation: Impose a Utility Franchise Fee**

A utility franchise fee could be imposed to allow for the construction and development of infrastructure needed for projected development. (City of Seaside, City of Marina, City of Sand City, and local agencies)

This is considered feasible mitigation for this impact. However, the utility franchise fee would have to be assessed by local entities without PG&E's assistance. There would be no adverse environmental impacts associated with this mitigation measure.

- **Mitigation: Implement Best Design Practices to Reduce Potential Energy Consumption**

Best design practices could be implemented to reduce potential energy consumption. Best design practices could include solar water heating, double pane windows, orientation of buildings to maximize heating and cooling, use of landscaping to shade houses, and use of optimum insulation for attics, walls, and pipes. (Pacific Gas and Electric Company, City of Seaside, City of Marina, City of Sand City, and other local agencies and private entities responsible for development)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

- **Mitigation: Upgrade or Replace Infrastructure**

Utility relays at Fort Ord are dirty, improperly set, and need calibration. The existing electrical system has deficient metering and relay devices in Feeder No. 8, lacks tie circuits in Feeders No. 2 and No. 5, and experiences large load swings because of well pumps. The capacity of the PG&E transformer would also exceed capacity in fiscal year 1994 (Fort Ord Community Task Force 1992). Infrastructure used by state or local agencies or private entities should be replaced or upgraded to meet California Public Utilities Commission standards. (Pacific Gas and Electric Company, City of Seaside, City of Marina, City of Sand City, and other local agencies and private entities responsible for development)

This mitigation is not considered feasible mitigation for this impact. The reason it is not feasible is that this mitigation would require the Army to pay for these upgrades, which is possible, but would create a large financial burden to the Army. The upgrading or replacement of Army lines would help create an upgraded distribution system providing better service for the various reusers. Any adverse environmental impacts associated with this mitigation measure would be as a result of the expansion of new upgraded infrastructure and the dismantling of older infrastructure. These impacts may result in disturbed biological resources and potential disruptions in existing service.

- **Mitigation: Create a Special Utilities District to Serve the Presidio of Monterey Annex, Reserve Center, and Private Property**

The creation of a special utilities district could ensure the continuation of gas and electrical service to the POM annex and the reserve center. Individual metering could be required for private property, requiring additional infrastructure. (Pacific Gas and Electric Company and local agencies)

This is not a feasible mitigation measure because it would require cooperation from all entities in the Fort Ord area. The City of Seaside has already stated that they would be against any such district. There may be impacts to existing franchise agreements in the area if a special utilities district was created.

- **Impact: Lack of Utility Corridors or Restriction of Access to Existing Utility Corridors**

The lack of public utility easements may limit the ability to provide additional infrastructure.

- **Mitigation: Establish Easement Rights and Maintenance Access for Utilities on Nonfederal Lands**

Public utility easements could provide corridors for gas and electric utilities. This action would also establish specific guidelines for maintaining access to those corridors. (Pacific Gas and Electric Company, City of Marina, City of Seaside, City of Sand City, and other local agencies and private entities responsible for development)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

- **Impact: Disruption of Service Because of Construction**

Underground utilities could be affected during construction, disrupting service.

- **Mitigation: Disclose Information on Buried Utilities to the Underground Service Alert**

The Army will provide copies of utility maps and as-built drawings to future utility managers and other information on buried utilities to the Underground Service Alert before construction of reuse alternatives. (Army and PG&E Company)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

6.4.4.4 Cumulative Effects

The projected growth rate of the Monterey Peninsula area and the development of the Fort Ord installation would not result in any additional adverse cumulative effects on gas and electric resources because there is no limitation to the provision of this element of infrastructure.

6.4.4.5 Summary Comparison of Reuse Alternatives

Alternative 1 would result in the greatest need for gas and electric services. Alternative 2 would result in the next greatest need followed by Alternatives 3 and 4. Alternative 6R would require the least amount of additional gas and electrical service of all the alternatives except for Alternative 5. Alternative 5 would not require additional gas or electric service.

6.4.5 Cable Television

6.4.5.1 Introduction

The following assumptions have been made for this analysis: impacts on cable television service are based on service area, not on land uses and that the service area is based on developed areas that may require cable television services.

6.4.5.2 Disposal Impacts

- **Impact: Loss of Cable Service to the Presidio of Monterey Annex, Reserve Center, Main Garrison, and Barracks around the Silas B. Hays Army Community Hospital**

Service to the POM annex and reserve center could be lost during disposal as a result of Coastside Cable going out of business. Since Coastside Cable provides exclusive cable television to Fort Ord and the Presidio of Monterey, without substantial reuse after disposal, Coastside Cable would likely cease operations and service to the installation.

- **Mitigation: Maintain Cable Service**

Cable service will be maintained to the portions of the installation that will continue to be used during the disposal, interim, and initial reuse periods. A detailed engineering study should be prepared to assess what areas will continue to need cable television service and if those areas will receive adequate service based on the system's operating condition. A majority of the system's overplant is located on utility poles, many of which do not conform to GO 95 standards. The engineering study should provide information on the extent that these services can be provided in the disposal and interim periods. The Army should maintain this service by negotiating a contract to ensure cable television service to these identified facilities. (Army and Coastside Cable Company)

This is considered feasible mitigation for this impact. However, if Coastside Cable Company decides not to accept a reduced service area and goes out of business, the Army would be required to go out to bid for another cable television purveyor. There would be no adverse environmental impacts associated with this mitigation measure.

6.4.5.3 Reuse Impacts

- **Impact: Reduction of Approximately 1,660 Acres of Cable Television Service Area**

Alternative 6R requires that cable television service be provided to approximately 3,500 acres of developed uses. This is a decrease of approximately 1,660 acres (68% of the existing service area) from existing conditions.

- **Mitigation: None Required**

- **Impact: Deterioration of Cable Infrastructure in Areas Designated as No Proposed Use**

Alternative 6R proposes to reduce the service area for cable television by approximately 1,660 acres. This reduction in service area may result in the existing cable television infrastructure deteriorating from lack of use in the former developed areas where no reuse is now proposed and are vacant.

- **Mitigation: Reduce Cable Television Service to Proposed Reuse Areas Only**

Cable television service could be reduced to only the proposed reuse areas. The remaining infrastructure could be dismantled. (Coastside Cable Company and private entities responsible for development)

This is considered feasible mitigation for this impact. However, if Coastside Cable Company decides not to accept a reduced service area and goes out of business, the Army would be required to go out to bid for another cable television purveyor who would be willing to provide service to a limited area. There would be no adverse environmental impacts associated with this mitigation measure.

- **Impact: Lack of Utility Corridors or Restriction of Access to Existing Utility Corridors**

The lack of public utility easements may limit the ability to upgrade or dismantle infrastructure.

- **Mitigation: Establish Easement Rights and Maintenance Access for Utilities on Nonfederal Lands**

Public utility easements could provide corridors for cable lines. This action would also establish specific guidelines for maintaining access to those corridors. (Coastside Cable Corporation, Monterey Peninsula Television, and private entities responsible for development)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

6.4.5.4 Cumulative Effects

The projected growth rate of the Monterey Peninsula area and the development of the Fort Ord installation would not result in any additional adverse cumulative effects on cable television resources because there is no limitation to the provision of this infrastructure.

6.4.5.5 Summary Comparison of Reuse Alternatives

Alternative 1 would result in the greatest need for cable television services. Alternative 2 would result in the next greatest need followed by Alternatives 3, and 4. Alternatives 6R and 5 would both require a reduction in the cable television service to the installation, with Alternative 5 requiring the largest decrease in the service area.

6.4.6 Storm Drainage System

6.4.6.1 Introduction

The storm drainage system analysis was based on the following:

- the level of detail possible without site-specific designs or plans pertaining to proposed reuse drainage infrastructure and tie-ins to existing systems and
- short-term construction impacts and long-term urbanization impacts.

The storm drainage system analysis assumes the proposed action and proposed reuse alternative could have an adverse effect if it would result in substantially increased runoff peaks over existing conditions. Except for minor ponding which results where runoff is impeded by grates or culverts obstructed with leaves or debris, local and downstream drainage areas currently do not exhibit flooding problems. Extensive development or urbanization, however, could increase the flooding potential in the following areas:

- the Federal Emergency Management Agency 100-year floodplain or
- undersized culverts and storm drains.

6.4.6.2 Disposal Impacts

There would be no disposal impacts on the storm drainage system.

6.4.6.3 Reuse Impacts

- **Impact: Increased Site Runoff**

This alternative would convert approximately 10% of the undeveloped land from open space to urban-type uses which would alter site runoff peaks and durations. Urban development can diminish the infiltration capacity of the land due to increases in impervious surfaces which promote increased site runoff.

Although the existing storm drain system presently functions without major problems, the condition and capacities of much of the existing storm drain system is unknown. Because existing and various proposed development for the different reuse alternatives is within the 100-year floodplained and because of the many potentially undersized culverts and storm drains scattered throughout the Post, any increases in runoff to these systems may cause flooding problems.

- **Mitigation: Construct Onsite Drainage Facilities**

Local, on-site detention facilities which promote infiltration could be constructed to mitigate the increases in peak flow due to development. The facilities could consist of one or a combination of the following: vegetated drainage swales, gravel-lined drainage channels, french drains, and retention or detention basins. It should be noted that these systems, if constructed, should not be located in loading docks, process areas, storage areas, or areas vulnerable to chemical spills or contaminated runoff. Also, the placement of non-visually obtrusive fencing capable of restricting small children should reduce the risk of drowning around basins with standing water.

A storm drainage infrastructure system throughout the installation that safely conveys runoff from individual homes, lots, and streets to the drainage facilities via a system of culverts, gutters, and swales could be established. This local flood protection would be provided for at least the 10-year local flood event. The above measures should be adopted into local community plans to mitigate for increased stormwater flows from reuse development. (Local agencies and private entities responsible for development)

Implementation of this mitigation measure is considered feasible. Detention facilities have been constructed by the Army and are currently in use in the newer housing developments such as Abrams Park. Incorporating stormwater runoff control measures into development plans reduces the initial capital cost of construction. Annual operation and maintenance costs of structural controls generally range from 2% to 5% of capital cost.

- **Mitigation: Replace Undersized Culverts and Stormdrains**

Stormwater flows will increase as a result of development during reuse. The increase in flows will depend on the size of the drainage sub-basins and the amount of development allocated to each sub-basin. The net result of these peak flows increases the potential for culverts to back up and storm drains to overflow, both of which may flood nearby areas. Replacing undersized culverts and storm drains before development occurs would ensure local and downstream flooding will not occur. (Local agencies and private entities responsible for development)

Implementation of this mitigation measure is considered feasible. Cost can vary substantially depending on the length of pipe needing replacement. These costs can be funded by assessing a development fee, which should be based on the property use, location, and size.

- **Impact: Increase in Erosion Potential due to Detention Basin Construction or Culvert and Storm Drain Replacement**

Construction of detention basins or the replacement of culverts and storm drains could result in increased erosion and sedimentation downstream from exposed soils. This impact could fill existing

detention facilities, obstruct storm drain infrastructure, and/or adversely impact fisheries in the Monterey Bay National Marine Sanctuary or the Salinas River.

- ***Mitigation: Implement Construction Best Management Practices***

Best Management Practices (BMPs) that could be implemented for the construction site include the following:

- dike and berm controls,
- ditch and swale controls,
- sediment collection,
- land grading controls,
- vegetation and mulching,
- structure slope stabilization, and
- and litter/solid waste management.

In addition, construction of these facilities should occur during prolonged dry periods to reduce the risk of erosion from exposed soils. (Local agencies and private entities responsible for development)

Implementation of this mitigation measure is considered feasible. Structural and nonstructural best management practices costs can vary substantially depending on size and location. Generally, these costs can be reduced by planning for BMPs in advance. Many local ordinances currently require a some form of this mitigation measure.

- ***Impact: Division of Storm Drain System Management***

The Army has been maintaining and upgrading the storm drain system throughout the installation as needed. This has included periodic clearing of sediment and debris and replacement of storm drains and culverts to prevent local and downstream flooding. During reuse, these activities would be fragmented between multiple jurisdictions (the Army and local communities) over the same length of pipe or ditch, which could result in obscured and sub-standard maintenance responsibility and an increased potential for local and downstream flooding.

- ***Mitigation: Create Joint Powers Agreement to Ensure Proper Oversight and Maintenance***

Storm drains that extend beyond a community's jurisdiction is not unusual. Responsibility for storm drain operations and maintenance is often divided. A Joint Powers Agreement (JPA) could be formulated to ensure proper operation and maintenance of the storm drain system during reuse. (Army, local agencies, and/or special utilities district)

Implementation of this mitigation measure is considered feasible for this impact. The final disposition of the storm drainage system will determine the different jurisdictions involved in the JPA.

6.4.6.4 Cumulative Effects

Alternatives 1, 2, 3, 4, and 6R would all cause additional surface runoff that may contribute to future cumulative watershed flooding problems, particularly to existing areas within the Federal Emergency Management Agency 100-year floodplains. Alternative 5 would not contribute significant amounts of surface runoff to the area since this alternative maintains conditions similar to existing conditions, and, thus, would not have a cumulative effect on the watershed.

6.4.6.5 Summary Comparison of Alternatives

Alternatives 1 and 2 would require the greatest additional storm drain system. Alternatives 3, 4, and 6R would require less of a storm drainage system than Alternatives 1 and 2, but more than is currently available. Alternative 5 would not require a substantial upgrade or improvement of the system.

6.4.7 Water Distribution Infrastructure

6.4.7.1 Introduction

The water distribution infrastructure area that would need upgrading was estimated by subtracting the acres of proposed undeveloped land uses (no proposed use, open space, the POM annex, and reserve center) from the total acres at Fort Ord, and then comparing the result to the existing land uses. This analysis is based on the following:

- Impacts on water distribution infrastructure are based on service area, not on land uses.
- The service area is based on developed areas that may require water distribution infrastructure.
- Some water distribution infrastructure may exist outside of the POM annex that has not been used in sometime but could be utilized upon reuse.

6.4.6.2 Disposal Impacts

There would be no disposal impacts on the water distribution infrastructure.

6.4.7.3. Reuse Impacts

- *Impact: Need for Additional Water Distribution Infrastructure Outside of the Presidio of Monterey Annex for Up to Approximately 2,500 acres (an approximate 50% increase of the Existing Service Area).*

Water distribution infrastructure exists only in the western, developed portion of the installation. Up to approximately 2,500 acres could need upgrading and/or service under this alternative.

- *Mitigation: Upgrade and Replace Existing Water Distribution Infrastructure*

The existing water distribution system is operational, but is in substandard condition due to an unknown number of leaks and low water pressure. The infrastructure would have to be upgraded and replaced as needed to provide proper service. (City of Marina, City of Seaside, Sand City, California American Water Company, Monterey County Water Resources Agency, and Monterey Peninsula Water Management District)

Implementation of this mitigation measure is considered feasible for this impact. Reuse of Fort Ord will require a water supply system in place, and abandoning the water system and starting with a new system is unreasonable and would hinder reuse. The extent of needed upgrades and the costs associated with upgrades is unknown and is the subject of a detailed engineering analysis, but it can be safely assumed that abandoning the current system and starting over would cost substantially more than this mitigation measure. Development of a new water supply system would also result in secondary environmental and growth-inducing impacts (refer to Section 6.5, "Water Resources").

- **Mitigation: Create a Special Utilities District**

A special utilities district could be created through Monterey County to provide funding for construction, operation, and maintenance of the upgraded and/or new system. (Monterey County Local Agency Formation Commission, Monterey County Water Resources Agency, Monterey Peninsula Water Management District)

Implementation of this mitigation measure is considered feasible for this impact because it would keep operation and maintenance of the interconnected system intact and within one utility jurisdiction. However, a special utilities district to provide for water service for an area such as Fort Ord would require a vote of affected property owners.

- **Impact: Deterioration of Water Distribution Infrastructure**

Existing infrastructure could deteriorate in unused portions of the water distribution system in the non proposed use areas. This deterioration may result in violating health and safety standards.

- **Mitigation: Maintain Water Distribution System Needed for Reuse and Abandon Unused Portion**

Water distribution infrastructure could be reduced to only the proposed reuse areas. The remaining water distribution infrastructure could be dismantled. (Local water companies)

Implementation of this mitigation measure is considered feasible, however it is dependant on reuse requirements. Until long-term reuse is decided, it may not be reasonable to abandon portions of the system. There would be no adverse environmental impacts associated with this mitigation measure.

- **Impact: Disruption of Service Because of Construction**

Water distribution infrastructure could be affected during construction, causing disruption of service.

- **Mitigation: Disclose Information on Buried Water Distribution Infrastructure to the Underground Service Alert**

Information on the buried water distribution infrastructure will be provided by the Army before reuse development. (Army)

6.4.7.4 Cumulative Effects

Because water distribution systems are not finite resources, the projected growth rate of the Monterey Peninsula area and the development of the Fort Ord installation would not result in any additional cumulative impacts on water distribution infrastructure. The only concern would be the amount of water supply that exists. If adequate water supply is not available for the projected growth of the Monterey area, then water distribution infrastructure would not be needed. Depending on the status of the water supply, the water distribution infrastructure would be built to distribute any amount of water necessary to service the area.

6.4.7.5 Summary Comparison of Reuse Alternatives

Alternatives 1 and 2 propose the most development, requiring the most water and the greatest extent of new and upgraded water distribution system. Alternatives 3, 4, and 6R would require less water therefore less water infrastructure than Alternatives 1 and 2, but more than what is currently available. Alternative 5 would require only enough water to maintain open space and recreation areas, and the POM annex. The existing system could be adequate to provide water distribution to the uses proposed under this alternative.

6.5 WATER RESOURCES

6.5.1 Hydrology and Water Quality

6.5.1.1 Introduction

A combined analysis of issues related to hydrology and water quality was based on the following:

- existing information on surface water, groundwater, and water quality provided by the Army,
- the level of detail possible without site-specific designs or plans pertaining to proposed reuse drainage infrastructure and tie-ins to existing systems, and
- short-term construction impacts and long-term urbanization impacts.

There would be no disposal impacts to hydrology for any of the reuse alternatives or subalternatives. All impacts would be related to reuse. Effects of disposal on water quality would be beneficial because less urbanized activity would take place on the installation and hence less urban water quality pollutants would be generated. This analysis assumes the proposed action and Alternative 6R would have a substantial effect if it would result in:

- substantial degradation of water quality such that it would not meet water quality criteria or objectives identified in the basin plans of the Central Coast Regional Water Quality Control Board's Water Quality Control Plan;
- any substantial alteration of surface waters on the installation and in Monterey Bay, including temperature, dissolved oxygen, or turbidity, that would cause conflicts with standards as identified in federal or state law; or
- disturbance of existing channel banks and channel beds to the extent that erosion and siltation could occur upstream or downstream.

6.5.1.2 Disposal Impacts

There would be no disposal impacts on hydrology and water quality.

6.5.1.3 Reuse Impacts

- *Impact: Increases in Site Runoff*

This alternative would convert land from open space to urban and other development, which would alter site runoff peaks and durations. Urban development could diminish the infiltration capacity of the land due to the increases in impervious surfaces. Increased local runoff could increase the frequency and magnitude of flooding in local waterways.

Surface runoff within Fort Ord is conveyed by drainage systems consisting of natural channels and constructed storm drain systems. The existing storm drain system designed for the urban areas of Fort Ord was built in the 1940s as a separate system from the sanitary sewer lines. Although the existing storm drain system presently functions without major problems, the condition and capacities of much of the existing storm drain system is not known. Any increases in runoff to these systems may cause flooding problems.

Reuse of parcels throughout the installation would result in increases in impervious surfaces and would require new and retrofitted storm drain systems. Increasing impervious surfaces and adding storm drain and gutter systems alter existing runoff characteristics by providing a more efficient conveyance system of runoff. More efficient runoff conveyance systems decrease the natural storage capability of the watershed and alter the timing and magnitude of flood peaks entering offsite drainage systems downstream.

The Federal Emergency Management Agency (FEMA) flood insurance rate maps for Fort Ord indicate that some areas within the installation are within the Salinas River and Pilarcitos Canyon, El Toro Creek, and Canyon Del Rey 100-year floodplains.

Any increase in runoff peaks entering into the existing storm drainage infrastructure and drainage channels, particularly Pilarcitos Canyon, El Toro Creek, and Canyon Del Rey is a major concern because it may pose an additional flood threat to people and property in areas with existing flood problems.

- ***Mitigation: Construct Onsite Drainage Facilities***

Onsite detention and drainage facilities could be constructed to reduce surface runoff to existing conditions and promote infiltration. The facilities could consist of one, or a combination, of the following: vegetated drainage swales, gravel-lined drainage channels, french drains, and retention or detention basins.

A storm drain infrastructure system could be established that safely conveys runoff from individual homes, lots, and streets to the drainage facilities via a system of culverts, gutters, and swales. This local flood protection could be provided for at least the 10-year local flood event. (Local agencies and private entities responsible for development)

Constructing onsite drainage facilities is considered feasible mitigation for this impact and is typically included in any urban development. A comprehensive drainage system may, however, be costly if existing infrastructure cannot be used or must be upgraded.

Drainage facilities could affect areas otherwise considered not affected by this reuse alternative. For example, a storm pipe or channel system may need to be constructed from a university area through a no proposed use area to safely convey runoff. The no proposed use areas are generally not considered to be affected by reuse.

- ***Impact: Risk of Flood Damage from Development in the 100-Year Floodplain***

A review of the FEMA maps indicates some areas within the installation are within the 100-year floodplain. Some structural development may be proposed within the 100-year floodplain for this alternative. Any reuse development within these floodplains constitutes a risk to people and property from flood damage.

- ***Mitigation: Increase Drainage Capacities or Exclude Specific Development from the 100-Year Floodplains***

The capacity of existing drainages could be increased within the 100-year floodplain to accommodate anticipated 100-year floodflows, thereby removing areas from the floodplain, or particular reuse of these areas that are subject to flood damage could be excluded from development. (Local agencies and private entities responsible for development)

This mitigation is considered feasible for this impact because only a few small areas are within the 100-year floodplain within the installation.

- ***Impact: Water Quality Degradation from Urban Runoff***

This alternative would cause an increase in urban runoff and associated urban runoff pollutants. Runoff from urban areas can carry a variety of accumulated pollutants such as oil, grease, heavy metals (lead, cadmium, copper), sediment, pesticide residues, fertilizers, and coliform bacteria from roadways, parking lots, rooftops, and other surfaces. The highest concentrations of these pollutants are typically found during fall when pollutants accumulated during the dry period are washed away by the first storms of the season. Increases in urban runoff would degrade downstream aquatic habitat and resources in surface waterways (Salinas River, El Toro Creek, Arroyo Del Rey) and in Monterey Bay, a designated marine sanctuary.

Results of water quality monitoring by the California State Water Resources Control Board (SWRCB) through its State Mussel Watch Program indicate that resident mussels from parts of Monterey Bay contain high levels of lead, pesticides, and petroleum hydrocarbon concentrations (National Oceanic and Atmospheric Administration 1990).

- ***Mitigation: Construct Onsite Drainage Facilities and Obtain Necessary Stormwater Discharge Permits***

Constructing onsite drainage facilities is one means of controlling flooding and erosion but can also serve to capture and filter out urban pollutants. Onsite retention or detention facilities (such as grass swales, infiltration trenches, vegetated buffer strips, and silt and grease traps) could be constructed in the storm drain system for the proposed urban drainage infrastructure. These measures would result in the settling and accumulation over time of sediment and pollutants in the basin. Most pollutants associated with urban runoff from residential and light commercial development, such as lead and copper, would tend to accumulate in the deposited sediment. The types and amounts of pollutants present will depend on the amount and frequency of runoff and the management of the developed areas. Other pollutants could be removed by skimming or biodegradation. These increases, if properly designed, would largely prevent urban runoff from degrading water quality in surface waterways and Monterey Bay. (Local agencies and private entities responsible for development)

Constructing onsite drainage facilities for water quality control is considered feasible mitigation for this impact but may require the use of more land than for facilities designed only for runoff conveyance.

Permits have not been required in the past to discharge runoff within the installation. However, Section 6217 of the Federal Coastal Zone Management Act Reauthorization Amendments of 1990 requires local entities that discharge any stormwaters into the ocean to participate in the future in a non-point-pollution control plan developed by the California Coastal Commission and the SWRCB.

The SWRCB also adopted a General Industrial Storm Water Permit in November 1991, which will require that all storm drain outfalls classified as Industrial apply for a permit for discharge. This permit applies to stormwater discharges into open areas, streams, or the ocean. As part of permit issuance, the applicant must demonstrate BMPs to control water quality degradation. These BMPs may include retention or detention facilities, grass swales, buffer strips, and silt and grease traps and are considered feasible mitigation for this impact as described above for the previous mitigation measure.

On September 21, 1992, Monterey Bay was officially designated a national marine sanctuary. Under this designation, resource protection is assigned the highest priority among research and education programs and visitor use. The Marine Protection, Research, and Sanctuaries Act of 1972, as amended, and its implementing regulations (15 CFR 922) requires a management plan to protect the sanctuary's resources. Regulations established for this purpose have adopted BMPs to control non-point-source runoff; they do not,

however, alter or change existing SWRCB non-point-source runoff regulations discussed above. However, the Marine and Estuarine Management Division of the National Oceanic and Atmospheric Administration (NOAA) reserves the right to regulate any substance that enters the sanctuary from outside sources and injures sanctuary resources.

Implementation of BMPs associated with NOAA requirements are feasible mitigation for this impact but may require additional land for BMPs otherwise not required by the SWRCB and the California Coastal Commission.

- ***Impact: Water Quality Degradation from Increased Erosion during Construction***

The proposed development would require extensive construction and grading throughout the watersheds and possible disturbance of existing drainage channels. Construction and grading activities could temporarily cause significant increases in site erosion associated with storm runoff. Sediment-laden runoff entering nearby drainages causes increased channel siltation and reduced flood-carrying capacity downstream. Increased erosion may degrade downstream aquatic habitat in the streams and in Monterey Bay.

- ***Mitigation: Limit Water Erosion by Implementing Erosion-Control Structures***

New construction in highly erosive areas would require minimal surface disturbance; carefully designed paving of road surfaces, construction of paved drainage ditches, and conveyance of runoff to nonsloped areas; and prompt revegetation of disturbed areas. Existing erosion that threatens reuse should be mitigated and headcut repair techniques, including runoff diversion, shaping, rock riprap, and revegetation; gully downcutting should be mitigated with check dams, drop inlets, and revegetation. Implementing these erosion-control measures is considered feasible mitigation for this impact, but potentially costly. Erosion in some areas is so severe that erosion-control structures may not completely mitigate the impact. (Local agencies and private entities responsible for development with assistance from the U.S. Soil Conservation Service)

- ***Impact: Degradation of Water Quality from Hazardous Material Spills during Construction***

Because project construction would require the use of gasoline and diesel-powered heavy equipment, hazardous materials could spill onsite and wash into nearby drainages. Bulldozers, backhoes, water pumps, air compressors, and construction materials would be onsite. Chemicals such as gasoline, diesel fuel, lubricating oil, hydraulic oil, lubricating grease, automatic transmission fluid, paints, solvents, glues, and other substances will be onsite during grading and construction activities. An accidental spill of any of these substances could degrade the water quality of surface water in the drainage systems on and off the planning area. Hazardous spills entering adjacent waterways and groundwater may lead to degradation of downstream aquatic habitat and other beneficial uses.

- ***Mitigation: Prepare and Implement a Hazardous Substance Control Plan for All Construction Activities***

A hazardous substance control plan could be prepared and implemented for construction activities to reduce potentially significant impacts on water quality caused by a chemical spill. This plan could require safe collection and disposal of hazardous substances generated during construction activities and would include an emergency response plan to ensure quick and safe cleanup of accidental spills. (Local agencies and private entities responsible for development)

Implementation of a hazardous substance control plan is considered feasible mitigation for this impact, consisting primarily of training personnel in collection, disposal, and cleanup techniques and procedures.

6.5.1.4 Cumulative Effects

Alternatives 1 through 4, and 6R would cause additional surface runoff that may contribute to future cumulative watershed flooding problems, particularly to existing areas within the FEMA 100-year floodplains. Open space would not contribute significant amounts of surface runoff to the area because this alternative maintains conditions similar to those under existing conditions. Alternative 5 would not result in a cumulative effect on the watershed.

Alternatives 1 through 4, and 6R would all contribute to future water quality degradation within the watershed. These alternatives would result in increases in urban runoff and associated urban pollutants. Alternative 5 would not contribute significant additional amounts of surface runoff to the area and thus not contribute to water quality degradation.

6.5.1.5 Summary Comparison of Reuse Alternatives

Alternatives 1 through 4, and 6R would all have similar hydrologic and water quality impacts within the installation and adjacent areas. Alternative 1 would have more impacts than Alternative 2; Alternative 2 would have more impacts than Alternative 3; and Alternatives 3, and 4 would have fewer impacts than Alternatives 1 and 2 because of the relative differences of proposed reuse urbanization. Alternative 5 would have the least impacts because of the extensive acreage designated for open space and parks and recreation.

6.5.2 Water Supply and Demand

6.5.2.1 Introduction

Water demand for Alternative 6R was estimated using the same methodology used to evaluate Alternatives 1 through 5 for the draft EIS. Water demand factors were developed for new land use categories, such as McKinney Act housing and the university science office park. Water demand factors for several existing categories were revised because the category description under Alternative 6R was different than under the earlier alternatives. Categories with revised water demand factors include the POM Annex, university, and agri-center. Assumptions and calculations used to develop the new water demand factors and an itemization of water demand for Alternative 6R are presented in Appendix K (Volume IV, Section 6.0).

6.5.2.2 Disposal Impacts

There would be no disposal impacts on water supply and demand.

6.5.2.3 Reuse Impacts

- *Impact: Increased Demand for Water (Approximately 12,000 Acre-Feet per Year)*

Total water demand is estimated to equal approximately 12,000 acre-feet per year. There would be an additional increase in water demand outside Fort Ord but within the Salinas-Monterey area for students, employees and their families living off-campus. This additional demand would be approximately 2,700 af/yr, for a total regional water demand of 14,700 af/yr associated with Alternative 6R. This is two to three times greater than existing water use, which already exceeds safe yield of the groundwater system in the vicinity of Fort Ord. If the increase were supplied by local wells, seawater intrusion would be accelerated. Groundwater recharge from irrigation return flow, leaky water and sewer pipes, and infiltration of runoff from impervious surfaces would increase somewhat under this alternative. However, this increase would only partially offset the increase in pumpage.

- ***Mitigation: Increase Water Supply or Decrease Total Water Demand to Achieve a Balance***

New water supplies could be developed or water demand could be decreased for this alternative. Water demand would not be allowed to exceed the available supply at any stage of development.

Water supply could be increased by planning and constructing one or more new water supply projects. Projects that have already received some degree of study and support include the Salinas Valley Water Transfer Project, desalination, offstream storage of Salinas River water on Fort Ord, and a reservoir on the Arroyo Seco. These projects are briefly described below. Other projects that have been considered recently and dismissed at this time as being too unreliable, expensive, or difficult to implement include the San Felipe Project, the coastal aqueduct of the State Water Project, and raising the spillway at Lake Nacimiento (U.S. Army Corps of Engineers 1986, Jones & Stokes Associates 1990). Also, the New Los Padres Reservoir being developed by the Monterey Peninsula Water Management District will supply only enough water to meet buildout demand for Monterey Peninsula Water Management District's existing customers and is not a potential source of new supplies for Fort Ord.

The Salinas Valley Water Transfer Project being developed by the Monterey County Water Resources Agency would include a series of wells along the Salinas River in the vicinity of the Arroyo Seco cone, about 25 miles upstream of Fort Ord. Groundwater recharge capacity is relatively high in this area, so additional pumpage can easily induce additional recharge from the Salinas River. Water from the wells would be conveyed to the Marina-Fort Ord area via a pipeline. The annual amount of water to be delivered to Fort Ord by this project has not been finally determined.

Desalination of brackish water from wells near the Main Garrison could provide fresh water at a cost of about \$800 per acre-foot (U.S. Army Corps of Engineers 1986). If brackish water were pumped at the rate necessary to meet the demand for this alternative, salinity would increase because seawater intrusion would increase. The cost of desalinating seawater at a plant recently constructed in Santa Barbara is about \$1,900 per acre-foot. Although this supply is expensive, it is essentially unlimited.

Two reservoir sites on Fort Ord, one about half way between the East Garrison and the Main Garrison and one in Barloy Canyon, could be used to capture excess flows in the Salinas River or additional releases from San Antonio and Nacimiento Reservoirs. The recommended size of each reservoir is about 2,000 acre-feet. With this storage capacity, excess flows could provide a firm yield of about 1,000 acre-feet per year in 95% of the years at a cost of about \$850 per acre-foot. Reoperation of San Antonio and Nacimiento Reservoirs could supply about 17,000 acre-feet per year in 93% of the years at a cost of about \$500 per acre-foot (U.S. Army Corps of Engineers 1975, 1986). This yield could compete with the Salinas Valley Water Transfer Project yield, however.

A dam on the Arroyo Seco has been studied for many years and is still under active consideration (Jones & Stokes Associates 1990, U.S. Army Corps of Engineers 1986). The Arroyo Seco is a large tributary that enters the Salinas Valley about 35 miles inland from Monterey Bay. A 100,000 acre-foot reservoir near Greenfield could generate a firm yield of about 30,400 acre-feet per year at a cost of about \$900 per acre-foot. Conveyance to the Fort Ord area would be either by pipeline or by redirection from the Salinas River near Blanco Road.

Development of the above new supplies would create secondary environmental impacts that could be significant and would need to be evaluated in separate, project-specific environmental impact reports to comply with the California Environmental Quality Act. For example, desalination would require additional power generation and would create a concentrated brine requiring disposal. The Salinas Valley Water Transfer Project might decrease groundwater levels in summer near the extraction wells along the Salinas River and slightly decrease flow in the river. Construction of local reservoirs on Fort Ord would inun-

date existing natural habitat areas, and energy would be required to pump water from the Salinas River to fill the reservoirs. A dam on the Arroyo Seco would inundate existing riparian habitat and grazing land. Finally, all of the supply options would result in temporary environmental impacts associated with construction activities. These would probably be greatest for the Arroyo Seco dam project and smallest for desalination.

Developing new water supplies is feasible but costly. In addition, developing a new water supply is a long-term solution, not a short-term solution.

Water demand for this reuse alternative could be decreased by decreasing the amount of development or the consumptive use of water associated with individual land uses. Because most of the developed land uses will involve new construction, aggressive water conservation and reuse measures could easily be included in project design. These measures would go beyond those required by existing state and local laws or programs, such as 1.6-gallon toilets (required since 1987 by Monterey Peninsula Water Management District and since January 1, 1992 statewide) and the Water Conservation in Landscaping Act of 1990 (effective January 1, 1993). All of the following conservation measures would allow more development for the same amount of water, although they probably would not be sufficient to bring total demand for this alternative to within the safe yield of existing supplies. For example, an overall decrease in water demand of 50% would be a remarkable conservation achievement, but the remaining demand would still slightly exceed the safe yield of existing local groundwater supplies. A decrease in the total amount of development or an increase in supply would also be necessary. (Monterey County Water Resources Agency, Monterey Peninsula Water Management District, local agencies, and the U.S. Bureau of Reclamation):

- Use of reclaimed water to flush toilets and urinals in several large office buildings in Irvine, which decreased use of potable water by 60% to 70% (Water Conservation News 1991a).
- Ultra-low-flow plumbing fixtures and rainfall cisterns, and use of graywater for landscape irrigation, which decreased the use of municipal water in a single-family home in Tucson, Arizona, by 56%, to 49 gallons per capita per day. Graywater use is gaining wider acceptance among California agencies.
- Drip-irrigated drought-tolerant landscaping in the Monterey area, which has been found to decrease water use for irrigation by 75% relative to turf.
- Landscaping in public areas, including parks, schools, golf courses, and median strips, which has been successfully irrigated with reclaimed water since 1972 in Thousand Oaks, California. A storage tank for reclaimed water was constructed near the golf course, but it has never been connected to a supply of reclaimed water.
- Stormwater runoff could be directed to local ponds and allowed to infiltrate and recharge the groundwater system. Alternatively, rainfall could be collected in on-site cisterns and stored for irrigation purposes during the summer. For example, runoff from the roof of a single-family home (2,000 square feet) in Fort Ord, where average annual rainfall is about 14 inches, could supply the entire annual irrigation demand for a 900-square-foot lawn. However, a large (15,000-gallon) cistern would be required to store this water from the winter rainy season to the summer irrigation season.
- Existing buildings could be retrofitted with water meters and ultra-low-flow plumbing fixtures. These measures have been found to achieve a 12-20% decrease in overall water use in residences and a 20-45% decrease in many types of businesses (Interface 1989, Porter 1991, Water Conservation News 1991b).

- Aggressive water conservation measures at 15 industrial facilities near San Jose resulted in a total water savings of 1,600 acre-feet per year. The firms represented a mix of electronics manufacturing, metal finishing, paper reprocessing, and food processing, which might be typical businesses for the Fort Ord area. Water use rates for processes to which conservation measures were applied were reduced by an average of 52%, and investment payback periods ranged from 0.2 to 3 years. Water use patterns and conservation opportunities can be highly variable among different industries and individual facilities. Many of the largest savings resulted from recycling or reusing water for cooling and rinsing processes (City of San Jose et al. 1990). Similar savings have resulted from commercial and industrial water conservation efforts in other areas.

Decreasing water demand is considered infeasible because it would require reconfiguration of this alternative or major conscience-raising efforts by future users to significantly limit the amount of water that can be used.

- ***Impact: Changes in Groundwater Recharge***

Urbanization of Fort Ord would tend to increase groundwater recharge from leaky pipes and irrigation return flow in landscaped areas. The increase in impervious area would tend to decrease direct rainfall recharge, but much of the rain that falls on impervious areas would still become recharge if it runs off to adjacent pervious areas or is routed to stormwater detention ponds that allow it to percolate into the ground.

Increased recharge from urbanization would not be able to directly reach the 180-foot aquifer in areas underlain by the Salinas Valley aquiclude (refer to Figure 4.5-1 in Volume I). However, the aquiclude is discontinuous along the coast and in the vicinity of the East Garrison, and recharge would eventually flow to the 180-foot aquifer in those areas. Increased recharge near the coast would elevate the existing low water level mound and thereby tend to repel seawater intrusion near the Main Garrison. Increased recharge near the East Garrison would increase the availability of water to existing potable supply wells in that area.

Under this alternative, urbanization would occur in areas overlying both the Salinas Valley and Seaside groundwater basins. The increase in recharge would increase the local safe yield of the groundwater basins. The amount of increase cannot be estimated accurately until details regarding development density, landscaping, stormwater disposal, and water conservation measures are known.

In general, urbanization will increase local groundwater recharge, which would be beneficial. The increase in recharge will be less than the increase in water demand resulting from urbanization, however. Thus, there will still be a net increase in water demand.

Groundwater recharge from urban areas could contain contaminants that would deteriorate existing water quality. Some of the urban development proposed under this alternative would be new construction. Existing regulations that would apply to new construction would prevent a significant risk of contamination from point sources, such as underground storage tanks and handling or transfer areas for hazardous materials. The non-point-source contaminant most likely to significantly impair groundwater quality is nitrate from leaky sewer pipes and fertilization of landscaped areas. This is a secondary impact that should be addressed during separate environmental review of individual development projects as they are proposed.

- ***Mitigation: None Required***

6.5.4 Cumulative Effects

In addition to the water demand created by students and university employees living on campus, Alternative 6R would create a water demand generated by students and employees (and their families) who live off campus but in the Salinas-Monterey area. This water demand will have as much overall impact on the regional water supply situation as if the families lived on Fort Ord. The University of California, Santa Cruz (UCSC) expects to employ "several thousand" people at its research facilities. California State University (CSU) Monterey Bay expects a "buildout" population of 25,000 students, of which only 16,000 were accounted for in the above on-campus water demand calculations. The CSU also expects to employ "at least 3,000" people, of which 500 were assumed to live on campus and were included in the water demand itemized above.

The water demand for the 9,000 students and 5,500 employees living off campus includes the residential water demand plus secondary water demand for commercial, institutional, and recreational services for those people. The combined types of water demand can be estimated using an overall per capita water demand of 120 gallons per person per day, which assumes water-conserving lifestyles. Assuming that students are single and immigrate from outside the Salinas-Monterey area, and that each university job results in two immigrants to the area, the university-related uses on Fort Ord would bring about 20,000 new residents to the communities surrounding Fort Ord. These new residents would increase local water demand by about 2,700 af/yr and would bring the total university-related water demand to about 4,200 af/yr for CSU, Monterey Bay and about 1,800 af/yr for the UCSC university science offices (assuming full development of the 477 acres allotted to science offices).

Overall, increased water demand on Fort Ord would add to the urgency of developing new water supplies for the Monterey Peninsula and coastal Salinas Valley areas. Water demand at buildout in areas served by Monterey Peninsula Water Management District (including Seaside) is expected to be about 4,600 acre-feet per year (25%) greater than water use in 1988. The City of Marina will require new supplies because water levels below sea level in the 900-foot aquifer will eventually cause seawater intrusion into the municipal wells. Most of the remaining land in the pressure area of the Salinas Valley is already either irrigated or urbanized.

Pumpage by groundwater users in the pressure area other than Marina and Fort Ord was about 150,000 acre-feet per year in the mid-1980s. Even a small percentage increase in water use by these users could add substantially to impacts associated with increased pumpage on Fort Ord.

6.5.5 Summary Comparison of Reuse Alternatives

A summary of total water demand for each reuse alternative is presented in Table 5-6 in Section 5.0. Alternatives 1, 2, 3, 4, and 6R would increase existing water demand on Fort Ord by factors of about 4, 3, 2, 3, and 2, respectively. These alternatives would all have the same basic impact of increasing water demand substantially above existing available supplies. Alternative 5 would decrease water demand to approximately one-half of existing use. The POM annex and reserve center would require approximately 2,800 or 3,200 af/yr, depending on whether the golf course is included. The subalternatives for Alternatives 1 and 2 would have water demands only slightly different from their respective alternatives. Development of new water supplies to meet increased water demand would create secondary environmental impacts that are potentially significant.

6.6 PUBLIC HEALTH AND SAFETY

6.6.1 Law Enforcement

6.6.1.1 Introduction

This analysis is based primarily on information contained in the Other Physical Attributes Baseline Study of Fort Ord, California, which is available for review at the public information repository established

at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992e) and on the following:

- The currently exclusive federal jurisdiction at Fort Ord would change as lands are disposed to permit the state and local law enforcement agencies to include these areas. It is possible that concurrent legislative jurisdiction would occur for those areas leased on an interim basis.
- Army police protection programs, staff, and equipment would be retained only on the POM annex and reserve center after disposal.
- Approximately two law enforcement officers would be needed for every 1,000 residents of the Fort Ord area to provide law enforcement in proposed residential, commercial, and industrial areas. This number is based on the assumption that 1.5 officers per 1,000 residents would be needed to provide enforcement in the residential areas and that an additional 0.5 officer per 1,000 population would be needed to provide enforcement in the commercial and industrial areas. The methodology used to calculate the numbers of law enforcement officers needed for each reuse alternative is described in Table L-1 in Appendix L (Volume IV, Section 6.0).

Approximately one law enforcement ranger or officer would be needed for every 5,000 acres of open space. This number was derived from the U.S. Bureau of Land Management's estimate that two law enforcement rangers (peace-officer qualified) would be needed for 10,000 acres of open space (U.S. Bureau of Land Management pers. comm.). Refer to Table L-1 in Appendix L (Volume IV, Section 6.0).

- Some federal law enforcement officers retained by the Army for the POM annex and reserve center would provide installation security and patrol the entire installation until disposal.

This analysis assumes that the proposed action and Alternative 6R would have a substantial effect if it resulted in a need for substantial additional law enforcement staff and equipment to maintain acceptable service ratios.

6.6.1.2 Disposal Impacts

- *Impact: Need for Additional Law Enforcement to Support Interim Leases and Outgrants*

Issuing interim leases and outgrants would create the need for additional law enforcement to protect property and people. This need would exist from the time the interim uses were established until property was transferred out of Army ownership and a permanent change in use occurred.

- *Mitigation: Maintain Security Patrols in All Areas Supporting Interim Uses*

Security patrols could be maintained in the interim use areas to discourage trespassing and vandalism until land is transferred. (Contracted to local law enforcement agencies or private security agencies by the lessee)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

- *Impact: Increased Potential for Trespassing and Vandalism*

Increased trespassing and vandalism could result from leaving many buildings vacant, reducing the Fort Ord police staff, and introducing new tenants. Abandoned buildings could deteriorate and become unsafe over time, posing a threat to the safety of trespassers.

- **Mitigation: Provide Law Enforcement through Local Law Enforcement Agencies**

Local law enforcement agencies with authority over Fort Ord lands could provide law enforcement service to disposed lands. Mutual aid agreements could be maintained by all these jurisdictions to provide for rapid law enforcement response. (Monterey County sheriff or Cities of Seaside or Marina police department)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

6.6.1.3 Reuse Impacts

- **Impact: Need for Up to 39 Law Enforcement Officers and Equipment, a 73% Decrease from the Existing Staff of 144**

Implementation of this reuse alternative would require up to 39 law enforcement officers and associated equipment (e.g., vehicles, substations), which is a 73% decrease from the existing staff of 144 on-installation police officers.

- **Mitigation: Provide Law Enforcement through Local Law Enforcement Agencies**

The local jurisdictions ultimately obtaining control of the Fort Ord property could provide law enforcement service, including equipment, within their boundaries. Mutual aid agreements could be maintained by all these jurisdictions to provide for rapid law enforcement response. (Monterey County and the cities acquiring Fort Ord property)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

6.6.1.4 Cumulative Effects

Local cities have been able to maintain adequate law enforcement service, but the Monterey County Sheriff's Department has exhibited a steady decline in funding levels. Because state assistance to cities and counties for general fund expenditures is declining, it is likely that any increase in demand for law enforcement service in the Fort Ord area would be difficult to satisfy. The cumulative effect of increased demand for law enforcement and decreasing funding would be a serious concern for Alternatives 1 and 2.

Monterey County or other local jurisdictions would prepare and implement a law enforcement master plan to ensure adequate staff and equipment levels and response times. The plan would identify goals for staff levels and response times in urban, rural, and undeveloped areas. The plan would identify mechanisms that can be used to meet these goals, such as beat restructuring; mutual and automatic aid agreements; and alternative financing mechanisms, including community facilities districts and other special districts.

Approval of new development in unincorporated areas would be conditioned on availability of law enforcement service consistent with standards specified in the law enforcement master plan. Project proponents would be required to prepare a statement indicating how law enforcement needs that would be created by their project would be met from the time of building occupancy.

6.6.1.5 Summary Comparison of Reuse Alternatives

Alternative 1, Subalternative C, would have the greatest impact on local law enforcement. This alternative would generate the need for up to 566 law enforcement officers and associated equipment. Alternative 2, Subalternative A, would have the next greatest impact on law enforcement, generating the need for up to 249 law enforcement officers and associated equipment. Alternative 3 would have the next greatest

impact on law enforcement, generating the need for up to 170 law enforcement officers and associated equipment. Alternative 4 would have the next greatest impact on law enforcement, generating the need for 65 law enforcement officers and associated equipment. Alternative 6R would require 39 law enforcement officers, the least of all the "developed" alternatives. Alternative 5 would have the least impact on law enforcement, generating the need for only 13 law enforcement officers and associated equipment.

6.6.2 Fire Protection

6.6.2.1 Introduction

This analysis is based primarily on information in the Other Physical Attributes Baseline Study of Fort Ord, California, which is available for review at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992e), and on the following:

- Grazing leases and the fire control program would be maintained (including firebreak maintenance, periodic control burns, and landscape maintenance) during caretaker status.
- The existing fire protection staff and equipment contingent on Fort Ord would be maintained at a reduced staff level and would respond to the entire installation during caretaker status.
- Army fire protection programs, staff, and equipment would be retained only on the POM annex and reserve center after disposal.
- Army security patrols would be retained only on the POM annex and reserve center after disposal.
- Approximately one firefighter would be needed for every 1,000 residents of the Fort Ord area. Table L-2 in Appendix L (Volume IV, Section 6.0) describes the methodology used to calculate the numbers of firefighters needed for each reuse alternative.
- One firefighting company consisting of approximately four firefighters would be present at any given fire station on the installation. (City of Sacramento Fire Department and City of Monterey Fire Department pers. comms.)
- Additional firefighters would not be needed for wildland fire protection. This assumption is based on adequate California Department of Forestry and Fire Protection (CDF) equipment and staff in the local area. If the U.S. Bureau of Land Management acquired open space land, it would probably contract with CDF for wildland fire protection. If the lands remained unincorporated and were included in a fire district, such as the Salinas Rural Fire Protection District (SRFPD), CDF would still be responsible for wildland fire response. If the open space were incorporated, the city fire department would be responsible for wildland fire protection. (California Department of Forestry and Fire Protection pers. comm.) Refer to Table L-2 in Appendix L (Volume IV, Section 6.0).
- Fire equipment consists of fire hoses, fire trucks, fire boxes, and an adequate fire alarm system.

This analysis assumes that the proposed action and Alternative 6R would have a substantial effect it is resulted in:

- substantially intensified fire hazard or
- a need for substantial additional fire protection staff and equipment to maintain acceptable service standards.

6.6.2.2 Disposal Impacts

- **Impact: Increased Wildland and Structural Fire Hazards Following Disposal of Property by the Army**

Because Army fire response personnel and fire control and security programs would be retained only on lands owned by the Army, the potential for wildland or structure fires on disposal lands to become uncontrollable would increase. Also, the incidence of fires would increase because of the increased potential for trespassing that would occur because of the lack of security patrols.

- **Mitigation: Implement Fuel Management Program**

A fuel management program for disposed land could be prepared and implemented. Landscape maintenance, brush clearing, firebreak maintenance, grazing, control burning, and other activities would be employed to reduce fuel loads in the developed and back country areas of Fort Ord. (Local or state fire control entities)

This is considered feasible mitigation for this impact, however, implementing this mitigation may have adverse impacts on the sensitive biological communities in the fuel management program area. Refer to Section 6.11, "Vegetation, Wildlife, and Wetland Resources".

- **Mitigation: Contract with Local Fire Protection Agencies to Maintain Fire Protection Response**

Local fire protection agencies could increase staffing and equipment in the Fort Ord area to maintain fire protection response to unused portions of the installation. (Local or state fire control entities)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

- **Mitigation: Create a Special Fire Protection District to Provide Fire Protection Response**

A special fire protection district could be created to provide fire protection response on the installation before reuse. (Local jurisdictions)

This is considered feasible mitigation for this impact. However, the creation of a special district would have to be approved by both the Monterey County Local Agency Formation Commission (LAFCO) and the jurisdictions within the district. There would be no adverse environmental impacts associated with this mitigation measure.

6.6.2.3 Reuse Impacts

- **Impact: Need for Up to 18 Firefighters and Equipment (Approximately 5 Firefighting Companies), a 52% Decrease from Existing Staff of 40**

Implementation of Alternative 6R would require up to 18 firefighters and equipment and fire stations commensurate with this staffing level to provide adequate fire response to the Fort Ord area.

- **Mitigation: Provide Fire Protection through Existing Local Fire Protection Agencies**

Existing local fire protection agencies could provide fire protection to Fort Ord outside of the POM annex and the reserve center within their district boundaries. (Monterey County, California Department of Forestry and Fire Protection, and the Cities of Marina and Seaside)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure.

- **Mitigation: Provide Fire Protection by Establishing a Special Fire District**

Jurisdictions ultimately obtaining Fort Ord could establish a community facilities district, community services district, or other appropriate entity to provide fire protection services to the Fort Ord area outside of the POM annex and reserve center. (Local agencies with jurisdiction)

This is considered feasible mitigation for this impact. However, the creation of a special district would have to be approved by both Monterey County LAFCO and the jurisdictions within the district. There would be no adverse environmental impacts associated with this mitigation measure.

6.6.2.4 Cumulative Effects

Local cities have been able to maintain adequate fire protection response, but financing for Monterey County fire districts and California Department of Forestry has steadily decreased. Fire districts receive most of their funding from property tax revenues, which have declined since Proposition 13 passed. State fire protection funds have also decreased. Although cities would likely be able to continue to maintain adequate fire protection response on Fort Ord, Monterey County fire districts and California Department of Forestry will likely continue to have difficulty maintaining adequate fire protection service. The cumulative effect of increased demand for fire protection services and decrease funding would be a serious concern for Alternatives 1 and 2.

Monterey County, the State of California, or other local jurisdictions would prepare and implement a fire protection master plan to ensure adequate staff and equipment levels and response times. The plan would identify goals for staff levels and response times in urban, rural, and undeveloped areas. The plan would identify mechanisms that can be used to meet these goals, such as mutual and automatic aid agreements and alternative financing mechanisms, including community facilities districts and other special districts.

Approval of new development in unincorporated areas would be conditioned on availability of fire protection response consistent with standards specified in the fire protection master plan. Project proponents would be required to prepare a statement indicating how fire protection response that would be required by their project would be met from the time of building occupancy.

6.6.2.5 Summary Comparison of Reuse Alternatives

Alternative 1, Subalternative C would have the greatest impact on fire protection at Fort Ord. This alternative would generate the need for up to 283 firefighters and associated equipment. Alternative 2, Subalternative A, would have the next greatest impact on fire protection, generating the need for up to 124 firefighters and associated equipment. Alternative 3 would have the next greatest impact on fire protection, generating the need for up to 83 firefighters and associated equipment. Alternative 4 would have the next greatest impact on fire protection, generating the need for up to 31 additional firefighters and associated equipment. Alternative 6R would require only 18 firefighters, the least of the proposed "developed" alternatives. Alternative 5 would have the least impact on fire protection, generating the need for only four additional firefighters and associated equipment.

6.6.3 Medical Services

6.6.3.1 Introduction

This analysis assumes that Silas B. Hays Army Community Hospital would be closed before disposal. The effects of downsizing the hospital before closure are addressed under "Social Services" in Section II.2, "Socioeconomics" in Volume II. All on-Installation primary care clinics at Fort Ord would also close before disposal. The clinics serve active personnel and their dependents and retirees and their dependents on a space-available basis. It is assumed that the PRIMUS clinic at Presidio of Monterey would remain open and the PRIMUS clinic in Salinas would close before disposal.

For reuse alternatives, it is assumed that any hospital or regional medical center included in the alternative would be a civilian hospital that would provide medical services equivalent to the services provided by Silas B. Hays Army Community Hospital. Army personnel and their families are included in the 65,000-person capacity that is discussed for the regional medical center.

This analysis assumes that the proposed action and Alternative 6R would have a substantial effect if it resulted in a need for substantial expansion of or substantial alteration to the medical services system or substantial disruption of medical services.

6.6.3.2 Disposal Impacts

- *Impact: Need for Additional Medical Services for Users of Leased Space*

If Fort Ord property is leased or outgranted, resulting in an increased population in the Fort Ord area, the need for medical services would increase proportionately. The impacts would be similar to those described below for reuse, except that the demand would be considerably smaller.

If the Silas B. Hays Army Community Hospital or on-installation clinics are leased and in operation before disposal, additional medical services could be provided to the community and lower occupancy rates at the other area hospitals could result. Refer to the reuse discussion below for additional mitigation possibilities.

6.6.3.3 Reuse Impacts

- *Impact: Need for Medical Services for Approximately 23,000 Residents*

Alternative 6R is expected to result in approximately 23,000 residents in the Fort Ord area that would need medical services.

The need for additional medical services would be provided by surrounding facilities. Natividad Medical Center, Salinas Valley Memorial Hospital, and Community Hospital of the Monterey Peninsula would serve up to an estimated 90,000 additional residents based on 1990 admissions and occupancy rates (refer to Section 4.6, "Public Health and Safety") and allowing for service of the existing retiree population. This does not take into account potential future growth in the Monterey Peninsula area (refer to "Cumulative Effects" below).

- *Mitigation: None required*
- *Impact: Exposure of People to Lyme Disease Hazards*

Development of the installation would expose people to Lyme disease hazards. A large portion of the installation is potentially at risk from Lyme disease transferred from the *Ixodes neotomae* tick to the

Monterey dusky-footed woodrat, which acts as a reservoir for the disease. The *Ixodes pacificus* tick, which feeds on the woodrat, can become infected and can potentially transfer the disease to humans.

The Monterey dusky-footed woodrat inhabits large portions of the installation. These woodrats are solitary creatures and can be found inhabiting the maritime chaparral and oak woodland areas. Refer to the Flora and Fauna Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992a) for specific population areas.

People that frequent the open space areas of the installation for recreational purposes would be at risk of getting Lyme disease through the bite of an infected *Ixodes pacificus* tick.

- **Mitigation: Educate Area Residents and Recreational Users on Lyme Disease Symptoms and Modes of Transmission**

A program could be required to educate all residents and recreationists and other people with business in the area on Lyme disease symptoms, modes of transmission, and tick avoidance measures before any of the "at-risk" portions of the installation (i.e., the developed portions of the oak woodland and the maritime chaparral areas are occupied). (Local health organizations and private entities)

This is considered feasible mitigation for this impact. There are no adverse environmental impacts associated with this mitigation measure.

- **Mitigation: Implement a Tick Control Program**

An experimental tick control program being tested by disease researchers could be implemented to control the tick population. The woodrat is also known as the pack rat because of the wide variety of materials it uses to build its nest. This experimental program consists of placing a special insecticide on cotton balls that would be placed in woodrat habitat and eventually picked up by the woodrat and carried to its nest. This insecticide is not harmful to the woodrat, but would kill any ticks in the nest. Results on the effectiveness of this experimental program are not yet available. (Local disease control agencies)

This is considered feasible mitigation for this impact. There are no adverse environmental impacts associated with this mitigation measure.

6.6.3.4 Cumulative Effects

Projected growth in the Monterey County region, not including Fort Ord, is expected to range from 60,000 to 100,000 by 2035 (refer to Section 4.2, "Socioeconomics"). Any alternative that results in a need for additional services would have a cumulative effect when combined with the regional growth expected independent of Fort Ord reuse.

6.6.3.5 Summary Comparison of Reuse Alternatives

Alternative 1 would have the greatest impact on medical services in the Monterey County area, with needs ranging from service for 70,000 to 157,000 residents depending on the subalternative. Alternative 5 includes no hospital and no additional residents, so there is no additional need for medical services. Alternatives 2, 3, 4, and 6R result in no impacts on medical services.

6.6.4 Emergency Medical Services

6.6.4.1 Introduction

For the purposes of this analysis, it is assumed that Silas B. Hays Army Community Hospital would be closed before disposal and that on-installation ambulance service will also be terminated before disposal.

Military beneficiaries outside Fort Ord will continue to use private ambulance services. The Army will maintain ground ambulance service for military personnel at Fort Hunter Liggett, as well as MAST at Fort Hunter Liggett. Air transport services will be provided by local governments or private companies. Rescue services will be provided by MAST at Fort Hunter Liggett and Coast Guard in San Francisco. Disaster assistance will still be provided through the Federal Emergency Management Agency, although the availability of local Army assistance will be reduced.

For analysis of reuse alternatives, it is assumed that any hospital or regional medical center in the alternatives would provide the necessary emergency medical services (ambulance service and emergency room facilities) to handle 65,000 beneficiaries. To estimate ambulance trips expected with each reuse alternative, a ratio of one ambulance trip per year per 60 people is used (Peninsula Paramedics pers. comm.).

This analysis assumes the proposed action and Alternative 6R would have a substantial effect if it resulted in:

- need for substantial expansion of or substantial alteration to the emergency medical services system, or
- substantial disruption of existing services.

6.6.4.2 Disposal Impacts

If property outside the POM annex is leased or outgranted, resulting in an increased population in the Fort Ord area, the need for emergency medical services would increase proportionately. The expected impacts would be similar to but considerably less than those described below for reuse.

6.6.4.3 Reuse Impacts

- *Impact: Need for Emergency Medical Services for Approximately 23,000 Residents*

Alternative 6R is expected to result in approximately 23,000 residents in the Fort Ord area that would need emergency medical services, including ambulance service (approximately 380 additional ambulance trips per year), emergency room treatment, and air transport. The need for emergency medical services would be provided by surrounding facilities. Natividad Medical Center, Salinas Valley Memorial Hospital, and Community Hospital of the Monterey Peninsula would serve up to an estimated 90,000 additional residents based on 1990 admissions and occupancy rates (refer to Section 4.6, "Public Health and Safety") and allowing for service of the existing retiree population. There is, therefore, no need for additional emergency medical service.

- *Mitigation: None required*
- *Impact: Potential for Increased Response Times for Emergency Services at Fort Ord*

Depending on the design of the streets in the reuse alternative, there is the potential that ambulance response times could increase beyond 8 minutes for over 10% of the time. This is an industry standard and would result in a substantial effect if not met.

- *Mitigation: Incorporate Improved Access to Reuse Areas*

The specific design of the reuse alternatives could incorporate future street designs that facilitate low emergency response times. (Local agencies and private entities responsible for development)

This is considered feasible mitigation. Adverse environmental impacts that would be associated with this mitigation measure would be related to impacts resulting from either street construction

or street alterations and/or widenings. Refer to Section 6.7, "Traffic and Circulation", for specific information on these impacts.

- **Mitigation: Reserve Area Adjacent to Major Roadways on Fort Ord for Establishment of an Ambulance Service**

To enhance response times, an area could be provided adjacent to major roadways on Fort Ord for establishing an ambulance service. (Local agencies and private entities responsible for development)

This is considered feasible mitigation. Adverse environmental impacts that would be associated with this mitigation measure would be related to impacts resulting from either street alterations and/or widenings. Refer to Section 6.7, "Traffic and Circulation", for specific information on these impacts.

6.6.4.4 Cumulative Effects

Projected growth in the Monterey County region, not including Fort Ord, is expected to range from 60,000 to 100,000 by 2035 (refer to Section 4.2, "Socioeconomics"). Any alternative that results in need for additional services would have a cumulative effect when combined with the regional growth expected independent of Fort Ord reuse.

6.6.4.5 Summary Comparison of Reuse Alternatives

Alternative 1 would have the greatest impact on emergency medical services in the Monterey County area, with needs ranging from service for 160,000 to 247,800 residents depending on the subalternative. Alternative 2 results in needs ranging from services for 26,000 to 58,400 residents. Alternatives 3, 4, and 6R result in no impacts on emergency medical services. Alternative 5 includes no hospital and no additional residents, so there is not additional need for, or surplus of, emergency medical services.

6.6.5 Seismic Safety

6.6.5.1 Introduction

The location and severity of seismic hazards on Fort Ord are described in Section 4.3, "Soils, Geography, Topography, and Seismicity", and in the Soils Baseline Study for Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992d). Seismic hazards to structures are described in Section 6.3, "Soils, Geology, Topography, and Seismicity". The following section describes seismic hazards to people living or working at Fort Ord.

6.6.5.2 Disposal Impacts

- **Impact: Exposure of People to Potential Seismic Events Resulting from Issuance of Interim Leases or Outgrants**

By issuing interim leases and outgrants, additional people are likely to move onto Fort Ord before property transfer. Fort Ord has a high risk for seismic events and many of the structures on the installation were constructed before strict seismic-related construction standards were developed. This situation represents a substantial risk to the safety of people occupying interim-leased space.

- **Mitigation: Modify Leased Structures to Meet Current Codes**

Before occupancy, leased buildings could be upgraded to meet current state and local building codes. (Local agencies and private entities responsible for development)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure, however, identifying and modifying these structures would be expensive and could potentially create an economic burden on the responsible parties.

6.6.5.3 Reuse Impacts

- *Impact: Exposure of Approximately 44,500 People to Potential Seismic Events*

Buildout of the Alternative 6R would locate approximately 44,500 people (based on residential and employment population) in a high seismic risk area.

- *Mitigation: Construct New or Modify Existing Structures to Meet Building Codes*

This mitigation is described in Section 6.3, "Soils, Geology, Topography, and Seismicity". This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure, however, identifying and modifying these structures would be expensive and could potentially create an economic burden on the responsible parties.

- *Impact: Exposure of Coastline Development to Tsunamis*

The Alternative 6R proposes a multi-use area which includes Stilwell Hall. This facility is located on the cliffs overlooking the beach area and could be susceptible to damage caused by a tsunami, a tidal wave resulting from a seismic event.

- *Mitigation: Avoid Reuse of Stilwell Hall*

Plans for the multi-use area under Alternative 6R could be modified to eliminate use of Stilwell Hall, until it has been determined by detailed engineering studies that the facility could withstand a seismic event of a magnitude to cause substantial damage to the facility. (Local agencies)

This is considered feasible mitigation for this impact. There would be no adverse environmental impacts associated with this mitigation measure, however, preparing a detailed engineering study and modifying this structure would be expensive and could potentially create an economic burden on the responsible parties as well as delay the reuse of the facility.

6.6.5.4 Cumulative Effects

There would be no cumulative seismic safety impacts.

6.6.5.5 Summary Comparison of Reuse Alternatives

Alternative 1 would generate the most population and therefore expose the most people to potential seismic events. Alternative 2 would generate the next greatest number of people exposed to potential seismic events. Alternatives 3, 6R, and 4 would generate the next greatest number of people exposed to seismic events (in that order); however, Alternative 4 may generate more people exposed to potential seismic events if most of the reuse proposals include retaining a majority of the existing buildings on the installation. Alternative 5 would not generate additional population and therefore would expose the least number of people to potential seismic events.

6.7 TRAFFIC AND CIRCULATION

6.7.1 Introduction

A detailed discussion of the methodology used to analyze the reuse alternatives is provided in Appendix M, Volume III of the EIS. This section describes the changes to this methodology used in analyzing Alternative 6R.

At the time that the other reuse alternatives were analyzed, little information was available regarding the proposed SR 68 bypass across the southern portion of Fort Ord and the proposed multi-modal corridor through the northern part of the installation. Since more detailed information regarding these proposed routes is now available, these two facilities have been included in the analysis of Alternative 6R.

Another change involved trip generation rates. The land uses in Alternative 6R were, in some cases, more detailed than the uses analyzed in the other reuse alternatives. Information such as actual developed acreages, numbers of employees, and more specificity as to planned uses allowed some refinement in determining trip generation rates.

Documentation of all the assumptions used in conducting the traffic modeling for Alternative 6R is provided in Appendix M (in Volume IV, Section 6). This includes figures showing the traffic analysis zones, highway network, and screenline locations used in the analysis, and tables showing model land use inputs, details of the screenline analysis, and level of service (LOS) on selected roadways.

In interpreting the screenline analysis results reported below, caution should be exercised. Some double counting occurs in measuring trips across the three screenlines, not only in the analysis of Alternative 6R, but in all alternatives. For instance, trips between Salinas and the Monterey Peninsula through Fort Ord may be counted twice in the encircling screenline (once entering and once exiting the installation) and again in either the east-west or north-south screenline. Therefore, the lane requirements shown in Table 5-8 should not be added together to arrive at total lane requirements.

6.7.2 Disposal Impacts

There would be no disposal impacts and mitigation under Alternative 6R. Remediation of the site would not generate a substantial amount of traffic. Further, the duration of this impact would be relatively short. Given the reduction in traffic that would occur when the installation is closed and the additional roadway capacity that would become available, the roadway system would be sufficient to handle the traffic generated by the remediation activities.

6.7.3 Reuse Impacts

Traffic generated by construction of Alternative 6R would be much less than the traffic generated by the proposed land uses. The existing roadway system would be sufficient to handle that level of traffic. Therefore, all impacts relate to the traffic generated by the land uses on completion of construction.

- **Impact: Increased Travel Demand between Fort Ord and the Surrounding Communities to Approximately 131,000 Trips Per Day**

The five currently active gates to Fort Ord have a daily capacity of approximately 70,000 trips. The land uses in Alternative 6R are estimated to create approximately 228,000 vehicle trips per day. Approximately 131,000 trips are projected to travel between Fort Ord and the surrounding communities each day. This would include vehicles traveling through Fort Ord to get to other destinations as well.

- **Mitigation: Provide between 9 and 22 Lanes of Roadway for Access between Fort Ord and the Surrounding Communities to Avoid Traffic Congestion Worse than Level of Service C**

To provide capacity to handle 131,000 daily trips at LOS C, between 9 and 22 lanes of roadway would need to be provided between Fort Ord and surrounding communities. To meet this demand, 9 lanes of freeway, each lane capable of carrying approximately 16,000 vehicles per day at LOS C, could be needed. If the capacity were provided using access-controlled arterial roadways which can carry approximately 12,000 vehicles per day at LOS C, 11 lanes would be required. An arterial roadway with signalized intersections, can carry approximately 6,000 vehicles per day at LOS C, so 22 lanes would be needed to serve this level of demand. The needed roadway capacity could be provided with a mixture of facilities, including freeways, two-, four-, and six-lane arterials; and local two-lane collector streets. With the provision of transit service and aggressive measures to reduce single-occupant driving, the need for roadways could be reduced approximately 10%. Transit service could include elements such as shuttle buses, fixed-route public transit, and rail service. (Local agencies and private entities responsible for development)

At present, including the five active gates, there are 12 lanes of arterial roadway providing access to Fort Ord. If the Inter-Garrison Road/Reservation Road and North-South Road/SR 218 gates are opened, four additional lanes would be provided. The proposed multi-modal corridor, if built, would add up to 6 more lanes of capacity which would probably be sufficient to serve the demand created by Alternative 6R. The main hurdle to implementing this mitigation measure is the availability of funds. In addition to the money required to construct the multi-modal corridor, considerable funds would be required to bring existing Fort Ord roads up to local standards.

Implementation of this mitigation would result in secondary impacts on rare and endangered species and habitats of special concern. Although the precise locations of rare and endangered species have not yet been determined, some are known to occur in the northern portion of the installation in the vicinity of Imjin and Inter-Garrison Roads. Improvement of those roads could impact species such as sand gilia which tend to occur on the sides of roads. The provision of additional roadways could also contribute to water pollution problems because rainfall carries off contaminants left by automobiles on roadway surfaces.

- **Impact: North-South Daily Travel Demand on Fort Ord of Approximately 40,000 Vehicles**

The land uses in Alternative 6R would create a demand for north-south travel on Fort Ord of approximately 40,000 vehicles per day. This would include travel between sections of Fort Ord, travel between Fort Ord and the surrounding communities, and travel through Fort Ord.

- **Mitigation: Provide between Three and Seven Lanes of North-South Roadways on Fort Ord to Avoid Traffic Congestion Worse than Level of Service C**

To provide capacity to handle 40,000 daily trips at LOS C, between three and seven lanes of north-south roadways would be needed on Fort Ord. To meet this demand, three lanes of freeway, each lane capable of carrying approximately 16,000 vehicles per day at LOS C, could be needed. If the capacity were provided using access-controlled arterial roadways which can carry approximately 12,000 vehicles per day at LOS C, four lanes would be required. An arterial roadway with signalized intersections, can carry approximately 6,000 vehicles per day at LOS C, so seven lanes would be needed to serve this level of demand. The needed roadway capacity could be provided with a mixture of facilities, including freeways, two-, four-, and six-lane arterials; and local two-lane collector streets. With the provision of transit service and aggressive measures to reduce single-occupant driving, the need for roadways could be reduced approximately 10%. Transit service could include elements such as shuttle buses, fixed-route public transit, and rail service. (Local agencies and private entities responsible for development)

At present, the only roadways serving significant north-south travel on Fort Ord are North-South Road, Imjin Road and Barloy Canyon Road. Expansion of North-South Road could be accomplished, but would involve encroachment on the development on both sides of the road. In addition, for the Army's proposed POM annex, the Army could prohibit the widening of North-South Road to avoid encouraging non-Army travel through the POM annex. Widening of Barloy Canyon Road would be difficult due to the mountainous terrain through which this road travels. Widening would be further hampered by the existence of native plant preserves adjacent to this roadway. New roadways could be constructed but would have to avoid the inland range area and minimize intrusion through areas containing special-status species or habitats of special concern, and would entail considerable cost.

Implementation of this mitigation could result in secondary impacts on biological resources if the roadways are located through habitats of special concern and could contribute to water pollution problems because rainfall carries off contaminants left by automobiles on roadway surfaces.

- ***Impact: East-West Daily Travel Demand on Fort Ord of Approximately 22,000 Vehicles***

The land uses in Alternative 6R would create a demand for east-west travel on Fort Ord of approximately 22,000 vehicles. This would include travel between sections of Fort Ord, travel between Fort Ord and the surrounding communities, and travel through Fort Ord.

- ***Mitigation: Provide between Two and Four Lanes of East-West Roadways on Fort Ord to Avoid Traffic Congestion Worse than Level of Service C***

To provide capacity to handle 22,000 daily trips at LOS C, between two and four lanes of north-south roadways would be needed on Fort Ord. To meet this demand, two lanes of freeway, each lane capable of carrying approximately 16,000 vehicles per day at LOS C, could be needed. If the capacity were provided using access-controlled arterial roadways which can carry approximately 12,000 vehicles per day at LOS C, two lanes would be required. An arterial roadway with signalized intersections, can carry approximately 6,000 vehicles per day at LOS C, so four lanes would be needed to serve this level of demand. The needed roadway capacity could be provided with a mixture of facilities, including freeways, two-, four-, and six-lane arterials; and local two-lane collector streets. With the provision of transit service and aggressive measures to reduce single-occupant driving, the need for roadways could be reduced approximately 10%. Transit service could include elements such as shuttle buses, fixed-route public transit, and rail service. (Local agencies and private entities responsible for development)

At present, the only roadways serving significant east-west travel on Fort Ord are Light Fighter Drive, Inter-Garrison Road and Reservation Road. Widening of any of these roads would be hampered by the existence of habitats of special concern on large portions of the installation. New roadways could be constructed but would have to avoid the inland range area and would need to minimize intrusion in areas containing special-status species or habitats of special concern, and would entail considerable cost.

Implementation of this mitigation could result in secondary impacts on biological resources if the roadways are located through habitats of special concern and could contribute to water pollution problems because rainfall carries off contaminants left by automobiles on roadway surfaces.

- ***Impact: Incompatibility between the Existing Local General Plans and the Reuse Plans for Fort Ord***

Existing general plan circulation elements for the Cities of Seaside and Marina and for Monterey County were prepared before it was known that Fort Ord would be closed; these elements do not include the travel demand created by reuse and therefore understate the improvements that would be needed to satisfy future demand.

- **Mitigation: Update Local General Plans to Include the Roadway and Transit Improvements Needed to Accommodate the Proposed Reuse of Fort Ord**

When a preferred reuse plan for Fort Ord is selected, the circulation elements of local general plans could be updated to include the roadway and transit improvements determined to be needed to serve the proposed land uses. Transportation Demand Management plans could also be developed to minimize the amount of additional roadway capacity required. Transportation Demand Management strategies are policies and actions aimed at reducing the number of vehicles using roadways during the peak hour. These include methods for encouraging carpooling, vanpooling, and transit use. (Local agencies)

This mitigation is considered feasible for this impact and would not result in foreseeable secondary impacts.

6.7.4 Cumulative Effects

The traffic analysis presented in this section is inherently a cumulative analysis because Alternative 6R is analyzed in a future year (2010). This alternative is modeled as being completely built, and background growth in the study area has been assumed.

6.7.5 Summary Comparison of Reuse Alternatives

Table 5-8 presents data that compare trips generated and trips crossing screenlines for each reuse alternative. The data in this table indicates that Alternative 1 would generate the most vehicle trips and create the greatest demand for additional roadways. Alternative 2 would generate the next highest number of trips, followed by Alternative 3. Alternative 4 would generate fewer trips than Alternative 3, and Alternative 5 would generate the fewest trips of any of the alternatives. Alternative 6R is projected to generate slightly fewer trips than Alternative 3; however, comparison of this reuse alternative to the other alternatives is limited by the fact that the land uses comprising Alternative 6R have been more precisely defined than previous alternatives.

6.8 AIR QUALITY

6.8.1 Introduction

Air emissions would result from both disposal and reuse. Air emissions during disposal would result from demolition of existing buildings and infrastructure. During reuse, there would be varying levels of construction and operational emissions.

The methodology used to estimate construction and operational emissions and emission impacts is described in Section II.8, "Air Quality", Volume II of the EIS. Emissions associated with Alternative 6R were based on the methodology described in Volume II. In addition, Alternative 6R emissions include those produced by general aviation use of Fritzsche Army Airfield. These aircraft emissions represent a relatively small percent of total emissions and have been included in the area source emission category. Aircraft emissions have been quantified using emission factors for aircraft developed by the U.S. Environmental Protection Agency (U.S. Environmental Protection Agency 1985b) and aircraft operational estimates provided by P&D Aviation.

Information on air pollution terminology, dispersion modeling, microscale carbon monoxide (CO) impacts, and regional air quality impacts are contained in Appendix N (Volume III, with revisions in Volume IV, Section 6.0).

6.8.2 Disposal Impacts

- **Impact: Exposure of the Public to Asbestos during Building Demolition or after Transfer of Buildings to Third Parties**

Asbestos surveys are being conducted for each of the 1,738 buildings in the cantonment area (U.S. Army Corps of Engineers, Sacramento District 1992c). Several Fort Ord buildings have been identified as containing asbestos.

- **Mitigation: Implement U.S. Environmental Protection Agency Asbestos Cleanup Procedures to Limit Public Exposure to Asbestos**

For buildings slated for demolition, public exposure is possible if asbestos is not removed prior to demolition. For buildings not slated for demolition, public exposure is possible if asbestos is not removed or encapsulated prior to the transfer of buildings to third parties. To limit public exposure to asbestos, implement U.S. Environmental Protection Agency guidelines to remove or encapsulate asbestos in all buildings where asbestos has been identified (Army).

- **Impact: Emissions of PM₁₀ and Hazardous Air Pollutants**

Disposal would result in air emissions during hazardous waste cleanup and recovery of unexploded ordnance from the inland range area. Although a certain amount of remedial cleanup will occur whether or not the inland range area is reused, additional cleanup may be required for disposal and reuse. This additional cleanup may generate PM₁₀ (particulate matter less than 10 microns in diameter) and hazardous air pollutants.

- **Mitigation: Implement Dust-Reducing Measures during Disposal to Limit PM₁₀ Emissions**

The following dust reducing measures will be implemented to limit PM₁₀ emissions generated during hazardous waste and ordnance cleanup. (Army)

- Apply dust suppressants (such as water or chemical stabilizers) to all disturbed material daily. The cleanup teams should apply dust suppressants to all excavated material to prevent an excessive amount of dust. The application of suppressants should be conducted at least twice a day with complete coverage, preferably in the late morning and after daily work shifts.
- Minimize ground disturbance at all times. The cleanup teams should minimize the total area disturbed by clearing, earthmoving, or excavation activities at all times.
- Cover all material transported offsite. The cleanup teams should securely cover all material transported offsite to minimize dust release.
- Cease all earth-moving activities during high winds. The cleanup teams should cease all earthmoving, excavation, and ordnance removal activities when winds exceed 20 mph, averaged over 1 hour.
- Seed and water all inactive areas. The cleanup teams should seed and water all inactive portions of the cleanup sites until growth of vegetation is evident.

These mitigation measures represent the range of feasible mitigation measures needed to minimize PM₁₀ emissions. These mitigation measures should not create any additional environmental impacts.

6.8.3 Reuse Impacts

Construction-Related Emissions

- *Impact: Generation of 157 Pounds per Day of Nitrogen Oxide that Exceed the Emission Thresholds during Construction and Renovation*

During construction, Alternative 6R would generate nitrogen oxide (NO_x) emissions that exceed the MBUAPCD emissions thresholds of 150 pounds per day for NO_x. The following mitigation measure would reduce NO_x emissions to less than the emission threshold.

- *Mitigation: Implement Measures during Construction and Renovation to Minimize Nitrogen Oxide Emissions*

The following measures to limit NO_x emissions from motor vehicles will be implemented during renovation (Army for establishment of POM annex only) and construction (Local agencies and private entities responsible for development):

- for diesel-powered heavy-duty construction equipment, use Caterpillar prechamber diesel engines (or equivalent) and properly maintain and operate equipment;
- implement engine-timing retard (four degrees) for diesel-powered equipment;
- substitute gasoline-powered for diesel-powered equipment, where feasible; and
- use electric equipment where feasible.

These mitigation measures represent the range of feasible mitigation measures needed to minimize NO_x emissions. These mitigation measures should not create any additional environmental impacts.

- *Mitigation: Obtain Nitrogen Oxide Emission Offsets from the Emissions Bank Maintained by the Monterey Bay Unified Air Pollution Control District*

Emission offsets could be obtained to compensate for construction emissions, so that net NO_x emission increases would be limited to the emissions threshold of 150 pounds per day. The feasibility of this mitigation measure depends on the availability and cost of NO_x emission reduction credits at the time when this mitigation measure is necessary. (Local agencies and private entities responsible for development)

6.8.4 Cumulative Effects

The North Central Coast Air Basin is classified as a nonattainment area for the California ozone and PM₁₀ standards. Ozone precursor emissions associated with reuse Alternatives 1 and 2 (and subalternatives) would contribute to the region's ozone nonattainment problem. These alternatives would also contribute to the region's PM₁₀ nonattainment problem. Alternative 1 and the subalternatives would also lead to violation of the carbon monoxide (CO) ambient standards unless steps are taken to relieve congested intersections and to design the Alternative 1 network so that congested intersections are minimized. The remaining alternative and subalternatives, including Alternative 6R, would not contribute to violations of PM₁₀, ozone, or CO standards.

6.8.5 Summary Comparison of Reuse Alternatives

Construction emissions are a function of total developed acreage (Table 6.8-1). Consequently, Alternative 1 and subalternatives result in the largest amount of construction-related emissions. Alternative 2 and the subalternatives result in the second highest amount of construction related emissions. Only Alternative 5 would result in construction emissions that are less than MBUAPCD thresholds for NO_x and PM₁₀.

Tables 6.8-2 and 6.8-3 present operational emissions and worst-case carbon monoxide levels for each reuse alternative. Alternatives 1-4 (and the respective subalternatives) show a substantial increase in vehicle miles traveled compared to existing conditions. However, these same alternatives show a much lower rate of increase in traffic-related ROG, NO_x, and CO emissions, primarily because emission control devices on new vehicles will be much more stringent by 2010 and because a higher percentage of cars will have such devices installed.

Emissions are a function of the type and density of development. Only Alternative 1 would result in CO concentrations that exceed ambient standards. Alternatives 1, 1A, 1B, 1C, 2, and 2A would result in substantial increases in ROG, NO_x, and PM₁₀ operational emissions while Alternative 2B would result in a substantial increase in NO_x and PM₁₀ operational emissions.

The CO modeling analysis shows that Alternative 1 would result in a violation of the federal and California ambient air quality standards near 13 intersections. Alternatives 2-6R, would not cause violations of the federal or California CO standards.

The 1991 MBUAPCD Air Quality Management Plan assumed that Fort Ord population in 2010 would be similar to Fort Ord's existing population. Only Alternatives 4, 5, 5A, and 6R are consistent with the 1991 Air Quality Management Plan. All other alternatives and subalternatives would result in population increases above the population estimates used by AMBAG to prepare the 1991 Air Quality Management Plan. All alternatives, except Alternative 1 and its subalternatives, are consistent with AMBAG's population projections used to prepare the 1982 SIP. Table 6.8-4 presents population projections for each reuse alternative.

6.9 NOISE

6.9.1 Introduction

This analysis assumes that the proposed action and Alternative 6R would have a substantial effect if it resulted in:

- generation of noise that would conflict with applicable noise regulations,
- substantial increase (greater than 5 decibels [dB]) in the ambient noise levels for adjoining areas relative to existing conditions,
- exposure of people to severe noise levels, or
- land uses that are incompatible because of noise.

Although there may be some noise impacts resulting from remediation that would occur as a result of disposal, most of the impacts are anticipated to occur as a result of reuse. Mitigation of noise impacts under reuse would be the responsibility of the agency or agencies that would have ultimate jurisdiction over the land proposed for reuse, not the responsibility of the Army. Therefore, this analysis focuses on noise standards used by local agencies.

Table 6.8-1 Construction Emissions by Reuse Alternative

Reuse Alternative	Total Developable Acreage	Acreage Disturbed per Day ^a	Emissions (pounds/day) ^b			
			ROG	NO _x	CO	PM ₁₀ ^c
Alternative 1	23,117	6.2	36	486	175	256 (146)
Subalternative A	22,082	5.9	35	463	166	243 (140)
Subalternative B	22,960	6.1	36	478	172	252 (144)
Subalternative C	22,427	6.0	36	471	169	247 (142)
Alternative 2	17,677	4.7	28	368	132	194 (111)
Subalternative A	16,723	4.5	27	353	127	186 (106)
Subalternative B	17,459	4.7	28	368	132	194 (111)
Alternative 3	9,962	2.7	16	212	76	111 (64)
Alternative 4	9,990	2.7	16	212	76	111 (64)
Alternative 5	1,921	0.5	3	39	14	21 (12)
Subalternative A	388	0.1	1	8	3	4 (2)
Alternative 6R	7,465	2.0	12	157	56	83 (47)

Note: Construction emissions are a function of the acreage proposed for development. The total developable acreage excludes acreage devoted to open space and existing land uses that would not require additional earthmoving.

^a The acreage disturbed per day is estimated by dividing the total developable acreage by 15 years (1995-2010) and assumes 250 days per year during which construction would occur.

^b Emission estimates assume the following construction vehicle usage for each disturbed acre per day:

- 1 cold planer or wheeled dozer,
- 1 scraper,
- 2 wheeled loaders,
- 0.5 static or vibratory roller, and
- 0.5 concrete or asphalt paver.

^c Value in parenthesis represents 50% control of fugitive dust.

Table 6.8-2 Total Operational Emissions Associated with Each Reuse Alternative

Reuse Alternative	Emission Type	Emission (pounds/day)			
		ROG	NO _x	CO	PM ₁₀
Existing conditions	Motor vehicles	7,418	5,846	65,631	1,107
	Area sources	<u>815</u>	<u>161</u>	<u>464</u>	<u>52</u>
	Total	8,233	6,007	66,095	1,159
Alternative 1	Motor vehicles	5,986	10,876	184,988	3,934
	Area sources	<u>9,091</u>	<u>1,791</u>	<u>5,178</u>	<u>583</u>
	Total	15,077	12,667	190,166	4,517
Subalternative A	Motor vehicles	6,261	11,324	193,083	4,111
	Area sources	<u>9,634</u>	<u>1,898</u>	<u>5,487</u>	<u>617</u>
	Total	15,895	13,222	198,570	4,728
Subalternative B	Motor vehicles	6,231	11,302	192,963	4,104
	Area sources	<u>9,149</u>	<u>1,802</u>	<u>5,211</u>	<u>586</u>
	Total	15,380	13,104	198,174	4,690
Subalternative C	Motor vehicles	6,187	11,100	190,873	4,009
	Area sources	<u>10,624</u>	<u>2,093</u>	<u>6,051</u>	<u>681</u>
	Total	16,811	13,193	196,924	4,690
Alternative 2	Motor vehicles	3,274	5,920	101,831	2,103
	Area sources	<u>4,141</u>	<u>816</u>	<u>2,359</u>	<u>265</u>
	Total	7,415	6,736	104,190	2,369
Subalternative A	Motor vehicles	3,471	6,215	107,385	2,221
	Area sources	<u>4,742</u>	<u>934</u>	<u>2,701</u>	<u>304</u>
	Total	8,213	7,149	110,085	2,525
Subalternative B	Motor vehicles	3,399	6,112	105,583	2,182
	Area sources	<u>4,508</u>	<u>888</u>	<u>2,567</u>	<u>289</u>
	Total	7,907	7,000	108,150	2,471
Alternative 3	Motor vehicles	1,620	2,754	50,848	983
	Area sources	<u>2,269</u>	<u>447</u>	<u>1,292</u>	<u>145</u>
	Total	3,889	3,201	52,140	1,129
Alternative 4	Motor vehicles	880	1,878	28,262	653
	Area sources	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
	Total	880	1,878	28,262	653
Alternative 5	Motor vehicles	98	309	3,539	66
	Area sources	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
	Total	98	309	3,539	66
Subalternative A	Motor vehicles	4	10	113	3
	Area sources	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
	Total	4	10	113	3
Alternative 6R	Motor vehicles	1,508	3,245	48,603	1,103
	Area sources	<u>253</u>	<u>60</u>	<u>2,544</u>	<u>1</u>
	Total	1,762	3,305	51,147	1,104

ROG = reactive organic gases.
 NO_x = nitrogen oxides.
 CO = carbon monoxide.
 PM₁₀ = inhalable particulate matter.

Emissions for motor vehicles and area sources are based on the following assumptions:

Reuse Alternative	Motor Vehicle Assumptions		Area Source Assumptions
	Vehicle Miles Traveled Per Day	Vehicle Trips Per Day	Residential Units
Existing conditions	1,067,816	193,278	21,315
Alternative 1	7,441,842	1,109,026	78,751
Subalternative A	7,776,958	1,169,412	83,451
Subalternative B	7,762,952	1,165,030	79,251
Subalternative C	7,584,208	1,121,414	92,033
Alternative 2	3,978,517	569,486	35,873
Subalternative A	4,202,181	610,473	41,073
Subalternative B	4,128,118	597,982	39,047
Alternative 3	1,859,706	258,288	19,656
Alternative 4	1,235,174	172,212	0
Alternative 5	124,278	14,682	0
Subalternative A	6,220	985	0
Alternative 6R	2,086,055	287,531	168

Notes: Except for Alternative 6R, emissions from area sources are for residential sources only. These emissions are for emissions from domestic water and space heating, landscape maintenance equipment, house paints, woodstoves, and fireplaces (U.S. Environmental Protection Agency 1985, Bay Area Air Quality Management District 1985).

Area source emissions for Alternative 6R include emissions associated with use of Fritzsche Army Airfield as a general aviation airport.

Motor vehicle emissions are based on the California Air Resources Board's EMFACSCF model. A more detailed description of the assumptions used to estimate motor vehicle emissions is available in Appendix N, Volume III.

Table 6.8-3 Predicted Worst-Case Carbon Monoxide Levels in Parts Per Million

Receptor Locations	Alternative 1 (2010)		Alternative 2 (2010)		Alternative 3 (2010)		Alternative 4 (2010)		Alternative 5 (2010)		Alternative 6R (2010)	
	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average
1	11.5	7.5	8.2	5.3	8.4	5.5	7.9	5.1	7.7	5.0	8.2	5.3
2	11.3	7.3	8.7	5.7	9.2	6.0	8.6	5.6	8.2	5.3	8.8	5.7
3	9.5	6.2	8.0	5.2	8.1	5.3	7.8	5.1	7.3	4.7	7.7	5.0
4	11.8	7.7	9.0	5.9	7.5	4.9	7.0	4.6	6.6	4.4	7.6	5.1
5	10.6	7.0	8.3	5.4	8.0	5.2	7.3	4.7	7.0	4.6	7.5	4.9
6	10.1	6.6	8.1	5.3	8.1	5.3	7.4	4.8	7.1	4.6	7.4	4.8
7	12.0	7.6	8.7	5.7	9.3	6.0	8.2	5.3	7.7	5.0	8.4	5.5
8	14.2	9.2*	9.0	5.9	9.2	6.0	8.4	5.5	8.8	5.6	9.2	6.0
9	14.2	9.2*	9.5	6.2	9.6	6.2	8.6	5.6	8.5	5.5	9.2	6.0
10	17.0	11.1*	9.0	5.9	8.7	5.7	8.0	5.2	8.2	5.3	8.7	5.7
11	12.4	8.1	9.8	6.4	9.9	6.4	8.6	5.7	8.8	5.7	9.7	6.3
12	13.6	8.6	7.7	5.0	7.5	4.9	7.1	4.6	6.9	4.5	7.3	4.7
13	13.2	8.6	8.4	5.5	7.9	5.1	7.4	4.8	6.9	4.5	7.6	4.9
14	11.5	7.5	8.2	5.3	8.2	5.3	7.7	5.0	8.0	5.2	8.2	5.3
15	12.2	7.9	8.5	5.5	8.7	5.7	8.0	5.2	8.3	5.4	8.7	5.7
16	11.2	7.3	8.5	5.5	8.6	5.6	8.0	5.2	8.1	5.3	8.5	5.5
17	12.4	8.1	10.3	6.7	10.3	6.7	9.6	6.2	9.7	6.3	10.6	6.9
18	12.2	7.9	9.3	6.0	9.5	6.2	8.8	5.7	9.8	6.4	10.0	6.5
19	11.9	7.7	9.3	6.0	9.4	6.1	8.9	5.8	10.3	6.7	10.5	6.8
20	13.0	8.5	9.5	6.2	9.8	6.4	9.2	6.0	9.8	6.4	10.0	6.5
21	12.2	7.9	9.5	6.2	9.7	6.3	9.4	6.1	11.3	7.3	11.4	7.4
22	11.6	7.5	8.9	5.8	8.9	5.8	8.5	5.5	9.5	6.2	9.5	6.2
23	15.4	10.0*	9.4	6.1	9.0	5.9	8.9	5.8	10.3	6.7	10.3	6.7
24	12.1	7.9	8.3	5.4	8.3	5.4	7.9	5.1	8.2	5.3	8.3	5.4
25	10.8	7.0	8.3	5.4	8.2	5.3	8.1	5.3	8.4	5.5	8.6	5.6
26	13.8	9.0	8.9	5.8	8.9	5.8	8.4	5.5	8.3	5.4	8.8	5.7
27	12.4	8.1	8.5	5.5	8.5	5.5	8.1	5.3	8.2	5.3	8.4	5.5
28	11.7	7.8	8.2	5.3	7.7	5.0	7.2	4.7	7.2	4.7	7.6	4.9
29	13.4	8.7	8.7	5.7	7.9	5.1	7.1	4.6	7.0	4.6	8.0	5.2
30	13.1	8.5	9.0	5.9	9.3	6.0	8.5	5.5	8.8	5.7	9.4	6.1
31	11.0	7.2	9.3	6.0	9.3	6.0	9.0	5.9	9.1	5.9	9.5	6.2
32	11.9	7.7	9.3	6.0	9.1	5.9	8.5	5.5	8.6	5.7	9.4	6.1
33	10.5	6.8	8.4	5.5	8.4	5.5	8.1	5.3	8.0	5.2	8.4	5.5
34	12.8	8.3	9.4	6.1	9.5	6.2	8.7	5.7	9.0	5.9	9.0	5.9
35	10.6	6.9	8.6	5.6	8.5	5.5	8.2	5.3	8.3	5.4	8.7	5.7
36	13.3	8.6	8.4	5.5	7.9	5.1	7.0	4.6	7.0	4.6	8.2	5.3
37	11.1	7.2	7.5	4.9	7.2	4.7	7.0	4.6	7.1	4.6	7.1	4.6
38	13.4	8.7	7.2	4.7	7.4	4.8	7.2	4.7	6.9	4.5	7.0	4.6
39	10.5	6.8	7.1	4.6	7.3	4.7	7.2	4.7	6.8	4.4	6.6	4.4
40	16.1	11.6*	7.5	4.9	7.8	5.1	7.5	4.9	8.4	4.2	6.9	4.5
41	19.6	12.7*	7.9	5.1	7.8	5.1	7.5	4.9	6.5	4.2	7.3	4.7
42	12.3	8.0	8.1	5.3	9.0	5.9	8.1	5.3	7.4	4.8	7.7	5.0
43	11.2	7.3	8.2	5.3	8.5	5.5	8.6	5.6	7.2	4.7	7.6	5.1
44	11.2	7.3	7.7	5.0	8.6	5.6	8.1	5.3	7.0	4.6	9.0	5.9
45	10.3	6.7	7.8	5.1	8.1	5.3	8.0	5.2	6.7	4.4	6.2	5.3
46	14.5	9.4*	7.7	5.0	9.0	5.9	7.8	4.9	6.7	4.4	9.1	5.9
47	13.7	8.9	9.6	6.2	8.6	5.6	7.9	5.1	6.6	4.3	7.9	5.1
48	15.4	10.0*	8.7	5.7	8.4	5.5	7.5	4.9	6.9	4.5	8.5	5.5
49	14.1	9.2*	7.4	4.6	9.2	6.0	7.2	4.7	7.3	4.7	8.1	5.3
50	11.0	7.2	7.3	4.7	8.4	5.5	7.3	4.7	7.0	4.6	8.1	5.3
51	12.7	8.3	7.4	4.8	9.8	6.4	7.3	4.7	6.8	4.4	7.7	5.0
52	9.8	6.4	7.1	4.6	8.2	5.3	7.4	4.8	7.3	4.7	8.9	5.8
53	10.5	6.8	7.2	4.7	8.8	5.7	7.1	4.6	7.0	4.6	7.9	5.1
54	14.3	9.3*	8.2	5.3	8.1	5.3	7.0	4.6	7.1	4.6	9.3	6.0
55	11.6	7.5	8.6	5.6	7.9	5.1	7.0	4.6	7.6	4.9	7.3	4.7
56	12.7	8.3	7.9	5.1	7.9	5.1	7.2	4.7	7.3	4.7	7.2	4.7
57	12.3	8.0	7.9	5.1	7.6	4.9	7.8	5.1	7.3	4.7	7.2	4.7
58	12.2	7.9	8.1	5.3	7.7	5.0	7.7	5.0	NAR	NAR	7.0	4.6
59	10.6	6.9	7.4	4.6	7.6	4.9	8.0	5.2	NAR	NAR	7.0	4.6
60	11.1	7.2	7.8	5.1	8.4	5.5	7.1	4.6	NAR	NAR	7.0	4.6
61	10.2	6.6	8.2	5.3	7.8	4.9	7.2	4.7	NAR	NAR	NAR	NAR
62	9.8	6.2	8.6	5.6	7.2	4.7	6.9	4.5	NAR	NAR	NAR	NAR
63	11.5	7.5	8.9	5.8	NAR	NAR	7.3	4.7	NAR	NAR	NAR	NAR
64	10.5	6.8	8.9	5.6	NAR	NAR	7.1	4.6	NAR	NAR	NAR	NAR
65	10.5	6.6	8.0	5.2	NAR	NAR	7.4	4.8	NAR	NAR	NAR	NAR
66	10.2	6.6	7.5	4.9	NAR	NAR	7.1	4.6	NAR	NAR	NAR	NAR
67	12.0	7.8	7.5	4.9	NAR	NAR	7.0	4.6	NAR	NAR	NAR	NAR
68	12.6	8.2	8.1	5.3	NAR	NAR	7.2	4.7	NAR	NAR	NAR	NAR
69	12.2	7.9	7.6	4.9	NAR	NAR	7.0	4.6	NAR	NAR	NAR	NAR
70	11.0	7.2	7.8	4.9	NAR	NAR	7.1	4.6	NAR	NAR	NAR	NAR
71	10.7	7.0	7.3	4.7	NAR	NAR	9.1	5.9	NAR	NAR	NAR	NAR
72	10.6	6.9	7.4	4.8	NAR	NAR	7.2	4.7	NAR	NAR	NAR	NAR
73	11.1	7.2	8.0	5.2	NAR	NAR	7.2	4.7	NAR	NAR	NAR	NAR
74	14.2	9.2*	8.7	5.7	NAR	NAR	6.9	4.5	NAR	NAR	NAR	NAR
75	11.9	7.7	8.0	5.2	NAR	NAR	6.9	4.5	NAR	NAR	NAR	NAR
76	11.0	7.2	7.8	5.1	NAR	NAR	6.8	4.4	NAR	NAR	NAR	NAR
77	11.1	7.2	7.8	5.1	NAR	NAR	6.8	4.4	NAR	NAR	NAR	NAR

Table 6.8-3 Continued

Receptor Locations	Alternative 1 (2010)		Alternative 2 (2010)		Alternative 3 (2010)		Alternative 4 (2010)		Alternative 5 (2010)		Alternative 6R (2010)	
	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average	Peak-Hour Average	8-Hour Average
78	12.1	7.9	8.4	5.5	NAR	NAR	8.7	4.4	NAR	NAR	NAR	NAR
79	11.6	7.5	7.8	5.1	NAR	NAR	8.8	4.4	NAR	NAR	NAR	NAR
80	10.5	6.8	7.8	5.1	NAR	NAR	7.3	4.7	NAR	NAR	NAR	NAR
81	11.3	7.3	7.8	5.1	NAR	NAR	7.3	4.7	NAR	NAR	NAR	NAR
82	12.1	7.9	8.2	5.3	NAR	NAR	7.8	5.1	NAR	NAR	NAR	NAR
83	10.7	7.0	9.0	5.9	NAR	NAR	7.7	5.0	NAR	NAR	NAR	NAR
84	10.8	7.0	8.0	5.2	NAR	NAR	7.3	4.7	NAR	NAR	NAR	NAR
85	10.7	7.0	7.5	4.9	NAR	NAR	8.8	4.4	NAR	NAR	NAR	NAR
86	10.8	7.0	8.8	5.8	NAR	NAR	8.7	4.4	NAR	NAR	NAR	NAR
87	11.7	7.8	8.0	5.9	NAR	NAR	8.8	4.4	NAR	NAR	NAR	NAR
88	12.1	7.9	8.3	5.4	NAR	NAR	8.8	4.3	NAR	NAR	NAR	NAR
89	12.3	8.0	8.3	5.4	NAR	NAR	8.7	4.4	NAR	NAR	NAR	NAR
90	10.0	6.5	8.5	5.5	NAR	NAR	7.0	4.8	NAR	NAR	NAR	NAR
91	11.8	7.7	8.3	5.4	NAR	NAR	8.9	4.5	NAR	NAR	NAR	NAR
92	12.9	8.4	8.4	5.5	NAR	NAR	8.8	4.3	NAR	NAR	NAR	NAR
93	12.9	8.4	8.2	6.0	NAR	NAR	8.9	4.5	NAR	NAR	NAR	NAR
94	11.1	7.2	8.8	5.7	NAR	NAR	8.9	4.5	NAR	NAR	NAR	NAR
95	11.7	7.8	8.8	5.7	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
96	13.2	8.8	8.5	5.5	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
97	13.2	8.8	8.4	5.5	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
98	11.4	7.4	8.0	5.2	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
99	12.1	7.9	8.0	5.2	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
100	11.5	7.5	8.3	5.4	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
101	11.0	7.2	7.3	4.7	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
102	12.0	7.8	8.0	5.2	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
103	12.4	8.1	7.0	4.6	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
104	11.4	7.4	7.5	4.8	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
105	14.9	9.7*	7.7	5.0	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
106	13.8	8.8	7.7	5.0	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
107	13.4	8.7	8.2	5.3	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
108	11.2	7.3	7.9	5.1	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
109	13.1	8.5	7.4	4.8	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
110	12.3	8.0	7.8	4.9	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
111	14.2	9.2*	7.8	5.1	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
112	12.3	8.0	7.8	4.9	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
113	14.3	9.3*	8.2	5.3	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
114	13.3	8.8	7.2	4.7	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
115	12.8	8.3	7.3	4.7	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
116	13.8	9.0	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
117	16.0	10.4*	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
118	13.3	8.6	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
119	13.0	8.5	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
120	14.8	9.8*	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
121	16.0	10.4*	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
122	13.9	9.0	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
123	11.1	7.2	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
124	11.1	7.2	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
125	12.0	7.8	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
126	12.2	7.9	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
127	10.8	6.9	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
128	12.8	8.3	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
129	13.8	9.0	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
130	13.2	8.8	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
131	13.4	8.7	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
132	12.3	8.0	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
133	15.4	10.0*	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
134	12.6	8.2	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
135	11.8	7.5	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
136	11.4	7.4	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
137	11.8	7.5	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
138	15.4	10.0*	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
139	12.4	8.1	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
140	10.8	6.9	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
141	11.1	7.2	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
142	12.8	8.3	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
143	10.7	7.0	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
144	11.1	7.2	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
145	13.1	8.5	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR	NAR
Maximum ->	19.8	12.7	10.3	6.7	10.3	6.7	9.8	6.2	11.3	7.3	11.4	7.4

Table 6.8-3. Continued

Notes: NAR = No additional receptors selected for this alternative.

Receptors 1 through 41 are located off base in the areas surrounding Fort Ord. These receptors remain the same for each alternative and are based on existing sensitive receptor locations. These sensitive receptors were identified by the use of aerial photographs and a site visit. Receptors numbered 42 and above were selected based on the roadway intersections modeled for each alternative. These receptors were placed 250-300 feet from intersection centerpoints.

Receptor locations for the reuse alternatives are illustrated in Appendix N (Volume III and Volume IV, Section 6.0)

Federal and state 8-hour standards for CO = 9 parts per million (ppm).

Federal standard for CO = 35 ppm.

California 1-hour standard for CO = 20 ppm.

8-hour average values equal 85 percent of peak hour average value.

CO concentrations include a background level of 6 ppm for 8-hour average and 3.8 ppm for 1-hour average.

See Appendix N for an in-depth description of the CO modeling analysis.

* = Indicates a violation of the state 8-hour CO standards.

Table 6.8-4 Fort Ord Population Projections

Scenario	1995	2000	2005	2010	2015
AMBAG 1991 Forecast	5,700	28,590	28,600	28,600	28,600
AMBAG 1981 Forecast	NA	24,700	NA	NA	NA
Alternative 1	4,770	28,991	53,211	77,432	101,652
Subalternative A	0	25,688	51,376	77,064	102,752
Subalternative B	4,770	29,045	53,319	77,594	101,868
Subalternative C	0	28,263	56,525	84,788	113,051
Alternative 2	4,770	15,570	26,370	37,171	47,971
Subalternative A	0	12,360	24,720	37,081	49,441
Subalternative B	4,770	16,522	28,275	40,027	51,779
Alternative 3	4,770	12,587	20,404	28,220	36,037
Alternative 4	4,770	6,690	8,610	10,530	19,450
Alternative 5	4,770	4,770	4,770	4,770	4,770
Subalternative A	0	0	0	0	0
Alternative 6R	4,770	9,270	13,770	18,270	22,770

Notes: The AMBAG 1991 forecast is used to determine the consistency with the Monterey Bay Unified Air Pollution Control District's 1991 Air Quality Management Plan.

The AMBAG 1981 forecast is used to determine consistency with the 1982 Air Quality Management Plan for the Monterey Bay Region, also known as the state implementation plan (SIP).

Source: Association of Monterey Bay Area Governments pers. comm.

A single set of noise criteria that is a composite of the local agency standards is used in evaluating the significance of impacts. The noise sensitivity of land uses are broken down into four broad categories and noise compatibility criteria are assigned to each land use category. Land use compatibility criteria used in this evaluation are summarized in Table 6.9-1.

Changes in land uses at Fort Ord would result in changes in traffic volumes generated. These changes in traffic volumes would result in changes in traffic noise levels along roads both on and off the installation. Traffic noise levels along these roads have been evaluated using the Federal Highway Administration Traffic Noise Prediction Model and traffic volumes developed from the traffic analysis discussed in Section II.7, "Traffic and Circulation", in Volume II. The traffic noise modeling results were calculated from a conceptual planning level of analysis and should not be used for project-specific environmental evaluation.

Some of the land uses being considered for the alternatives would support activities that would be sources of noise (Table 6.9-2). The noise sensitivity of land uses proposed under the reuse alternatives is broken down into four broad categories, with noise compatibility criteria assigned to each category. The noise sensitivities of proposed land uses are summarized in Table 6.9-1.

6.9.2 Disposal Impacts

■ *Impact: Excessive Noise from Remediation Activities*

Soil contamination, groundwater contamination, and unexploded ordnance would be remediated to a level commensurate with reuse at Fort Ord before reuse. The type of future land use selected for each contaminated site would determine cleanup levels and remedial actions to be taken. Specific cleanup levels for each proposed reuse alternative have not yet been determined, and the specific technology used to remediate a specific contamination would not be determined until site characterization studies have been completed.

The level of remediation would generally be tied to the intensity of the development. For soil and groundwater contamination, noise levels generated by remediation activities are largely independent of the level of remediation because the same technology would generally be used for various levels of remediation. However, the duration of the remediation activity may be longer when a higher level of remediation is required. For remediation of unexploded ordnance, higher levels of remediation may require extended excavation periods to achieve deeper excavations. As more unexploded ordnance is uncovered, more ordnance would need to be detonated, which would create more noise. Although specific levels of noise and specific locations for noise-generating activities cannot be determined, remediation activities that may generate noise can be identified.

Remediation of soil contamination can involve excavation and onsite treatment or *in situ* treatment. Noise-generating activities associated with excavation and onsite treatment include the use of heavy equipment to excavate soil and low temperature thermal treatment, which enhances volatilization by thermal oxidation. The only noise-generating activity generally associated with *in situ* soil remediation is soil vapor extraction, which involves potentially noisy vacuum and vapor combustion systems.

Remediation of groundwater contamination can involve containment or pump-and-treat technologies. Noise-generating activities associated with containment are limited to construction activities during construction of slurry walls and collection trenches. The use of air strippers that force streams of clean air through streams of groundwater in a series of cooling towers and basins is the only noise-generating activity generally associated with pump-and-treat technologies.

Remediation of unexploded ordnance involves locating, excavating, and detonating ordnance. For any land use other than open space or grazing, unexploded ordnance must be removed below the ground surface to the depth to which excavations would occur, plus a freeboard. Residential land uses would require greater freeboard than commercial or industrial uses. Once ordnance has been located, the preferred treatment is *in situ* detonation. Operation of equipment used for excavation and the detonation of ordnance are noise-generating activities associated with the remediation of unexploded ordnance.

**Table 6.9-1 Land Use Compatibility Criteria
Used in Evaluation of Noise Impacts**

Noise Sensitivity of Land Use	Typical Land Use or Activity	Outdoor Criteria (dB L_{dn})
High	Places where people live and sleep Educational facilities Healthcare facilities Religious facilities Libraries Passively used open space Outdoor interpretive areas	60
Moderate	Auditoriums Concert halls Amphitheaters Actively used open space Outdoor cultural facilities Outdoor training areas	65
Low	Office buildings Commercial use Industrial use Agricultural use Utilities Manufacturing Sports arenas Outdoor spectator sports Habitat areas with no human access	70
None	High noise areas (e.g., airports) Parking lots Storage areas	N/A

Note: The Army standard for acceptable noise for housing, schools, medical facilities, and noise-sensitive land uses is 65-dB L_{dn} ; 45-dB L_{dn} is used as the standard for interior noise levels in buildings where people live and sleep.

Table 6.9-2 Land Uses Potentially Containing Sources of Noise

Land Use	Potential Source of Noise
Fairgrounds	Carnivals, fairs, amusement facilities
Sports complex	Outdoor sporting events
Sports field	Outdoor sporting events
Amphitheater	Open air concerts
Film complex	Films or activities at complex
Theme park	Rides or activities at theme park
Agri-center	Agri-business processing activities
Airport	Aircraft
Police academy	Shooting center, pistol range
Peace Officers Standards and Training academy	Handgun, shotgun training
Transit center	Transportation systems

Table 6.9-3 Distance Attenuation for Noise Near a Construction Site

Distance Attenuation		Distance to dB Contours	
Receptor Distance (feet)	Noise Level at Receptor (dBA)	Noise Contour Value (dBA)	Contour Distance (feet)
50	94.0	105	14
100	87.9	100	25
200	81.8	95	45
400	75.5	90	79
600	71.7	85	138
800	68.9	80	240
1,000	66.6	75	417
1,500	62.3	70	736
2,000	59.1	65	1,115
2,500	56.4	60	1,918
3,000	54.1	55	2,902
4,000	50.0	50	4,006
5,280	45.7	45	5,365
7,500	39.3	40	7,407

Notes: The following assumptions were used:

- Basic sound-level dropoff rate = 6.0 dB/doubling.
- Atmospheric absorption coefficient = 0.5 dB/100 meters.
- Reference noise level = 94 dBA.
- Distance for reference noise level = 50 feet.

Dropoff calculations include atmospheric absorption at 0.5 dB/100 meters, centered at reference distance.

Except for sounds with highly distinctive tonal characteristics, noise from a particular source will not be identifiable when its incremental noise level contribution is significantly less than background noise levels.

Contour distance calculations are most accurate within the decibel range of the direct attenuation calculations.

The remediation activities described above have the potential to substantially affect noise-sensitive land uses if remediation activities occur immediately adjacent to these uses. Except for unexploded ordnance that is in designated impact or inland range areas, most of the remediation sites are in the Main Garrison, the East Garrison, and Fritzsche Army Airfield. Given that remediation activities would typically occur well away from occupied areas, the extent of remediation-related impacts is anticipated to be small. Because of the remoteness of the impact areas, excavation and detonation of unexploded ordnance is not likely to affect any noise-sensitive locations. This mitigation is considered feasible to implement for this impact and would not result in any substantial secondary environmental effects.

- ***Mitigation: Develop Noise-Reducing Measures to Avoid Remediation Noise Impacts through the Remedial Investigation/Feasibility Study***

The following noise-reducing remediation practices will be employed through the remedial investigation/feasibility study (RI/FS) to avoid remediation-related noise impacts. (Army)

- Determine noise levels generated by remediation activities and establish minimum operating distances between remediation activities and noise-sensitive land uses. The minimum operating distance should be defined as the distance the activity must be before noise from the activity is equal to the existing ambient noise level.
- Restrict noise-generating remediation activities located within the minimum operating distance of residences to daytime hours. No remediation activities should be performed within the minimum operating distance of an occupied dwelling unit on Sundays, legal holidays, or between 8:00 p.m. and 8:00 a.m. on other days.
- All equipment should have sound-control devices no less effective than those provided on the original equipment. No equipment should have an unmuffled exhaust.
- All equipment should comply with pertinent equipment noise standards set by federal, state, and local agencies.
- As directed by the Army, the remediation contractor should implement appropriate additional noise mitigation measures, including changing the location of stationary equipment, shutting off idling equipment, rescheduling remediation activity, notifying adjacent residents in advance of remediation work, installing acoustic barriers around stationary remediation noise sources, or rerouting heavy trucks to avoid roads with nearby noise-sensitive land uses.

This mitigation is considered feasible to implement for this impact and would not result in any substantial secondary environmental effects.

6.9.3 Reuse Impacts

- ***Impact: Excessive Noise from Construction Activities***

Figure O-1 in Appendix O, Volume III, illustrates noise levels produced by various types of construction equipment. Properly maintained equipment would produce noise levels near the middle of the indicated ranges. The types of equipment that would be used for grading and constructing the proposed development would typically generate noise levels of 80-90 A-weighted decibels (dBA) at a distance of 50 feet while the equipment is operating (U.S. Environmental Protection Agency 1971). Construction equipment operations can vary from intermittent to fairly continuous, with several pieces of equipment operating concurrently. Assuming that a bulldozer (87 dBA), backhoe (90 dBA), grader (90 dBA), and front-end loader (82 dBA) are operating concurrently in the same area, peak construction-period noise would generally be about 94 dBA at 50 feet from the construction site.

Noise impacts expected in the vicinity of an active construction site based on a composite source noise level of 94 dBA at 50 feet are summarized in Table 6.9.3. The atmospheric absorption parameter in Table 6.9-3 reflects minimal absorption for typical construction equipment noise spectra (e.g., bulldozer, water truck). The atmospheric absorption parameter was calculated using procedures described in Acoustical Society of America (1978).

Locations within about 1,900 feet of a construction site would be exposed to occasional episodes of noise levels greater than 60 dBA. Areas within about 740 feet of a construction site would be exposed to episodes of noise levels greater than 70 dBA. However, such episodes of high noise levels would not be continuous throughout the day, and would typically be restricted to daytime hours.

Heavy trucks transporting construction materials to construction sites could be a source of excessive noise. The extent of potential noise impacts is highly variable depending on the intensity of construction on a given site, the amount of materials that must be trucked to the site, the number of access roads to the construction site, and the distance of noise-sensitive receptors to access roads.

Under Alternative 6R, approximately 23,000 acres of land would be disturbed by construction. This construction would result in increased noise levels in areas around construction sites and along access roads to construction sites. These increased noise levels have the potential to adversely affect residences and other noise-sensitive land uses near these sites or roads. Ambient noise levels may be substantially increased or local noise standards may be exceeded.

■ ***Mitigation: Avoid Construction Noise Impacts by Employing Noise-Reducing Construction Practices***

The following noise-reducing construction practices could be employed to avoid construction-related noise impacts. (Local agencies and private entities responsible for development)

- Restrict construction within 1,000 feet of residences to daytime hours. No construction shall be performed within 1,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between 8:00 p.m. and 8:00 a.m. on other days. Any change from this condition must be approved by the appropriate local jurisdiction.
- All equipment shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust.
- All equipment shall comply with pertinent equipment noise standards set by federal, state, and local agencies.
- No pile-driving or blasting operations shall be performed within 3,000 feet of an occupied dwelling unit on Sundays, legal holidays, or between the hours of 8:00 p.m. and 8:00 a.m. on other days. Any change from this condition must be approved by the appropriate local jurisdiction.
- The noise from any rock-crushing or screening operations performed within 3,000 feet of any occupied dwelling unit shall be mitigated by strategic placement of material stockpiles between the operation and the affected dwelling or by other means approved by the appropriate local jurisdiction.
- As directed by the local jurisdiction, the contractor shall implement appropriate additional noise mitigation measures, including changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, installing acoustic barriers around stationary construction noise sources, or rerouting heavy trucks to avoid roads with noise-sensitive land uses nearby.

This mitigation is considered feasible to implement for this impact and would not result in any substantial secondary environmental effects.

- **Impact: Increased and Excessive Noise from Traffic on Existing Noise-Sensitive Land Uses**

Traffic noise levels have been evaluated along existing roadway segments and other roadway segments proposed under Alternative 6R that would be located within the boundaries of Fort Ord. Table O-8 in Appendix O (Volume IV, Section 6.0) summarizes the L_{dn} at a fixed distance of 100 feet from the centerline of each roadway segment analyzed. Table O-8 also summarizes the predicted distance to the 55-, 65-, 70-, and 75-dB- L_{dn} contour lines that would occur under Alternative 6R and compares noise levels under Alternative 6R to existing noise levels.

Noise-sensitive land uses (primarily residential) exist adjacent to all of the existing roadway segments evaluated. Some of the noise-sensitive land uses adjacent to these roadways include educational, religious, and healthcare facilities. Residential land uses vary from rural residential uses with scattered houses adjacent to roadways to high-density urban residential development. Commercial, industrial, and recreational land uses also exist adjacent some of the roads. However, impacts are evaluated based on the most sensitive land use that exists adjacent to a given roadway segment. Figure 3-15 illustrates land uses and roadways.

The noise criterion for residential land uses of 60-dB- L_{dn} is exceeded within 100 feet of all existing roadway segments evaluated. In most cases, this is also true for existing conditions. Although implementing Alternative 6R would substantially increase noise (5 dB or greater relative to existing conditions) along only one of the existing roadway segments evaluated, this alternative would result in increased noise levels along roads where local noise standards are already exceeded.

- **Mitigation: Avoid Traffic Noise Impacts by Providing Sound Barriers between the Roads and Noise-Sensitive Land Uses Located within the 60-dB- L_{dn} Traffic Noise Contour Lines**

Where existing noise-sensitive land uses are located within the 60-dB- L_{dn} contour lines and where barriers are feasible, the traffic noise impacts could be avoided by constructing sound barriers between the roadway and noise-sensitive land uses. A sound barrier may consist of a constructed wall, an earth berm, or a combination of the two. Sound barriers must attenuate noise to less than 60-dB- L_{dn} at noise-sensitive receptor locations. (Local agencies and private entities responsible for development).

The feasibility of construction of sound walls depends on a number of factors, including the topographical relationship between roadways and receptors and the number of sensitive land uses that benefit from construction of a wall. In general, sound walls are feasible to implement if there are not unusual terrain limitations and a reasonable number of people will benefit from the wall. The primary secondary environmental effects that sound walls can have relate to aesthetics and views. In some instances, people find that the negative visual and aesthetics effects outweigh the noise-reducing benefits of a sound wall.

- **Mitigation: Avoid Traffic Noise Impacts by Providing Acoustical Treatment to Existing Noise-Sensitive Buildings to Reduce the Interior Noise Level from Traffic to Less than 45-dB- L_{dn}**

In some cases, noise reduction from sound barriers cannot be feasibly achieved. These cases include situations where access driveways preclude the use of a sound barrier or where a sound barrier cannot be built high enough to reduce the noise impact on a multistory structure. In these cases, traffic noise impacts could be avoided by financing and providing acoustical treatment to existing noise-sensitive buildings to result in an interior noise level of 45-dB- L_{dn} or less at locations exposed to exterior noise in excess of 60-dB- L_{dn} . Standard residential building construction with windows closed would typically provide at least 20 dB of noise reduction of exterior noise. Where additional noise reduction is required to achieve an interior noise levels of 45-dB- L_{dn} or less, the following features can be incorporated into existing structures: (Local agencies and private entities responsible for development)

- Minimize the extent of windows, glass sliding doors, vents, and other openings in building shell walls that face roads or railways.

- Install extra wall and ceiling insulation, additional wallboard material, and acoustical caulking when a substantial improvement in building shell sound transmission loss can be achieved.
- Use acoustically rated glazing for windows and sliding doors.
- Install airtight seals between window or door frames at exterior walls.

Increased acoustical insulation is generally feasible unless the value of the structure to be treated is so low that the cost of increased insulation is unreasonable. This mitigation would not result in any substantial secondary environmental effects.

- ***Mitigation: Eliminate Traffic Noise Impacts by Removing Noise-Sensitive Land Uses from Locations Where Noise Levels are High and Impacts Cannot Be Otherwise Mitigated***

In some cases, noise reduction from sound barriers and improved acoustical insulation of buildings cannot be feasibly achieved. In these cases, traffic noise impacts could be eliminated by removing noise-affected land uses from high noise areas and relocating the displaced use. (Local agencies and private entities responsible for development).

The primary factor affecting the feasibility of this mitigation is cost, which can be substantial in some cases. This mitigation would not result in any substantial secondary environmental effects.

- ***Impact: Excessive Noise from Traffic on New Noise-Sensitive Land Uses***

Traffic noise modeling results for new roadways proposed under Alternative 6R are summarized in Table O-8 in Appendix O (Volume IV, Section 6.0). Major arterials would pass through or adjacent to all of the noise-sensitive land uses proposed under Alternative 6R. These noise-sensitive uses include residential land uses and educational land uses. Noise-sensitive land uses would be exposed to traffic noise levels in excess of local noise standards for these uses under this alternative.

- ***Mitigation: Avoid Traffic Noise Impacts by Locating New Residences and Other Noise-Sensitive Land Uses outside the 60-dB-L_{dn} Contour Lines Caused by Traffic***

Traffic noise impacts could be avoided by requiring developers to employ setbacks to locate noise-sensitive land uses, such as residences, schools, and healthcare facilities, outside the 60-dB-L_{dn} contour lines caused by traffic on roads adjacent to these land uses. Distances to 60-dB-L_{dn} contour lines for roads in the study area based on a planning level of analysis are given in Table O-2 in Appendix O in Volume III, and can be used as an approximate guide for the types of setbacks that would be needed. (Local agencies and private entities responsible for development). This mitigation is considered feasible to implement for this impact and would not result in any substantial secondary environmental effects.

- ***Mitigation: Avoid Traffic Noise Impacts by Constructing Sound Barriers between Roadways and Noise-Sensitive Land Uses That Must Be Located within the 60-dB-L_{dn} Contour Lines***

Where noise-sensitive land uses must be located within the 60-dB-L_{dn} contour lines, traffic noise impacts could be avoided by requiring developers to construct sound barriers between roadways and noise-sensitive land uses. Sound barriers must attenuate noise to less than 60-dB-L_{dn} at noise-sensitive receptor locations. (Local agencies and private entities responsible for development)

The feasibility of construction of sound walls depends on a number of factors, including the topographical relationship between roadways and receptors and the number of sensitive land uses that benefit from construction of a wall. In general, sound walls are feasible to implement if there are not unusual terrain limitations and a reasonable number of people will benefit from the wall. The primary secondary environmental effects that sound walls can have relate to aesthetics and views. In some instances, people find that the negative visual and aesthetics effects outweigh the noise-reducing benefits of a sound wall.

- **Mitigation: Avoid Traffic Impacts by Incorporating Acoustical Treatment into the Design and Construction of Residences and Other Buildings That House Noise-Sensitive Uses to Provide an Interior Noise Level of 45-dB- L_{dn} or Less at Locations Exposed to Exterior Noise in Excess of 60-dB- L_{dn} .**

In some cases, the use of setbacks and sound barriers may be insufficient to reduce exterior noise to less than 60-dB- L_{dn} . An example of this would be a two-story home located within the 60-dB- L_{dn} contour of a road. Although a sound barrier would reduce the noise at ground-floor locations, it would have little or no effect on the second story of the home. In cases where setbacks and sound barriers do not reduce exterior noise to less than 60 L_{dn} , traffic noise impacts would be avoided by requiring developers to incorporate acoustical treatment into the construction of residences and other buildings housing noise-sensitive uses to provide an interior noise level of 45-dB- L_{dn} or less at locations exposed to exterior traffic noise in excess of 60-dB- L_{dn} .

Standard residential building construction with windows closed would typically provide at least 20 dB of noise reduction of exterior noise. Where additional noise reduction is required to achieve an interior noise level of 45-dB- L_{dn} or less, the developers could incorporate the following features into project design and construction to reduce interior noise levels: (Local agencies and private entities responsible for development)

- Minimize the extent of windows, glass sliding doors, vents and other openings in building shell walls that face roads or railways.
- Orient garages and activity rooms so that they would shield bedrooms and other noise-sensitive areas of dwellings from exterior noise sources.
- Install extra wall and ceiling insulation, additional wallboard material, and acoustical caulking when a substantial improvement in building shell sound transmission loss can be achieved.
- Use acoustically rated glazing for windows and sliding doors.
- Install airtight seals between window or door frames and exterior walls.

Increased acoustical insulation is generally feasible unless the value of the structure to be treated is so low that the cost of increased insulation is unreasonable. This mitigation would not result in any substantial secondary environmental effects.

- **Impact: Exposure of Recreational Land Uses to Noise from the Agri-Center**

With implementation of this alternative, recreational land uses (i.e., an RV park/campground, natural resources management area) would be located adjacent to an agri-center. Noise from operations at the agri-center has the potential to be incompatible with this land use. Noise from the agri-center could adversely affect users of the RV park/campground and natural resources management area under this alternative (Table 6.9-1).

- **Mitigation: Employ Design and Construction Methods to Reduce Agri-Center Sound Transmission to the Adjacent Residential and Educational Land Uses**

Design, layout, and construction methods could be employed for the agri-center to reduce sound levels at adjacent land uses to acceptable levels. This could include use of setbacks, building orientation, enclosure of noisy operations, construction of sound barriers between noisy operations and residences. (Local agencies and private entities responsible for development). This mitigation is considered feasible to implement for this impact and would not result in any substantial secondary environmental effects.

- **Mitigation: Restrict the Hours of Operation of the Agri-Center**

The hours of operation of the agri-center could be restricted to daytime. (Local agencies responsible for development and owner/operator of the agri-center). This mitigation is considered feasible to implement for this impact and would not result in any substantial secondary environmental effects.

- **Impact: Exposure of Proposed University Science Offices, University Research Area, and Existing Noise-Sensitive Land Uses to Noise from Aircraft Accessing the General Aviation Airport**

Under this alternative, university science offices and the university research area would be located adjacent to the general aviation airport that is proposed for the Fritzsche Army Airfield site and would be exposed to aircraft noise. Existing noise-sensitive land uses in and around Fort Ord and proposed noise-sensitive land uses outside the limits of Fort Ord also could be exposed to noise from aircraft activities.

An analysis of potential reuse alternatives for Fritzsche Army Airfield has been prepared by the Fort Ord Economic Development Authority. Based on market research and analysis, the study identified four alternative development scenarios:

- 1A. Basic General Aviation
- 1B. Enhanced General Aviation
- 2. Enhanced General Aviation and Supporting Development
- 3. Regional Air Carrier/Air Cargo Operations

The economic analysis in the study suggests that Scenario 1 would be at best marginally viable economically. Conversely, Scenario 3 would involve a level of capital expenditure that would be prohibitive for the community. Scenario 2 was selected as the preferred alternative and the most likely to be implemented.

A noise analysis was prepared based on implementation of either Scenario 1B or 2 with 60,000 annual operations. The report states that this level of activity is commensurate with 1992 military activity levels at Fritzsche Army Airfield and would not be expected to be achieved by civil operations until after the year 2000. The report concludes that noise impacts due to aircraft operations are not expected to exceed those currently generated by military operations and that there would be no residential or other noise sensitive land uses within the 65 dB-CNEL and above contours. Noise contour lines anticipated under scenario 1B or 2 are depicted in Figure 6.9-1. As a point of comparison, the noise contour for existing operations (primary helicopters) is shown in Figure 3-5 of the Other Physical Attributes Baseline Study of Fort Ord, California (U.S. Army Corps of Engineers, Sacramento District 1992e).

Use of Fritzsche Army Airfield for fixed wing aircraft, currently used by the Army, would result in a change in the extent and character of noise impacts. Although noise contours generated for reuse of Fritzsche Army Airfield indicate that noise levels will not exceed 65 dB-CNEL at residential locations, the 55 and 60 dB-CNEL contour lines will extend outside the boundaries of the installation as a result of the use of fixed wing aircraft. Aircraft noise at these levels has the potential to adversely affect proposed land uses adjacent to the airport, existing noise-sensitive land uses both on and off Fort Ord, and proposed noise-sensitive land uses outside the limits of Fort Ord. Proposed noise-sensitive land uses outside the limits of Fort Ord include the proposed Armstrong Ranch residential development.

Mitigation to reduce the effect on the university science offices and the university research area to acceptable levels can be reasonably incorporated into the layout of facilities and the design of building structures. However, it is unlikely that mitigation to reduce noise effects on the habitat reserve and existing and proposed noise-sensitive land uses can be reasonably achieved.

- **Mitigation: Employ Design and Construction Methods to Reduce Interior Sound Levels at the University Science Offices and the University Research Area**

Design, layout, and construction methods could be employed for the university science offices and the university research area to reduce interior sound levels resulting from aircraft flyovers to acceptable levels. This could include use of setbacks, building orientation, and upgraded acoustical insulation of the buildings. This mitigation is considered feasible to implement for this impact and would not result in any substantial secondary environmental effects. No mitigation is available for aircraft noise impacts on residential land uses or the habitat preserve. (Local agencies and private entities responsible for development)

- **Impact: Exposure of the Community Park and the Natural Area Expansion at the Southwest End of Fort Ord to Noise from Activities at the Corporation Yard**

With implementation of this alternative the community park and the natural area expansion at the southwest end of Fort Ord would be located adjacent to the corporation yard. Noise from activities at the corporation yard has the potential to be incompatible with outdoor uses at the community park and the natural area expansion. Noise from the corporation yard could adversely affect users of these areas under this alternative.

- **Mitigation: Employ Design and Construction Methods to Reduce Corporation Yard Sound Transmission to the Adjacent Outdoor Activity Areas**

Design, layout, and construction methods could be employed for the corporation yard to reduce sound levels at adjacent land uses to acceptable levels. This could include use of setbacks, building orientation, enclosure of noisy operations, construction of sound barriers between noisy operations and residences. (Local agencies and private entities responsible for development). This mitigation is considered feasible to implement for this impact and would not result in any substantial secondary environmental effects.

6.9.4 Cumulative Effects

Cumulative noise effects could result from individually minor but collectively significant projects developed over time. For example, if five different projects individually cause traffic noise levels to increase by 1 dB along a road with nearby residences, the noise impact of each of those projects when considered separately would not be significant. However, the collective impact of all five projects would be a substantial increase in noise.

The traffic noise analysis for each reuse alternative is inherently cumulative because traffic volumes resulting from background growth and development outside of Fort Ord are included. Cumulative traffic noise effects can be identified at those roadway segments where implementation of an alternative contributes to an excess noise condition or where the overall increase in noise relative to existing conditions is substantial (i.e., 5 dB or greater).

Table 5-10 in Section 5.0 summarizes the number of existing roadway segments for each alternative where substantial noise increases (5 dB or greater) occur. The number of existing roadway segments where traffic noise increases are in the range of 0-5 dB are also summarized. Given that existing traffic noise levels along all of the existing roadway segments analyzed are close to or exceed the 60-dB- L_{dn} standard for residences, any increase in noise along these roadway segments could be considered a substantial cumulative effect. The net result of this is that substantial cumulative traffic noise effects would occur along any of the existing roadway segments where any traffic noise increase occurs.

The number of traffic noise increases is related to the intensity of the development, with more cumulative effects occurring with greater development. Based on the number of roadway segments with

noise increases, there would be 23 segments with substantial cumulative effects for Alternative 1, 17 segments for Alternative 2, 22 segments for Alternative 3, 15 segments for Alternative 4, 11 segments for Alternative 5, and 17 segments for Alternative 6R.

Cumulative effects could occur as a result of noise from stationary sources combining with other stationary or mobile sources. For example, noise from a industrial facility when combined with traffic noise or aircraft noise could result in an excess noise condition and a cumulative noise effect. These types of effects are not anticipated to occur for any of the proposed reuse alternatives because mitigation would be required for the direct effects from new sources of noise.

6.9.5 Summary Comparison of Reuse Alternatives

Noise-related issues for each reuse alternative are compared using aggregate comparison parameters. The following is a discussion of each parameter used.

Acres of Construction-Related Land Disturbance. Although the types of construction-related impacts would generally be the same for all of the reuse alternatives, this parameter is an indicator of the duration and extent of construction-related noise impacts.

Logarithmic Sum in dB of Calculated L_{dn} Values for 30 Existing Roadway Segments. This parameter is an aggregate indicator of the relative amount of traffic noise that is occurring under existing conditions or would occur with each reuse alternative. The absolute value of this parameter has no meaning.

Number of Existing Roadway Segments Where Traffic Noise Increases Are Greater than 5 dB or Greater Relative to Existing Conditions. The parameter identifies the number of roadway segments where substantial traffic noise increases would occur and is an indicator of both direct and cumulative impacts.

Number of Existing Roadway Segments Where Traffic Noise Increases Are Greater than 0 dB and Less than 5 dB Relative to Existing Conditions. This parameter identifies the number of roadway segments where traffic noise increases less than 5 dB would occur. Given that existing traffic noise levels along all existing roadway segments analyzed are close to or exceed the 60-dB- L_{dn} standard for residences, any increase in noise along these roadway segments can be considered a substantial cumulative effect. This parameter is thus an indicator of cumulative impacts.

Number of Existing Roadway Segments Where Traffic Noise Decreases Relative to Existing Conditions. This parameter is an indicator of the beneficial effects of an alternative on reducing traffic noise.

Number of Substantial Noise-Related Land Use Compatibility Impacts Identified. Substantial noise-related land use compatibility impacts have been identified for each alternative. This parameter is simply the number of substantial impacts identified and is an indicator of the relative amount of compatibility problems that may occur with implementation of each reuse alternative.

Values for each comparison parameter for each reuse alternative are summarized in Table 5-10 in Section 5.0. Overall, the alternatives can be ranked as follows from greatest noise effects to least: Alternative 1, Alternative 2, Alternative 3, Alternative 6R, Alternative 4, and Alternative 5.

6.10 HAZARDOUS AND TOXIC WASTE SITE REMEDIATION

6.10.1 Introduction

This analysis assumes that each contaminated parcel will be remediated to a level commensurate with the land uses proposed in Alternative 6R. Cleanup levels for hazardous and toxic waste will be determined after the six steps in the Superfund cleanup process outlined in the Other Physical Attributes Environmental Baseline Study (U.S. Army Corps of Engineers, Sacramento District 1992e) are completed, risk assessments have been performed, and all applicable regulatory agencies have reviewed and approved the proposed actions.

This analysis assumes that unexploded ordnance will be cleared from all areas of occurrence at Fort Ord using the surface clearing techniques described in Section 2.0, "Proposed Action". Subsurface clearance of ordnance would be necessary where sites are proposed for human habitation or activities. Subsequent periodic surface clearance to remove ordnance that rises to the ground surface would be conducted by the Army as necessary. Ordnance clearance techniques and the level of clearance will be determined after the Army conducts its initial characterization of the location and extent of ordnance on the installation.

Impacts of remediation activities on vegetation and wildlife, soils, noise, air quality, and water quality are addressed in their respective sections in this volume.

6.10.2 Disposal Impacts

The impacts identified below would occur for both disposal and reuse because remediation commensurate with reuse is required for disposal. Long-term remediation may be required for some parcels. In those instances, deed restrictions could be applied to facilitate disposal.

- *Impact: Potential Risks to Public Health and Safety Associated with Unidentified Hazardous Waste Sites or Unexploded Ordnance*

Because Fort Ord is on the National Priorities List as a Superfund site, the installation must be investigated, characterized, and remediated for hazardous and toxic waste before disposal. Hazardous waste investigations and remediation activities are currently underway at Fort Ord.

For potentially contaminated land or remediated parcels to be transferred, EPA must issue a record of decision (ROD) certifying the lands as clean or protective of human health and the environment (refer to description in Section 2.0, "Proposed Action"). The ROD will identify the Army's responsibility for long-term monitoring and cleanup of contamination. For clean parcels to be transferred under CERFA, the Army must identify and evaluate potentially uncontaminated property and obtain EPA concurrence.

Alternative 6R would involve low-density development. Most development and reuse would occur in previously developed areas. Minimal development would occur in the formerly used trainfire ranges. However, the proposed SR 68 bypass would traverse the southern boundary of the ranges, and the density of unexploded ordnance along this corridor could be high. If unidentified hazardous wastes or unexploded ordnance remain on the installation during and after disposal and reuse, the potential for human exposure to these risks from development on those parcels would continue or increase.

The potential for development on unidentified hazardous waste sites or transferring unidentified hazardous waste to local government or private entities under Alternative 6R would be slight because reuse under this alternative would occur primarily in areas with known hazardous waste histories and in areas that have been investigated under CERFA and as part of the Superfund cleanup process.

The Army is responsible for investigation and removal of unexploded ordnance at Fort Ord and is currently initiating the ordnance investigation activities discussed in Section 4.10, "Hazardous and Toxic Waste Site Remediation". The potential for unexploded ordnance to remain on the installation after clearance activities exists because buried ordnance rises to the ground surface through a combination of soil erosion and upward migration.

Under the Defense Environmental Restoration Program for Formerly Used Defense Sites, the Army is responsible for environmental restoration if hazardous waste or unexploded ordnance is discovered after land disposal and reuse.

The potential for unidentified hazardous waste or unexploded ordnance to remain on the installation after completion of the Superfund cleanup process and ordnance clearance is slight under Alternative 6R because proposed land use patterns are similar to existing land use patterns, minimal development is proposed in and around historically used trainfire ranges, the Army is responsible for remediating contaminated parcels and parcels containing unexploded ordnance to a level commensurate with reuse, and the Army is responsible for cleanup of contamination or unexploded ordnance discovered subsequent to land transfers.

- *Mitigation: None required*
- *Impact: Potential for Generation of Hazardous Waste during Building Demolition*

The majority of buildings at Fort Ord contain asbestos. Some buildings may contain lead-based paint, polychlorinated biphenyls, or petrochemicals. Potentially hazardous materials in buildings at Fort Ord could be transferred to the public or local government as part of disposal activities. Asbestos may become airborne when buildings are demolished for reuse, which would be considered hazardous. The building debris may also be considered a hazardous waste, depending on the concentrations of lead and other chemicals in the debris. The generation and disposal of hazardous waste during demolition activities would be regulated by Title 22 CCR Section 26 and Army Regulation AR 200-1.

The Army is conducting an installation-wide building investigation to determine the possible presence of hazardous materials such as lead and asbestos. The Army's policy is to remediate buildings with friable asbestos; if asbestos is encapsulated, the Army provides full disclosure of known or suspected hazardous materials to the new owners.

Under Alternative 6R, the risk of public exposure to airborne asbestos during building demolition could be substantial. However, under this alternative, the buildings proposed for McKinney Act housing and university housing would not be demolished, potentially reducing the amount of asbestos that would be generated during demolition.

- *Mitigation: Ensure Compliance with Applicable Regulations Regarding Generation and Disposal of Hazardous Waste*

All asbestos would be required to be removed by a certified contractor before building demolition to reduce risks to human health caused by exposure to friable asbestos. In addition, representative samples of building debris could be collected after demolition to determine whether it is considered hazardous waste. If the debris is considered a hazardous waste, the owners must comply with all federal, state, and local regulations regarding generation and disposal of hazardous waste to avoid regulatory violations (Local agencies or private entities responsible for development).

If the local agencies or private entities responsible for redevelopment at Fort Ord retain certified asbestos abatement and building demolition contractors, this mitigation measure could be implemented.

6.10.3 Reuse Impacts

The impacts identified above under "Disposal Impacts" would also occur for reuse. In addition, the following impacts associated with reuse of the landfill and Fritzsche Army Airfield could occur.

- **Impact: Potential for Increased Soil and Groundwater Contamination and Risk to Human Health or the Environment Associated with Reuse of the Landfill**

The proposed reuse for the Fort Ord landfill as a university research area and environmental restoration research site may be inconsistent with California regulations CCR, Title 23, Chapter 15, and CCR, Title 14, and federal regulation CFR Subtitle D, CERCLA, Section 120 (H), 1980, as amended by CERFA, 1992. These regulations prohibit activities that could potentially breach landfill caps or modify groundwater remediation systems at the landfill. Breaching the cap could expose landfill materials and increase groundwater contamination, potentially increasing the risk to human health and the environment.

University research at the landfill could also adversely affect ongoing approved and required remediation plans and activities, increasing liabilities and risks of exposure. In addition, CERCLA and CERFA requirements may prohibit or restrict transfer of the landfill area until remedial actions and environmental restoration consistent with Army, EPA, and state regulatory agency approvals are complete.

- **Mitigation: Ensure Compliance with Applicable Regulations on Landfill Closure and Postclosure Activities**

The Army and regulatory agencies responsible for closing the landfill will apply administrative covenants to ensure that landfill restoration activities are completed in compliance with all applicable regulations and to limit future land uses. The Army and regulatory agencies will identify liability responsibilities for the entity intending to use the landfill after disposal and will identify specific land uses that are consistent with the administrative covenants. Regulatory agencies may negotiate and implement land use restrictions to ensure that proposed research activities meet established guidelines for the protection of human health and the environment (Army and regulatory agencies).

- **Impact: Potential for Increased Hazardous Waste Generation Associated with Reuse of Fritzsche Army Airfield**

As Fritzsche Army Airfield is converted from military use to a civilian airport, aircraft maintenance and fueling activities and the number of aircraft stationed at the airfield could increase, resulting in a potential increase in the amount of hazardous materials used, stored, and disposed at the airport.

- **Mitigation: Ensure Compliance with All Applicable Regulations Regarding Fuel Storage and Hazardous Waste Disposal**

The agencies or entities responsible for operating the airport after it is transferred should ensure compliance with all applicable regulations regarding use, storage, and handling of chemicals and potentially hazardous materials used for fueling and maintaining aircraft. This mitigation measure can be implemented if the entities responsible for airport management follow all applicable procedures and regulations for underground or aboveground storage tanks, proper inventory and documentation of hazardous materials use and storage, and disposal of hazardous waste at properly certified facilities (local agencies or private entities responsible for development).

6.10.4 Cumulative Effects

Cumulative effects of toxic and hazardous waste site remediation are expected to be beneficial because existing identified hazardous waste and unexploded ordnance will be removed. Remediation efforts are expected to improve groundwater quality on and around the installation.

6.10.5 Summary Comparison of Reuse Alternatives

The risk of human exposure to hazardous waste and unexploded ordnance is greatest under Alternative 1 because the types of land reuses involve high-density development. The effects of Alternatives 2 and 3 are similar to Alternative 1; however, the risk of human exposure would be reduced under these alternatives.

Alternatives 4 and 6 pose little or no threat to human health and safety because reuse patterns would be similar to existing land uses, minimal development is proposed in the formerly used trainfire ranges, and the number of buildings that would be demolished for reuse would be substantially less than under Alternatives 1, 2, and 3.

The risks to human health and safety under Alternative 6R are slightly greater than under Alternative 4 because the proposed SR 68 bypass in the southern portion of the installation traverses the southern end of the formerly used trainfire ranges and could require more intensive ordnance clearance activities. In addition, the amount of hazardous waste generated at Fritzsche Army Airfield could increase under Alternative 6R.

Alternative 5 is expected to have beneficial effects because remediation activities associated with the Superfund cleanup process are resulting in identification and remediation of hazardous waste and unexploded ordnance and improved groundwater quality.

6.11 VEGETATION, WILDLIFE, AND WETLAND RESOURCES

6.11.1 Introduction

This section describes the impacts on vegetation, wildlife, and wetland resources from disposal and reuse of Fort Ord as described in Alternative 6R. Impacts were evaluated for disposal activities based on the locations and the anticipated types of actions required, and the locations of biological resources. Impacts were evaluated for the reuse scenario described in Alternative 6R by determining changes in acres of biological communities or habitat for individual special-status resources. The approach and methods of analysis, including the assumptions and evaluation criteria that were used in determining impacts, are described below.

Changes in the amount and distribution of biological communities, including special native biological communities, were calculated using a geographic information system (GIS). Changes in area were based on the footprint of land uses for Alternative 6R overlaid on the biological community distributions.

Changes in the amount and distribution of special-status plant species were determined by calculating the habitat areas known to support plant populations affected by land uses incompatible with plant survival. Occupied habitat affected was calculated, using the GIS, based on the land use footprints for Alternative 6R overlaid on the special-status plant distributions. Impacts resulting from non-site-specific actions, such as loss of federal protection for plants, were analyzed qualitatively or with reference to general quantitative effects.

Impacts on special-status wildlife species were determined by identifying changes in acres of potentially occupied habitat after implementing Alternative 6R. Potential habitat was identified from known locations of each species, published accounts of each species' habitat requirements, and habitat suitability models that were developed from the vegetation and soil maps from the GIS. Impacts on occupied habitat were also identified when data were available.

The description of the wildlife habitat suitability models, maps of potential wildlife habitat, maps of special-status plant species distributions, wetland distribution map, and biological community distribution map are contained in the Flora and Fauna Environmental Baseline Study of Fort Ord, California, available at the public information repository established at the Seaside Branch Library (U.S. Army Corps of Engineers, Sacramento District 1992a).

Data collected for baseline studies of vegetation, wildlife, and wetland resources were presented to U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (DFG) staff at a meeting on August 7, 1992. At this meeting, data were presented on the locations and extent of upland habitats, wetland habitats, and populations of species federally listed and proposed for listing as threatened and endangered at Fort Ord. The Army provided a list to USFWS on September 16, 1992, of special-status plant and wildlife species that were identified as occurring or potentially occurring at Fort Ord, including species that are federally listed or proposed for listing as threatened and endangered. Another meeting with USFWS and DFG was held on October 22, 1992, for the purpose of identifying the locations of concentrations of sensitive biological resources at Fort Ord through the use of a computerized GIS database. Figure II.11-1 in Section II.11, Volume II depicts the locations of sensitive biological resources identified at that meeting.

The Army initiated informal consultation with the USFWS on August 7 and October 22, 1992 with meetings and the transmittal of the list of special-status species on September 16, 1992, in compliance with the Endangered Species Act. The Army is proceeding with biological data reports for sensitive species on Fort Ord and will be submitting these reports in spring 1993 to initiate formal consultation as specified in Section 7 of the Endangered Species Act. This process is expected to result in the issuance of a biological opinion by the USFWS in late 1993. Preliminary versions of Alternative 6R were presented to USFWS during meetings on March 15 and 19, 1993.

6.11.1.1 Impact Mechanisms

Disposal. The potential impacts on vegetation, wildlife, and wetland resources resulting from disposal of Fort Ord were evaluated based on potential changes in regulatory requirements for new owners and changes in installation ownership and activities after disposal. Disposal impacts are associated only with the action of turning over ownership of Fort Ord lands to individuals or agencies other than the Army. All predisposal actions associated with activities necessary to achieve and maintain caretaker status are analyzed in Section 5.2.1, "Caretaker (No Action Alternative)". Disposal impacts that could affect biological resources include loss of federal protection for federally listed plants and potential losses of populations and habitat for plants and wildlife due to disposal of lands to entities proposing intensive development.

Reuse. The potential impacts on vegetation, wildlife, and wetland resources resulting from reuse of Fort Ord were evaluated based on changes in land use. Changes in land use would have direct and indirect impacts on vegetation and wildlife. Changes in land use could require extensive soil excavation or grading, placement of fill material, and removal of vegetation. Land development would result in direct impacts on biological resources through conversion of biological communities to structures, roads, and landscaping; mortality of plants or wildlife from construction equipment; displacement of species because of temporary or permanent habitat loss; and abandonment of a site by wildlife because of disturbance during critical periods of the year.

In the reuse analysis of Alternative 6R it was assumed that no direct impacts on biological resources would result at sites with the following land use designations: coastal dune zone, natural area expansion, natural resource management area, disturbed habitat zone, university research area, recreational vehicle park, POST academy, government center, McKinney Act housing, or no proposed use (NPU). However, lands designated as NPU could be subject to reuse in the future and would require future, separate environmental documentation. No direct impact was assumed if biological resources would be preserved within the land use area or if the land use proposed under Alternative 6R would be the same as the current land use under Army ownership. Some of these land uses would result in the loss of small amounts of biological resources for construction of a limited number of structures and roads.

For the purpose of this analysis, the land use category NPU was considered an open space land use that would be maintained by the Army in caretaker status with public access restricted and vegetation management continued after surface clearance of ordnance (refer to Section 2.0, "Proposed Action"). However, because lands designated NPU could potentially be impacted after a more specific land use is assigned, the extent of biological resources in these area is described separately in Section 2.17.12.

Specific information on the location of developments was provided for land uses designated corporation yard, agri-center, recreation area expansion (RAE), school expansion (SE), and airport. For the purpose of this analysis, a complete loss of biological resources was assumed to occur in those sections where development is expected to occur, and no losses were assumed to occur in the remaining area.

In the area designated corporation yard, approximately 14 acres of habitat within the designated 46-acre area would be developed.

The agri-center land use area would undergo development on approximately 175 of the 890 allotted acres. Development would attempt to avoid sensitive biological resources and would not occur on slopes greater than 30%. Based on these criteria, development in the parcel designated agri-center is expected to occur in the region shown in Figure 6.11-1.

In the 973-acre parcel designated as RAE, several of the dirt roads along the ridges would be widened to provide 5,000-7,000 temporary parking spaces. Approximately 9% of existing habitat in the parcel would be affected. An additional 15 acres at the southernmost tip of the RAE would be converted to an interchange with SR 68. No development is expected to occur in the 150-acre parcel north of Laguna Seca designated as RAE.

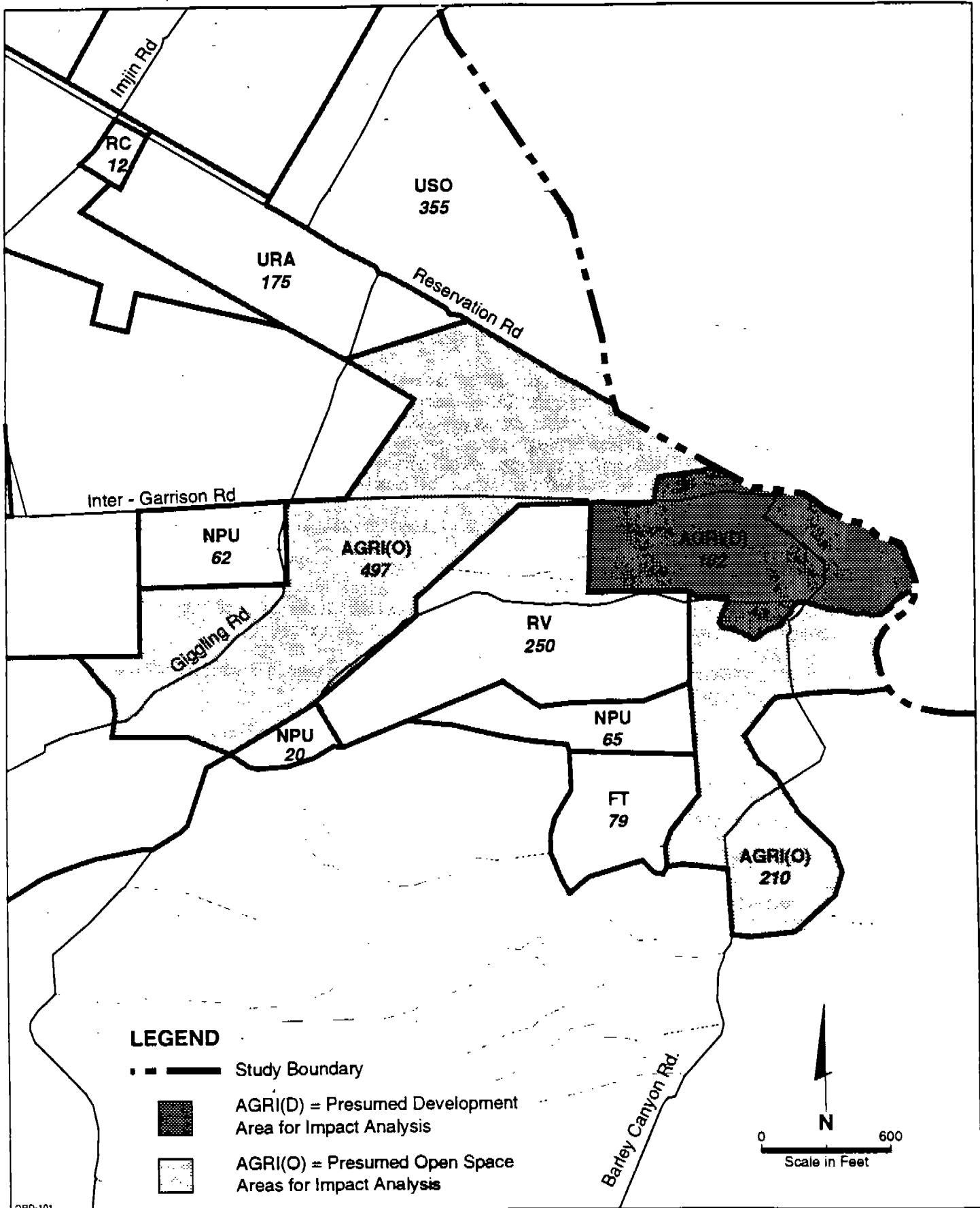
In the area designated SE, it was assumed approximately 15 acres of habitat within the designated 150-acre area would be developed.

Under Alternative 6R, direct impacts are expected to occur in the parcel designated airport only where the runway would be extended 500 feet on either side of the existing runway. However, it is possible that developments not yet specified may occur in lands surrounding the airport at some point in the future.

In the reuse analysis it was assumed that direct impacts from land uses not listed above would eliminate all biological resources within the land use footprint. For Alternative 6R, it was assumed that direct impacts from the land use of fire training would eliminate all biological resources on the site. Resources were assumed to be eliminated because under this land use category the area would be used for airport fire training, which will have a greater impact than the grassland fire training proposed under Alternatives 1-6. Also, the 79-acre area is much smaller than previously described fire training areas; thus facilities would be concentrated in a smaller area and have a greater effect on biological resources. Some of these proposed land uses could result in the retention of small patches of natural habitats and special-status species populations. The biological value of these remnant habitats would be low because of their small size, isolation, and the surrounding development.

Changes in land use could also result in indirect impacts such as mortality of native wildlife because of predation by domestic pets, disturbance to wildlife by recreationists, or erosion of soil from one parcel to an adjacent parcel resulting in loss of plant habitat or degradation of wetlands. The location and severity

Figure 6.11-1.
 Presumed Developed and Open Space Areas Within the
 Proposed Agri-Center for Revised Alternative 6



of these impacts are unknown at this time; therefore, indirect impacts on biological resources would have to be determined on a separate, site-specific basis and are not evaluated in this analysis.

6.11.1.2 Basis for Evaluation

The circumstances under which it was assumed that the proposed action of disposal and reuse under Alternative 6R would substantially affect vegetation, wildlife, and wetland resources are described below.

Disposal. Compliance with the National Environmental Policy Act (NEPA) is required for disposal of Fort Ord. Activities that prepare the installation for closure and caretaker status, including remediation of hazardous and toxic waste sites, removal of lead and other heavy metals, and surface clearing of unexploded ordnance are exempt from NEPA. Impacts resulting from remediation actions necessary to reach caretaker status are discussed in Section 5.2.1, "Caretaker" (No-Action Alternative).

The significance of disposal impacts on vegetation, wildlife, and wetland resources for compliance with NEPA was determined by considering legal requirements (i.e., Endangered Species Act, Clean Water Act), Army regulations (AR 200-1, AR 420-74), and state and local laws and policies.

Reuse. Reuse of Fort Ord lands could be by federal, state, or local agencies or private interests. The criteria used to evaluate the effects on biological resources were based on federal, state, and local laws, regulations, and policies (e.g., NEPA, Endangered Species Act, Clean Water Act, California Environmental Quality Act [CEQA], California Endangered Species Act, California Fish and Game Code, California Coastal Act). This analysis assumes that the proposed action and Alternative 6R would have a substantial effect on vegetation, wildlife, and wetland resources if it resulted in:

- a fish or wildlife population dropping below self-sustaining levels;
- possible elimination of a plant or animal community;
- a substantial effect on, reduction of the number, or restriction of the range of unique, rare, or endangered species of animals or plants, or the habitat of the species;
- an introduction of new species of plants or animals into an area or an introduction of a barrier to the normal replenishment of existing species;
- an adverse effect on riparian habitat, wetlands, or other special-status biological communities;
- a conflict with federal or state policies, such as those regarding wetlands and oak woodlands;
- a substantial conflict with special ecological areas; or
- a substantial conflict with special-status species, defined as follows:
 - plants and animals listed or proposed for listing under the federal Endangered Species Act (50 CFR 17.12 [listed plants] and 50 CFR 17.11 [listed animals] and various notices in the *Federal Register* [proposed species]);
 - plants and animals that are Category 1 or 2 candidates for possible future listing as threatened or endangered under the federal Endangered Species Act (55 FR 6184, February 21, 1990, for plants and 54 FR 554, January 6, 1989, for animals); and

plants and animals listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (14 CFR 670.5).

6.11.1.3 Species Eliminated from Consideration before Impact Analysis

The American peregrine falcon, a species listed as endangered under the federal and California Endangered Species Act's, and marine mammals, reptiles, and birds are not expected to be affected by disposal and reuse of Fort Ord under Alternative 6R and were not included in the impact analysis.

American Peregrine Falcon. The nearest known nesting pair of American peregrine falcons is approximately 15 miles south of Fort Ord (Jurek, California Department of Fish and Game pers. comm.). Although American peregrine falcons may pass over Fort Ord during migration or may forage there in winter, Fort Ord does not support appropriate nesting habitat for this species. Fort Ord also does not support large populations of waterfowl and shorebirds, which are important prey items for the peregrine falcon. Alternative 6R is not expected to affect peregrine falcons.

Marine Mammals, Reptiles, and Birds. No marine mammal haul-out or breeding areas, marine turtle egg-laying areas, or seabird nesting colonies occur at or near Fort Ord. Marine mammals, reptiles, and birds are not expected to be affected by the development described for Alternative 6R. Potential conflicts with regulations associated with the Monterey Bay National Marine Sanctuary are described in Section 6.15 "Monterey Bay National Marine Sanctuary".

6.11.2 Disposal Impacts

Federally Listed Threatened and Endangered Species and Species Proposed for Federal Listing as Threatened and Endangered

- *Impact: Reduction in Federal Protection for Sand Gilia and Monterey Spineflower*

The change in ownership of lands providing habitat for federally listed threatened and endangered plants could result in a loss of federal protection for these species. The Endangered Species Act protects federally listed threatened and endangered plants only where they occur in areas under federal jurisdiction (i.e., where federal permits or monies are involved). If the Army transfers lands to nonfederal entities, sand gilia will lose its federal protection. Future actions by nonfederal agencies or private individuals that do not come under federal jurisdiction could remove sand gilia populations without violating the federal Endangered Species Act. Should Monterey spineflower become federally listed, it also could lose its federal protection at Fort Ord following disposal.

- *Mitigation: Preserve Populations and Habitat of Federally Listed, Proposed, and Candidate Plants and Wildlife through a Multispecies Habitat Management Plan*

Prior to disposal, the Army will prepare a multispecies Habitat Management Plan (HMP) for Fort Ord. The HMP will include all federally listed and proposed plants and wildlife at Fort Ord, and candidate species with a significant portion of their range within Fort Ord. The HMP will be prepared in coordination with USFWS under Section 7 of the Endangered Species Act. The goals of the HMP will be to preserve, protect, and enhance populations and habitat of federally listed and proposed threatened and endangered plants and wildlife, and to avoid reducing populations or habitat of federal candidate species to levels that may result in one or more of these species becoming listed as threatened or endangered. Recipients of Fort Ord lands will implement the guidelines of the HMP. A draft conceptual multispecies HMP is included in Appendix R.

Methods for protecting and restoring habitat and populations of sand gilia and Monterey spineflower will be included in the HMP.

The development, coordination, and implementation of the multispecies HMP is both realistic and feasible. (Federal, state and local agencies and private entities responsible for development)

- ***Impact: Potential Loss of Populations and Habitat of Sand Gilia, Monterey Spineflower, Smith's Blue Butterfly, California Linderella, and Western Snowy Plover***

Disposal of land supporting sand gilia, Monterey spineflower, Smith's blue butterfly, California linderella, and western snowy plover to entities that are proposing intensive development could result in the loss of populations of these species and their habitat. Sand gilia and Smith's blue butterfly are federally listed as endangered, coastal populations of the western snowy plover are federally listed as threatened, and Monterey spineflower and California linderella are proposed for federal listing as endangered. The loss of populations or habitat of federally listed threatened or endangered species could violate the federal Endangered Species Act.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed, Proposed, and Candidate Plants and Wildlife through a Multispecies Habitat Management Plan***

Prior to disposal of Fort Ord, the Army would prepare a multispecies HMP. The HMP is discussed above under the impact "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower". The HMP will address preservation and enhancement of populations and habitat for all these species. The Army will develop and coordinate the HMP, and agencies and entities receiving Fort Ord lands will implement the HMP guidelines.

The development, coordination, and implementation of the multispecies HMP is both realistic and feasible. (Federal, state, and local agencies and private entities responsible for development)

Other Biological Resources

- ***Impact: Loss of U.S. Department of Defense Protection for Plant and Butterfly Preserves***

The plant and butterfly preserves at Fort Ord would no longer have Army protection following disposal of the land supporting these preserves. However, the preserves, except preserve 3 which lies on lands designated as NPU, would likely be transferred to resource agencies (e.g., U.S. Bureau of Land Management).

- ***Mitigation: Preserve Habitat Characteristic of Native Plant Preserves through a Multispecies Habitat Management Plan***

This mitigation is described under the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact. Preserving populations and habitat of federally listed, proposed, and candidate plants and wildlife species through a multispecies habitat management plan would also protect habitats characteristic of the plant preserves. The multispecies HMP will also specifically address the preservation of maritime chaparral habitat and the preservation and enhancement of coastal dune habitat. Both these habitats are significant components of the native plant preserves. The Army will develop and coordinate the HMP, and agencies and entities receiving Fort Ord lands will implement the HMP guidelines.

The development, coordination, and implementation of the multispecies HMP is both realistic and feasible. (Federal, state, and local agencies and private entities responsible for development)

6.11.3 Reuse Impacts

Common and Special Native Biological Communities

- ***Impact: Loss of Common Biological Communities (Approximately 1,550 Acres)***

Table 6.11-1 Acreage of Habitat Affected by Alternative

	Alter- native 1	Subalter- native 1A	Subalter- native 1B	Subalter- native 1C	Alter- native 2	Subalter- native 2A	Subalter- native 2B
Beaches, Bluffs, and Blowouts	9	9	9	104	5	5	5
Disturbed Dune	21	21	21	74	19	19	19
Ice Plant Mats	369	369	369	460	299	299	299
Native Coastal Strand	1	1	1	55	1	1	1
Dune Scrub	5	5	5	8	4	4	4
Coastal Scrub	474	470	490	474	459	454	473
Maritime Chaparral	12,118	12,099	12,118	12,168	6,302	6,284	6,302
Coastal Oak Woodland	2,848	2,756	2,887	2,776	2,459	2,367	2,491
Inland Oak Woodland	1,040	1,038	1,040	1,040	548	546	548
Oak Savanna	178	178	178	177	131	131	131
Annual Grassland	2,855	2,847	2,856	2,835	2,431	2,423	2,432
Perennial Grassland	229	229	229	229	230	230	230
Mixed Riparian Forest	191	191	191	191	191	191	191
Oak Riparian Forest	17	17	17	17	14	14	14
Vernal Pool	34	34	34	34	4	4	4
Ponds and Freshwater Marsh	23	23	23	23	12	12	12
Total	20,445	20,259	20,501	20,669	13,154	13,045	13,201

	Alter- native 3	Alter- native 4	Alter- native 5	Subalter- native 5A	Alter- native 6	Alter- native 6	Total Amount of Habitat at Fort Ord
Beaches, Bluffs, and Blowouts	2	2	2	2	2	2	199
Disturbed Dune	12	15	0	0	12	0	101
Ice Plant Mats	72	32	32	32	72	52	638
Native Coastal Strand	1	12	0	0	1	0	89
Dune Scrub	1	1	1	1	1	1	8
Coastal Scrub	394	304	157	152	327	90	572
Maritime Chaparral	1,816	1,267	31	0	1,238	925	12,613
Coastal Oak Woodland	2,097	1,367	226	88	2,416	537	2,972
Inland Oak Woodland	184	86	38	36	100	20	1,386
Oak Savanna	56	84	84	71	87	20	308
Annual Grassland	1,417	1,262	235	40	1,348	816	4,305
Perennial Grassland	0	0	0	0	100	32	463
Mixed Riparian Forest	0	0	0	0	181	5	191
Oak Riparian Forest	0	0	0	0	0	0	42
Vernal Pool	2	7	0	0	7	1	34
Ponds and Freshwater Marsh	2	2	0	0	3	1	30
Total	6,179	4,507	873	476	5,895	2,507	23,951

Alternative 6R would result in the removal of approximately 1,550 acres of common biological communities (Table 6.11-1) and associated common wildlife species (refer to U.S. Army Corps of Engineers, Sacramento District 1992a). These communities include approximately 55 acres of beach and blowouts, ice plant mats, and disturbed dune; about 90 acres of coastal scrub; roughly 580 acres of oak woodland and savanna; and about 820 acres of annual grassland. This amount of habitat removal represents approximately 15% of the common biological communities at Fort Ord.

The substantial portion of the annual grasslands at Fort Ord would be preserved under Alternative 6R, retaining habitat for loggerhead shrike, tricolored blackbird, homed lark, burrowing owl, northern harrier, short-eared owl, prairie falcon, golden eagle, and American badger. A relatively large portion of the coast live oak woodland and savanna on Fort Ord would also be preserved. Special-status wildlife species associated with oak communities include the Monterey orate shrew, Monterey dusky-footed woodrat, wintering sharp-shinned hawk, Cooper's hawk, yellow warbler, golden eagle, American badger, and Salinas harvest mouse. Although substantial portions of these habitats are retained under Alternative 6R implementing the following mitigation measures would further preserve coastal live oak woodland and annual grassland habitats.

- ***Mitigation: Limit Loss and Compensate Losses of Coast Live Oak Woodland and Savanna through State Policies, Local Agency General Plan Land Use Policies, and Regional Programs***

State agencies are directed by California Senate Concurrent Resolution Number 17 (California Resolution Chapter 100) to preserve and protect native oak woodlands (sites with greater than five trees per acre) to the maximum extent feasible or to provide replacement plantings for oaks that are removed. Where state agencies have future jurisdiction, oak woodlands could be avoided or, if removed, could be compensated for by replacement plantings. The number of replacement oak plantings could be based on the trunk diameters of the oaks removed, with one seedling or sapling planted for each inch of the total trunk diameter (measured at 4.5 feet above the ground).

The loss of coast live oak woodland and savanna could be limited by developing and implementing general plan land use policies and regional programs to encourage the preservation and restoration of coast live oak woodlands. General plan policies could be developed and implemented in support of projects that retain coast live oak woodlands and compensate for oaks removed. A regional program could be developed that identifies the location of oak woodlands, prioritizes the value of sites, and institutes mechanisms to protect high-value sites and to secure woodland restoration sites.

Implementing the mitigation for coast live oak woodlands and savanna would limit the loss of habitat for Monterey dusky-footed woodrat, Monterey orate shrew, golden eagle, Cooper's hawk, wintering sharp-shinned hawk, yellow warbler, American badger, Salinas harvest mouse, and greater roadrunner.

The development of state policies, local agency general plan land use policies, and regional programs to limit losses and compensate losses of coast live oak woodland and savanna is both realistic and feasible. (State and local agencies)

- ***Mitigation: Retaining Patches of Common Biological Communities within Development Areas***

Patches of habitat between proposed development areas could be fenced during construction and retained in natural condition following construction. These small patches of habitat would have minimal wildlife habitat value but may support small, remnant populations of some special-status plant species.

The mitigation described above is feasible and can be realistically implemented (Federal, state, and local agencies and private entities responsible for development)

- **Mitigation: Limit Loss of Grasslands through Local Agency General Plan Land Use Policies and Regional Programs**

The loss of grassland wildlife habitats in northern Monterey County could be limited by local agencies developing and implementing general plan land use policies and regional programs to encourage the preservation of grasslands. General plan policies in support of projects that retain grassland habitat could be developed and implemented. A regional program could be developed that identifies the location of grassland habitats, prioritizes the value of sites, and institutes mechanisms to protect high-value sites.

Implementing the mitigation for grasslands would limit the loss of habitat for loggerhead shrike, tricolored blackbird, horned lark, burrowing owl, northern harrier, short-eared owl, prairie falcon, golden eagle, and American badger.

The development of local agency general plan land use policies, and regional programs to limit losses of annual grasslands is both realistic and feasible. (Local agencies)

- **Impact: Loss of Native Dune Scrub (Approximately 1 Acre)**

Alternative 6R would result in the loss of approximately 1 acre of native dune scrub or roughly 1% of the dune scrub at Fort Ord (Table 6.11-1). The loss of dune scrub could be replaced by implementing the following mitigation.

- **Mitigation: Restore Native Dune Scrub**

Future owners of land within the coastal zone (1,000 yards landward from mean high tide or designated boundaries) would have to comply with the California Coastal Act.

Native dune scrub vegetation could be restored in areas designated "coastal dunes zone." Ice plant mats and disturbed dune vegetation could be removed from a 2-acre site in the northwest corner of Fort Ord. Native dune species could be seeded and transplanted to the mitigation site. Weed control measures could be conducted, especially for African ice plant, during the establishment period of the native vegetation. The 2-acre mitigation site could be added to the habitat preserve.

Native coastal strand and dune scrub could also be preserved and restored under the HMP implemented as mitigation for impacts on federally listed, proposed, and candidate plant and wildlife species. Restoration of native coastal strand and dune scrub would compensate in part for impacts on Monterey spineflower, Smith's blue butterfly, California black legless lizard, and dune scrub.

The mitigation described above is both realistic and feasible. A similar restoration project is being implemented on dunes directly north of Fort Ord at Marina State Beach. (State and local agencies)

- **Impact: Loss of Maritime Chaparral (Approximately 925 Acres)**

Alternative 6R would result in the removal of approximately 925 acres of maritime chaparral (Table 6.11-1). Fort Ord supports more than half of all the central maritime chaparral remaining in California. The loss of maritime chaparral would be unavoidable.

- **Mitigation: Preserve Maritime Chaparral through a Multispecies Habitat Management Plan**

This mitigation is the same as that described above for the impact "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower". Preservation and enhancement of maritime chaparral will be specifically addressed in the multispecies HMP because many special-status plant and wildlife species occur primarily in maritime chaparral habitat. The Army will develop and coordinate the HMP, and agencies and entities receiving Fort Ord lands will implement the HMP guidelines.

The development, coordination, and implementation of the multispecies HMP is both realistic and feasible. (Federal, state, and local agencies and private entities responsible for development)

- ***Impact: Loss of Native Perennial Grassland (Approximately 30 Acres)***

Alternative 6R would result in the removal of approximately 30 acres of valley needlegrass grassland or roughly 5% of the perennial grassland at Fort Ord (Table 6.11-1). The removed valley needlegrass grassland supports high-density native vegetation, with purple needlegrass at greater than 30% cover, and represents approximately 15% of the high-density valley needlegrass grassland. The loss of native perennial grasslands would be considered a significant impact under CEQA. The loss of perennial grassland would be unavoidable.

- ***Mitigation: Limit Loss of Native Perennial Grasslands by Retaining Patches of Native Perennial Grasslands within Development Areas***

High quality patches of native perennial grassland in the southeast portion of the installation could be fenced during construction and retained in natural condition following construction. These small patches of habitat may support small, remnant populations of native perennial grassland.

The mitigation described above is both realistic and feasible. (Local agencies and private entities responsible for development)

- ***Impact: Loss of Riparian Forest (Approximately 5 Acres)***

Alternative 6R would result in the removal or degradation of approximately 5 acres (2%) of the riparian forest at Fort Ord (Table 6.11-1). This riparian forest habitat occurs within the proposed transportation corridor in the southern section of the installation. The affected riparian habitat would probably not be considered jurisdictional wetlands, but may be considered a jurisdictional waters of the U.S. The placement of dredged or fill material into wetlands and other waters of the United States is prohibited under Section 404 of the Clean Water Act without a permit from the Department of the Army. Implementing the following mitigation could reduce the impacts to riparian forest habitat.

- ***Mitigation: Avoid and Compensate for Loss of Riparian Forest***

Future landowners of sites that support riparian forest and other riparian habitats would have to reach agreement with DFG before they undertake alterations of the streambeds and associated riparian vegetation. Future actions requiring CEQA compliance would have to avoid, enhance, or restore all affected riparian habitat because impacts on riparian forest are considered significant by DFG.

The proposed SR 68 transportation corridor could be redesigned to avoid riparian forest. Where riparian forest removal is unavoidable, compensation could be at a 2:1 acreage ratio of newly created habitat to lost habitat or a 4:1 acreage ratio of enhanced habitat to lost habitat. Compensation and restoration could take place on other areas of Toro Creek.

Implementing mitigation for riparian forest would avoid or reduce impacts on Monterey ornate shrew, wintering sharp-shinned hawk, Cooper's hawk, yellow warbler, Swainson's thrush, and common yellowthroat.

The mitigation described above is both realistic and feasible. (State and local agencies and private entities responsible for development)

Special-Status Plant Species

- ***Impact: Loss of Sand Gilia Populations and Habitat (Approximately 150 Acres)***

Alternative 6R would result in the loss of approximately 150 acres of occupied sand gilia habitat. These habitat areas support sand gilia at high densities on approximately 15 acres, medium densities on roughly 5 acres, and low densities on about 130 acres. Maritime chaparral and coastal scrub habitat on sandy soils are potential suitable habitat for sand gilia. Approximately 1,000 acres of potential habitat would be lost under Alternative 6R.

Sand gilia is listed as endangered under the federal Endangered Species Act. Removal of individuals or populations of sand gilia could violate the federal Endangered Species Act. The loss of sand gilia populations would be unavoidable under Alternative 6R.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed, Proposed, and Candidate Plants and Wildlife through a Multispecies Habitat Management Plan***

Recipients of disposed Fort Ord lands would be required to follow the management and land use guidelines in the multispecies HMP. The HMP is discussed previously under the disposal impact "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower". The multispecies HMP will specifically address methods for preservation and enhancement of sand gilia populations and habitat at Fort Ord. The Army will develop and coordinate the HMP, and agencies and entities receiving Fort Ord lands will implement the HMP guidelines.

The development, coordination, and implementation of the multispecies HMP is both realistic and feasible. (Federal, state, and local agencies and private entities responsible for development)

- ***Impact: Loss of Monterey Spineflower Populations and Habitat (Approximately 940 Acres)***

Alternative 6R would result in the loss of approximately 940 acres of habitat occupied by Monterey spineflower. These habitat areas support Monterey spineflower at high densities on approximately 70 acres, medium densities on about 515 acres, and low densities on roughly 355 acres. All maritime chaparral and coastal dune habitats, and grassland and coastal scrub habitats on sandy soils, are potentially suitable habitat for Monterey spineflower. Monterey spineflower occurs in natural and artificial disturbance patches in these habitats.

Monterey spineflower is proposed for listing as endangered under the federal Endangered Species Act. Monterey spineflower could become listed during disposal and reuse. Should Monterey spineflower become listed as endangered, the removal of individuals or populations could be a violate the federal Endangered Species Act. The loss of Monterey spineflower populations would be unavoidable under Alternative 6R.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed, Proposed, and Candidate Plants and Wildlife through a Multispecies Habitat Management Plan***

This mitigation is described for the disposal impact "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" discussed previously.

- ***Impact: Loss of Federal Candidate Plant Species Populations and Habitat***

Alternative 6R would result in the loss of occupied habitat of plant species that are candidates (Category 1 or 2) for federal listing as threatened or endangered or species for which listing packages are in preparation: Toro manzanita, sandmat manzanita, Hickman's onion, Monterey ceanothus, Eastwood's

ericameria, coast wallflower, and wedge-leaf horkelia. More than 50% of the total ranges of Toro manzanita, sandmat manzanita, Monterey ceanothus, and Eastwood's ericameria are at Fort Ord. Alternative 6R would result in the loss of approximately 5% of the populations of these species at Fort Ord and Table 4.11-2 in Section 4.11).

Approximately 5% of the occupied habitat of Hickman's onion, 20% of the occupied habitat of coast wallflower, and 5% of the occupied habitat of wedge-leafed horkelia at Fort Ord would also be removed under Alternative 6R (Table 6.11-2). No individuals of Yadon's piperia at Fort Ord would be removed under this alternative. Fort Ord does not represent as large a portion of the species' range for Hickman's onion, coast wallflower, wedge-leaf horkelia, and Yadon's piperia as for the other candidate species (Table 4.11-2 in Section 4.11).

The loss of federal candidate plant species could be considered a significant impact under CEQA. The loss of federal candidate plant species would be unavoidable under Alternative 6R.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed, Proposed, and Candidate Plants and Wildlife through a Multispecies Habitat Management Plan***

This mitigation is described for the disposal impact "Reduction in Federal Protection for Sand Gilla and Monterey Spineflower" discussed previously.

- ***Mitigation: Minimize Losses and Establish and Protect New Populations of Federal Candidate Plants***

Federal candidate plant species could meet the definition of rare or endangered species under CEQA. Actions requiring CEQA compliance by state or local agencies would require mitigation for losses of these plants.

The loss of populations of federal candidate plant species would be minimized by avoiding populations and establishing new populations where feasible. This mitigation is both realistic and feasible. (State and local agencies and private entities responsible for development)

- ***Impact: Loss of Populations and Habitat of Other Special-Status Plant Species (Approximately 1,580 Acres)***

Alternative 6R would result in the loss of approximately 1,210 acres of habitat occupied by eight plant species on the CNPS Lists 4 and 1b but with no federal or state status: Hooker's manzanita, Monterey Indian paintbrush, Douglas' spineflower, Lewis' clarkia, virgate eriastrum, small-leaved lomatium, curly-leaved monardella, and purple-flowered piperia (Table 6.11-2). Roughly 25% of the total range of Hooker's manzanita occurs at Fort Ord, and roughly 10% of the occupied habitat at Fort Ord would be removed under Alternative 6. Fort Ord does not support a large percentage of the range of the other species (Table 4.11-2 in Section 4.11).

The loss of CNPS List 4 or 1b species could be considered a significant impact under CEQA. The loss of CNPS List 4 and 1b species would be unavoidable under Alternative 1.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed, Proposed, and Candidate Plant and Wildlife Species through a Multispecies Habitat Management Plan***

This mitigation is described for the disposal impact "Reduction in Federal Protection for Sand Gilla and Monterey Spineflower" discussed previously. Developing and implementing a multispecies Habitat Management Plan to preserve populations and habitat of federally listed, proposed, and candidate plant and wildlife species would also preserve many other special-status plant species populations and habitat.

Table 6.11-2 Loss of Occupied Habitat of Special-Status Plant Species by Reuse Alternative

Acres Removed by Population Density

Special-Status Plant Species	Alt. 1	Sub. 1A	Sub. 1B	Sub. 1C	Alt. 2	Sub. 2A	Sub. 2B	Alt. 3	Alt. 4	Alt. 5	Sub. 5A	Alt. 6R
Sand gillia, E/T/1B^a												
Low	3,150	3,150	3,150	3,150	2,070	2,070	2,070	790	470	15	0	130
Medium	310	310	310	310	290	290	290	210	190	0	0	5
High	160	160	160	160	160	160	160	160	85	0	0	15
Total	3,620	3,620	3,620	3,620	2,520	2,520	2,520	1,160	745	15	0	150
Seaside bird's-beak, C1/E/1B												
Low	1,100	1,100	1,100	1,100	540	540	540	75	0	0	0	0
Medium	15	15	15	15	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0	0	0	0
Total	1,120	1,120	1,120	1,120	540	540	540	75	0	0	0	0
Sandmat manzanita, C2/-/1B												
Low	2,130	2,110	2,130	2,110	1,260	1,240	1,260	890	610	20	0	80
Medium	3,160	3,150	3,160	3,210	1,980	1,980	1,980	600	620	5	0	370
High	3,450	3,450	3,450	3,450	1,650	1,650	1,650	610	240	15	0	80
Total	8,740	8,710	8,740	8,770	4,890	4,870	4,890	2,100	1,470	40	0	520
Monterey ceanothus, C2/-/4												
Low	2,310	2,310	2,310	2,310	1,650	1,650	1,650	750	530	15	0	190
Medium	6,840	6,830	6,840	6,840	3,000	3,000	3,000	880	520	5	0	360
High	2,440	2,440	2,440	2,480	1,220	1,220	1,220	360	280	0	0	265
Total	11,590	11,580	11,590	11,630	5,870	5,870	5,870	1,990	1,330	20	0	800
Coast wallflower, C2/-/1b												
Low	420	420	420	410	390	390	390	160	70	10	0	100
Medium	190	190	190	200	190	190	190	190	160	0	0	50
High	10	10	10	50	10	10	10	10	20	0	0	0
Total	620	620	620	660	590	590	590	360	250	10	0	150
Yadon's piperia, /-/1B												
Low	15	15	15	15	15	15	15	15	0	0	0	0
Medium	0	0	0	0	0	0	0	0	0	0	0	0
High	0	0	0	0	0	0	0	0	0	0	0	0
Total	15	15	15	15	15	15	15	15	0	0	0	0
Monterey spineflower, PE/-/1B												
Low	5,690	5,680	5,690	5,730	3,330	3,320	3,330	1,600	1,030	45	20	355
Medium	3,400	3,380	3,420	3,390	1,930	1,910	1,950	1,290	970	50	25	515
High	890	890	890	970	500	500	500	310	140	15	0	70
Total	9,980	9,950	10,000	10,090	5,760	5,730	5,780	3,200	2,140	110	45	930
Toro manzanita, C2/-/1B												
Low	2,210	2,210	2,210	2,210	1,100	1,100	1,100	240	210	10	0	130
Medium	2,000	2,000	2,000	2,000	770	770	770	240	80	0	0	60
High	1,670	1,670	1,670	1,670	770	770	770	95	0	0	0	10
Total	5,880	5,880	5,880	5,880	2,640	2,640	2,640	575	290	10	0	190

Table 6.11-2 Continued

Acres Removed by Population Density

Special-Status Plant Species	Acres Removed by Population Density											
	Alt. 1	Sub. 1A	Sub. 1B	Sub. 1C	Alt. 2	Sub. 2A	Sub. 2B	Alt. 3	Alt. 4	Alt. 5	Sub. 5A	Alt. 6R
Hickman's allium, C1/-/1B												
Low	270	270	270	270	250	250	250	75	0	0	0	0
Medium	120	120	120	120	0	0	0	0	75	0	0	20
High	0	0	0	0	0	0	0	0	0	0	0	0
Total	390	390	390	390	250	250	250	75	75	0	0	20
Eastwood's ericameria, C2/-/1B												
Low	3,430	3,430	3,430	3,430	1,780	1,780	1,780	460	250	15	0	220
Medium	2,020	2,020	2,020	2,070	1,450	1,450	1,450	230	80	0	0	125
High	25	25	25	25	25	25	25	25	5	0	0	1
Total	5,475	5,475	5,475	5,525	3,255	3,255	3,255	715	335	15	0	341
Wedge-leaved horkelia, C2/-/1B												
Low	2,290	2,290	2,290	2,290	1,270	1,270	1,270	480	80	0	0	40
Medium	1,200	1,200	1,200	1,200	650	650	650	280	190	10	0	105
High	0	0	0	0	0	0	0	0	0	0	0	0
Total	3,490	3,490	3,490	3,490	1,920	1,920	1,920	750	270	10	0	140
All other special- status plants species (CNPS List 3 or 4 and no Federal or State Status) ^b	11,800	11,760	11,810	11,950	6,160	6,130	6,170	2,070	1,220	50	1	1,210

^a All other designations given in Table 4.11-1.

^b Hookers' manzanita, Monterey Indian paintbrush, Douglas' spineflower, Lewis' clarkia, virgate eriastrum, small-leaved lomatum, Santa Cruz County monkeyflower, curly-leaved monardella, and purple-flowered piperia species with only one individual: robust spineflower (PE/-/1b0, and Pajaro manzanita (-/-/4).

Special-Status Wildlife Species - Federally Listed Endangered and Proposed Endangered

- ***Impact: Loss of Smith's Blue Butterfly Habitat (Approximately 1 Acre)***

Under Alternative 6R, less than 1% (approximately 1 acre) of the Smith's blue butterfly habitat at Fort Ord would be eliminated by development (acres affected for all special-status and special-interest wildlife species for each option and subalternative are shown in Table 6.11-3).

The habitat at Fort Ord has been identified in the Smith's blue butterfly recovery plan (U.S. Fish and wildlife Service 1984) as important for the recovery of the species. The Smith's blue butterfly is listed as a federally endangered species. Loss of Smith's blue butterfly habitat would be a significant impact under NEPA because it would violate the federal Endangered Species Act.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan***

Recipients of disposed Fort Ord lands would be required to follow the management and land use guidelines in the multispecies HMP developed by the Army. The HMP is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". The HMP may prescribe avoidance of Smith's blue butterfly habitat or replacement of affected habitat through restoration of dune habitats. Components of the HMP focused on Smith's blue butterfly may be developed in association with the proposed Marina Dunes Habitat Conservation Plan (HCP). (Other federal, state and local agencies and private entities responsible for development)

- ***Impact: Degradation of Smith's Blue Butterfly Habitat***

Under Alternative 6R, public access would be permitted on the beaches and dunes at Fort Ord. Foot traffic and other human impacts associated with increased use could damage host plants and degrade Smith's blue butterfly habitat in the coastal dune zone. Degradation of Smith's blue butterfly habitat would be a significant impact under NEPA because it would violate the federal Endangered Species Act.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan***

Recipients of disposed Fort Ord lands would be required to follow the management and land use guidelines in the multispecies HMP developed by the Army. The HMP is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". Development and implementation of the HMP would address methods to preserve and protect Smith's blue butterfly habitat such as constructing wooden boardwalks to direct beach access, installing interpretive signs designating the area as sensitive habitat, and providing adequate, full-time law enforcement for the coastal dune zones. (Federal, state and local agencies and private entities responsible for development)

- ***Impact: Disturbance to Nesting Western Snowy Plovers***

Under Alternative 6, public access would be allowed on the beaches at Fort Ord. Disturbances caused by increased public use of the beaches could cause nest failures in snowy plovers, resulting in direct mortality to eggs and chicks. Direct mortality would be considered a significant impact under NEPA because coastal populations of western snowy plovers are listed as threatened under the federal Endangered Species Act.

Table 6.11-3 Approximate Habitat Losses for Special-Status and Special-Interest Wildlife Species by Reuse Alternative

Species	Legal Status*		Approximate Acres of Potential Habitat Available	Approximate Acres of Potential Habitat Lost						
	Federal/State	Potential Habitat		Alt. 1	Sub. 1A	Sub. 1B	Sub. 1C	Alt. 2	Sub. 2A	Sub. 2B
Smith's Blue Butterfly	FE/-	Buckwheat in dune habitats	180	40	40	40	120	25	25	25
California Linderiella	FPE/-	Vernal pools and ponds	65	60	60	60	60	15	15	15
Black Legless Lizard	C2/SSC	General habitat; native dune vegetation and where coastal scrub and maritime chaparral overlap with Baywood sands and Oceana soils	3,320	2,790	2,780	2,790	2,920	2,710	2,700	2,710
Monterey Dusky-Footed Woodrat	C2/-	Maritime chaparral and coastal coast live oak woodland	15,560	14,970	14,860	15,000	14,950	8,760	8,650	8,790
Monterey Ornate Shrew	C2/-	General habitat; mixed riparian and oak riparian forest, coastal and inland coast live oak woodland	4,640	4,000	4,140	4,020	3,210	3,120	3,120	3,240
Loggerhead Shrike	C2/-	Dunes, grasslands, coastal scrub, maritime chaparral	18,990	16,080	16,050	16,100	16,410	9,750	9,720	9,770
Tricolored Blackbird	C2/SSC	Grasslands in the southeastern portion of Fort Ord	2,580	1,130	1,130	1,130	1,130	1,040	1,040	1,040
California Horned Lark	C2/-	Grasslands	4,790	3,060	3,060	3,090	3,060	2,660	2,660	2,660
California Tiger Salamander	C2/SSC	Vernal pools and ponds	65	60	60	60	60	15	15	15
California Red-Legged Frog and Southwestern Pond Turtle	C1/SSC	Ponds	30	25	25	25	25	10	10	10
Burrowing Owl and Northern Harrier	-/SSC	Grasslands	4,790	3,060	3,060	3,090	3,060	2,660	2,660	2,660
Cooper's Hawk and Yellow Warbler	-/SSC	Mixed riparian forest, oak riparian forest, and canyon bottom, inland coast live oak woodland	300	210	210	210	210	205	205	205
Sharp-Shinned Hawk	-/SSC	Mixed riparian forest, oak riparian forest, inland coast live oak woodland	1,670	1,250	1,250	1,250	1,250	340	340	340

Table 6.11-3 Continued

Species	Legal Status ^a		Approximate Acres of Potential Habitat Available	Approximate Acres of Potential Habitat Lost						
	Federal/State	Potential Habitat		Alt. 1	Sub. 1A	Sub. 1B	Sub. 1C	Alt. 2	Sub. 2A	Sub. 2B
Golden Eagle	-/SSC	Oak savanna, inland coast live oak woodland, coastal scrub, maritime chaparral, and grasslands	19,880	16,910	16,880	16,930	16,940	10,115	10,080	10,130
Prairie Falcon	-/SSC	Grassland and oak savanna	5,090	3,250	3,250	3,260	3,240	2,790	2,780	2,790
American Badger	-/SSC	Grassland, oak savanna, coastal coast live oak woodland	8,070	6,110	6,010	6,150	6,020	5,250	5,150	5,260
Coast Horned Lizard	-/SSC	General habitat; where coastal scrub and maritime chaparral overlap with baywood sands, Arnold Enez, and Oceana soils	10,430	10,070	10,050	10,080	10,110	5,520	5,500	5,530
Salinas Harvest Mouse	SI	Coastal coast live oak woodland	2,970	2,650	2,760	2,690	2,780	2,400	2,370	2,490
Great Road Runner	SI	Maritime chaparral, inland coast live oak woodland	14,020	13,160	13,140	13,160	13,210	6,850	6,830	6,850
Swainson's Thrush and Common Yellowthroat	SI	Mixed riparian forest	200	190	190	190	190	190	190	190

Table 6.11-3 Continued

Species	Legal Status ^a		Approximate Acres of Potential Habitat Available	Approximate Acres of Potential Habitat Lost				
	Federal/State	Potential Habitat		Alt. 3	Sub. 4	Sub. 5	Sub. 5A	Alt. 6R
Smith's Blue Butterfly	FE/-	Buckwheat in dune habitats	180	2	15	1	1	1
California Linderella	FPE/-	Vernal pools and ponds	65	4	9	0	0	2
Black Legless Lizard	C2/SSC	General habitat; native dune vegetation and where coastal scrub and maritime chaparral overlap with Baywood sands and Oceana soils	2,960	1,090	650	20	1	525
Monterey Dusky-Footed Woodrat	C2/-	Maritime chaparral and coastal coast live oak woodland	15,590	3,910	2,630	260	90	1,455
Monterey Ornate Shrew	C2/-	General habitat; mixed riparian and oak riparian forest, coastal and inland coast live oak woodland	4,590	2,280	1,450	260	120	562
Loggerhead Shrike	C2/-	Dunes, grasslands, coastal scrub, maritime chaparral	18,990	3,720	2,900	460	230	1,915
Tricolored Blackbird	C2/SSC	Grasslands in the south-eastern portion of Fort Ord	2,750	180	9	9	9	130
California Horned Lark	C2/-	Grasslands	4,770	1,420	1,260	240	40	850
California Tiger Salamander	C2/SSC	Vernal pools and ponds	65	4	9	0	0	2
California Red-Legged Frog and Southwestern Pond Turtle	C1/SSC	Ponds	30	2	2	0	0	1
Burrowing Owl and Northern Harrier	-/SSC	Grasslands	4,770	1,420	1,260	240	40	850
Cooper's Hawk and Yellow Warbler	-/SSC	Mixed riparian forest, oak riparian forest, and canyon bottom, inland coast live oak woodland	230	0	0	0	0	5
Sharp-Shinned Hawk	-/SSC	Mixed riparian forest, oak riparian forest, inland coast live oak woodland	1,620	55	85	85	70	25
Golden Eagle	-/SSC	Oak savanna, inland coast live oak woodland, coastal scrub, maritime chaparral, and grasslands	19,690	3,870	3,000	550	300	1,905
Prairie Falcon	-/SSC	Grassland and oak savanna	5,080	1,470	1,340	320	110	870
American Badger	-/SSC	Grassland, oak savanna, coastal coast live oak woodland	8,050	3,570	2,710	550	200	1,410

Table 6.11-3 Continued

Species	Legal Status ^a Federal/State	Potential Habitat	Approximate Acres of Potential Habitat Available	Approximate Acres of Potential Habitat Lost				
				Alt. 3	Sub. 4	Sub. 5	Sub. 5A	Alt. 6R
Coast Horned Lizard	-/SSC	General habitat; where coastal scrub and maritime chaparral overlap with baywood sands, Arnold Enez, and Oceana soils	10,440	1,870	1,410	35	0	945
Salinas Harvest Mouse	SI	Coastal coast live oak woodland	2,970	2,100	1,370	230	90	540
Greater Road Runner	SI	Maritime chaparral, inland coast live oak woodland	14,000	2,000	1,350	70	40	935
Swainson's Thrush and Common Yellowthroat	SI	Mixed riparian forest	190	0	0	0	0	5

^a Status explanations (see the "Definitions of Special-Status Species" section above for citations):

- = No designation.

Federal

FE = Endangered under the federal Endangered Species Act.

FPE = Proposed for listing as endangered.

C1 = Category for listing. Category 1 includes species for which USFWS has on file enough information on biological vulnerability to support proposals to list them.

C2 = Category 2 candidate for federal listing. Category 2 includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status.

State

SI = Special interest species.

SSC = Species of special concern.

▪ **Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan**

Recipients of disposed Fort Ord lands would be required to follow the management and land use guidelines in the multispecies HMP developed by the Army. The HMP is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". The western snowy plover will be specifically addressed in the multispecies HMP. The HMP may recommend that human access to beaches north of Stilwell Hall be restricted during the western snowy plover breeding and nesting season (March-September) to avoid disturbance to nesting birds. If western snowy plovers are found nesting in other areas, beach access could be restricted in these locations also. (Federal, state, and local agencies and private entities responsible for development)

▪ **Impact: Loss of California Linderiella Habitat (Approximately 2 Acres)**

California linderiella occur in ephemeral, freshwater aquatic habitats, such as vernal pools, swales, and ponds. They are adapted to the temporary presence of water and to a species-specific set of environmental parameters (e.g., salinity, temperature, and alkalinity) (Simovich and Fugate 1992). California linderiella produce a single generation per year, emerging in response to their species-specific environmental cues while water bodies are full, producing eggs, then dying. Once the aquatic habitat has dried, the eggs overwinter in a resistant egg stage and hatch only when the required environmental cues in the aquatic habitat are reestablished (Zedler 1987).

Under Alternative 6R, roughly 3% (approximately 2 acres) of the potential California linderiella habitat at Fort Ord would be eliminated by development. None of the five vernal pools and ponds where California linderiella are known to occur would be eliminated. However, the proposed SR 68 transportation corridor would pass within 1,250 feet of two occupied pools.

California linderiella is currently proposed for federal endangered status. If California linderiella becomes listed as endangered, loss of habitat would be a significant impact under NEPA because it would violate the federal Endangered Species Act.

▪ **Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan**

This mitigation is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". The HMP may recommend avoidance of vernal pools and ponds where feasible or creation of wetlands of equal or greater value where vernal pools and ponds are removed. All future land owners will still be required to comply with Section 404 of the Clean Water Act if the placement of dredged or fill material is proposed in a wetland. (Other federal, state and local agencies and private entities responsible for development)

Special-Status Wildlife Species - Federal Candidate Wildlife Species

▪ **Impact: Loss of Black Legless Lizard Habitat (Approximately 17%), and Globose Dune Beetle Habitat (Approximately 1%)**

The black legless lizard occurs in areas of loose sandy soils supporting native dune, coastal scrub, or maritime chaparral vegetation. Although legless lizards have also been found along the edges of ice plant mats, ice plant is not considered suitable habitat for legless lizards (Papenfuss and Harris 1990).

Because of narrow microhabitat requirements for black legless lizards (i.e., moderate soil moisture, mixed patches of sun and shade, thick duff or leaf litter), specific acreages for elimination of black legless lizard microhabitat cannot be determined; however, under this alternative 17% of the habitat likely to contain appropriate microhabitat conditions would be eliminated by development. Therefore, it was assumed that approximately 17% of the total available microhabitat would also be eliminated.

Globose dune beetles occur in dune ecosystems in areas of native vegetation (Doyen 1976). The species lives and forages under sand and is very seldom found on the sand surface. Globose dune beetles do not travel more than a few meters from vegetation (Doyen 1976). It is unknown if globose dune beetles occur at Fort Ord. Dune areas with native vegetation are considered potential habitat.

Under Alternative 6R, roughly 17% of the available black legless lizard habitat and approximately 1% of the globose dune beetle habitat at Fort Ord would be eliminated by development. Although the black legless lizard has a very limited range, loss of 17% of the available habitat at Fort Ord would not elevate the species to threatened or endangered status. The globose dune beetle would not be substantially impacted. However, implementation of the following mitigation would minimize impacts to both species.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Threatened and Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan***

This mitigation is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". The black legless lizard will be specifically addressed in the multispecies HMP. Preservation and enhancement of dune communities will conserve black legless lizard coastal habitat. Globose dune beetle habitat will also be conserved. Preservation and enhancement of maritime chaparral will conserve black legless lizard inland habitat.

- ***Impact: Degradation of Black Legless Lizard and Globose Dune Beetle Habitat In the Coastal Dune Zone***

Under Alternative 6R, public access would be permitted on the beaches and dunes at Fort Ord. Foot traffic and other human impacts associated with increased use could reduce densities of native vegetation and degrade black legless lizard and globose dune beetle habitat in the coastal dune zone.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Threatened and Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan***

This mitigation is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". Methods for protection of dune habitat addressed in the HMP for Smith's blue butterfly will also protect habitat for black legless lizard and globose dune beetle.

- ***Impact: Loss of Monterey Ornate Shrew Habitat (Approximately 12%) and Monterey Dusky-Footed Woodrat Habitat (Approximately 1,455 Acres)***

No Monterey ornate shrews have been observed at Fort Ord; however, the installation is within the range of the species and suitable habitat is available. The shrew occurs only in areas with thick groundcover (i.e., duff, dead and downed logs, or dense grasses) that support large invertebrate populations. Appropriate microhabitat conditions are most likely to occur in mixed riparian and oak riparian forests, and inland and coastal coast live oak woodlands.

Specific acreage for elimination of shrew microhabitat cannot be determined; however, under Alternative 6R approximately 12% of the habitats likely to contain appropriate microhabitat conditions would be eliminated by development. Therefore, it was assumed that approximately 12% of the total available microhabitat would also be eliminated. Although the range of the Monterey ornate shrew is limited to the Monterey Bay region the loss of 12% of the available habitat at Fort Ord should not result in state or federal listing as threatened or endangered. However, habitat should be preserved where possible because of the limited range of the species

Monterey dusky-footed woodrats are known to occur at Fort Ord in maritime chaparral and coastal coast live oak woodlands. The range of the species is limited to Monterey and northern San Luis Obispo Counties with Fort Ord comprising the northern limits of its range.

Under Alternative 6R, roughly 9% (approximately 1,455 acres) of the Monterey dusky-footed woodrat habitat at Fort Ord would be eliminated by development. However, because over 12,000 acres of habitat would still remain under Alternative 6R, the loss of 9% of the available habitat should not result in state or federal listing as threatened or endangered for the Monterey dusky-footed woodrat. However, habitat should be preserved where possible because of the limited range of the species.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Threatened and Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan***

This mitigation is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". The Monterey ornate shrew will be specifically addressed in the multispecies HMP. Preservation and enhancement of oak woodlands will conserve habitat for the Monterey ornate shrew. Preservation of maritime chaparral habitat addressed in the HMP will conserve habitat for the Monterey dusky-footed woodrat.

- ***Mitigation: Avoid and Compensate for Loss of Riparian Forest***

This mitigation is described for the "Loss of Riparian Forest" impact discussed previously. Implementation of this measure would aid in minimizing habitat losses for Monterey ornate shrew.

- ***Impact: Elimination of Loggerhead Shrike Habitat (Approximately 1,915 Acres)***

Loggerhead shrikes are known to occur in dune, grassland, coastal scrub, and maritime chaparral habitats at Fort Ord. Under Alternative 6R, roughly 10% (approximately 1,915 acres) of the loggerhead shrike habitat at Fort Ord would be eliminated by development.

The loggerhead shrike is widely distributed in California and is absent only from the higher elevations of the Klamath, Cascade, and Sierra Mountain Ranges. The species occurs infrequently along the coast in Monterey County, but is more abundant along the eastern portion of the county. The loss of habitat at Fort Ord would not affect a substantial portion of the species population. Although impacts on loggerhead shrike are not substantial, implementation of the following mitigation measures for other resources would result in a beneficial effect for loggerhead shrike:

- ***Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Threatened and Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan***

This mitigation is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". Preservation of maritime chaparral habitat addressed in the HMP will conserve habitat for the loggerhead shrike.

- ***Mitigation: Limit Losses of Grasslands through Local Agency Land Use General Plan Policies and Regional Programs***

This mitigation is described for the "Loss of Common Biological Communities" impact for reuse discussed previously. Implementation of this measure would aid in minimizing habitat losses for loggerhead shrike.

- ***Impact: Loss of Tricolored Blackbird Habitat (Approximately 130 Acres) and California Horned Lark Habitat (Approximately 850 Acres)***

Both tricolored blackbirds and California horned larks are known to occur in grassland habitats at Fort Ord. Tricolored blackbirds are restricted to the southeastern grassland area. One nesting colony occurs on the installation approximately 1.5 miles northeast of Laguna Seca and one colony occurs at Laguna Seca. The Laguna Seca colony likely forages in the grasslands at Fort Ord. Under Alternative 6R, roughly 5% (approximately 130 acres) of the grassland habitat used for foraging by tricolored blackbirds would be eliminated by development. The known nesting colony would not be affected, and approximately 2,500 acres of grassland would be preserved. Tricolored blackbirds would not be adversely affected.

California horned larks are known to occur at Fritzsche Army Airfield and are expected to occur in grasslands throughout Fort Ord. Under Alternative 6R, roughly 18% (approximately 850 acres) of this habitat would be eliminated by development.

This variety of horned lark occurs along the California Coast Ranges from Humboldt County to the Mexican border, and in the San Joaquin Valley. Elimination of habitat at Fort Ord could contribute to fragmentation of the range of the species in northern Monterey County but would not affect a substantial portion of the population.

Although impacts on tricolored blackbirds and horned lark are not substantial under Alternative 6R, the following mitigation measure described for impacts on grasslands would result in beneficial effects for both species:

- ***Mitigation: Limit Loss of Grasslands through Local Agency General Plan Land Use Policies and Regional Programs***

This mitigation is described for the "Loss of Common Biological Communities" impact discussed previously. Preserving grassland habitats would also conserve habitat for tricolored blackbird and horned lark.

- ***Impact: Loss of California Tiger Salamander Habitat (Approximately 2 Acres) and California Red-Legged Frog and Southwestern Pond Turtle Habitat (Approximately 1 Acres)***

California tiger salamanders breed in ephemeral freshwater aquatic habitats such as vernal pools and ponds, and in permanent water bodies absent of fish. Adult salamanders spend the dry season in underground refugia, such as rodent burrows, up to 1 mile from the breeding pond. Eight breeding ponds were found at Fort Ord.

California red-legged frogs and southwestern pond turtles occur in permanent or semipermanent freshwater habitats such as ponds, slow-moving streams, or small lakes. Southwestern pond turtles nest in upland habitats up to 0.25 mile from water bodies. California red-legged frogs were not located during surveys of Fort Ord, although the area is within the range of the species and suitable habitat occurs at the installation. Southwestern pond turtles are known to occur occasionally at Mudhen Lake, migrating onto Fort Ord from Merrill Ranch during heavy rain years (U.S. Fish and Wildlife Service pers. comm.), and may occur in other areas.

Under Alternative 6R, roughly 3% (approximately 2 acres) of the California tiger salamander breeding habitat at Fort Ord and one of the eight known breeding sites would be eliminated by development of the SR 68 transportation corridor. The transportation corridor would also come very close to two other known breeding ponds removing upland habitat. Roughly 3% (approximately 1 acre) of the potential red-legged frog and southwestern pond turtle habitat available would also be eliminated. Implementation of Alternative 6R would not result in a substantial decline in the California tiger salamander population in the Monterey Bay region. Compliance with Section 404 of the Clean Water Act should minimize wetland impacts.

- **Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan**

This mitigation is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". Preservation of ponds and vernal pools for California linderiella will also conserve habitat for California tiger salamander, California red-legged frog, and southwestern pond turtle. All future land owners will also be required to comply with Section 404 of the Clean Water Act if the placement of dredged or fill material is proposed in a wetland. (Other federal, state and local agencies and private entities responsible for development)

- **Mitigation: Avoid or Limit Losses and Restore Vernal Pools, Freshwater Marsh, Streams, and Pools**

This mitigation is described for the "Loss of Vernal Pools, Freshwater Marsh, Streams, and Ponds" impact discussed at the end of this chapter.

- **Mitigation: Avoid or Minimize Impacts on Upland Habitat**

Development could be designed to avoid upland habitat within 0.5 mile of vernal pools and ponds to prevent potential adverse impacts on California tiger salamanders and nesting southwestern pond turtles. If upland habitat cannot be fully avoided, as large a portion as is feasible could be preserved. (Local agencies and private entities responsible for development)

- **Impact: Loss of Potential Roosting, Hibernating, and Breeding Sites of for Special-Status Bats**

Three special-status bat species have potential to occur at Fort Ord, Townsend's western big-eared bat, pallid bat, and California mastiff bat. There are no recorded occurrences of these species at Fort Ord; although, all three species could potentially use the installation to forage, for night roosts, hibernating sites, and nursery roosts.

Townsend's western big-eared bat is a Category 2 candidate for federal listing as threatened or endangered and a California Species of Special Concern. This species roosts in caves, mines, and buildings where there is enough space for individuals to hang from walls or ceilings. All known roosts of Townsend's western big-eared are within 100m of a stream or riparian habitat (Pierson 1988). Females are extremely sensitive to disturbance and have been known to abandon a nursery roost after one human intrusion.

The California mastiff bats is also a Category 2 candidates for federal listing as threatened or endangered and a California Species of Special Concern. The California mastiff bat typically occurs in areas inland from Fort Ord and is not likely to be found at the installation (University of California, Berkeley pers. comm.). Mastiff bats occur in lowland areas in arid to semi-arid habitats including deciduous woodlands, coastal scrub, and annual grasslands (Zeiner et al. 1990). They prefer rugged rocky areas where they use large cracks in granite or sandstone as roosts. Mastiff bats will also roost in buildings if cracks or tight spaces are available (Williams 1986).

Pallid bats are considered a California Species of Special Concern. This species occurs in a wide variety of habitats including grasslands, shrublands, and forests, but is most common in dry, open habitats with rocky areas available for day roosts (Zeiner et al. 1990). Caves, rock crevices, mines, and occasionally hollow trees and buildings are used as day roosts. Pallid bats are also highly sensitive to disturbance and may abandon a roost or nursery site after only a brief intrusion.

Under Alternative 6R buildings within the Main Garrison and East Garrison will be removed to accommodate future land uses. Some buildings may potentially be used as roosting, hibernating, or breeding sites by any of these three bat species. Nursery and hibernation roosts are very rare for all these species. The loss of a nursery or hibernation site (if one occurs at Fort Ord) could substantially reduce the local population of these bat species.

- **Mitigation: Preserve Nursery and Hibernation Sites**

Before buildings are removed or modified at Fort Ord they could be surveyed for special-status bats. Surveys for hibernation sites should be conducted between October and April and surveys for nursery sites should be conducted between May and August. If a hibernation or nursery site is found in a building during surveys the building could be retained in its original condition. Activity around and in the building could be limited to levels comparable to pre-closure uses around the building.

Special-Status Wildlife Species - California Wildlife Species of Special Concern

- **Impact: Loss of Burrowing Owl, Northern Harrier, and Short-Eared Owl Habitat (Approximately 850 Acres)**

Burrowing owls occur infrequently in grassland habitats at Fort Ord (U.S. Fish and Wildlife Service pers. comm.). Northern harriers are not known to nest at Fort Ord but may winter on the installation, foraging in the grasslands. Short-eared owls are a rare summer and winter resident in Monterey County (Roberson 1985) and are not known to occur at Fort Ord. The grasslands at Fort Ord are considered potential nesting and foraging habitat for short-eared owls.

Under Alternative 6R, roughly 18% (approximately 850 acres) of the potential habitat for burrowing owl, northern harrier, and short-eared owl at Fort Ord would be eliminated by development. Elimination of northern harrier wintering habitat at Fort Ord would not affect a substantial portion of the nesting population. The loss of grassland habitat may, however, eliminate burrowing owl nesting sites and potential short-eared owl nesting habitat. Although impacts on northern harrier are not substantial, the second mitigation measure for impacts on grasslands would result in beneficial effects for northern harrier.

- **Mitigation: Compensate for Burrowing Owl Nest Sites Lost during Development**

To compensate for burrowing owl nest sites potentially lost during development, alternate nest sites could be identified or new nest sites could be created, and burrowing owls could be relocated to these new sites. Burrowing owls found nesting at Fort Ord in areas to be developed could be trapped during the nonbreeding season and relocated to suitable habitat in the natural resource management area. Artificial burrows could be provided if necessary, and relocated owls could be monitored for a minimum of 2 years to determine the success of relocation efforts. (Private entities responsible for development)

- **Mitigation: Limit Loss of Grasslands through Local Agency General Plan Land Use Policies and Regional Programs**

This mitigation is described for the "Loss of Common Biological Communities" impact discussed previously.

- **Impact: Loss of Cooper's Hawk and Yellow Warbler Habitat (Approximately 5 Acres) and Wintering Sharp-Shinned Hawk Habitat (Approximately 25 Acres)**

Cooper's hawks and yellow warblers occur in mixed riparian and oak riparian forests and in inland coast live oak woodlands in canyon bottoms at Fort Ord. Cooper's hawks and yellow warblers have been recorded nesting in Merrill Ranch Canyon, and Cooper's hawks have been recorded nesting in Barloy Canyon (Monterey Chapter of the Audubon Society pers. comm.).

Sharp-shinned hawks may winter at Fort Ord, foraging in mixed riparian and oak riparian forests and inland coast live oak woodlands. They are not known to nest at the installation.

Under Alternative 6R, roughly 2% (approximately 5 acres) of the available habitat for Cooper's hawk and yellow warbler at Fort Ord would be eliminated by development. Roughly 2% (approximately 25 acres) of the potential sharp-shinned hawk wintering habitat would be also be eliminated.

Eliminating this habitat for Cooper's hawk, yellow warbler, and wintering sharp-shinned hawk would not affect substantial portion of the local populations. However, impacts may be minimized by implementing the following mitigation measure.

- **Mitigation: Avoid and Compensate for Loss of Riparian Forest**

This mitigation is described for the "Loss of Riparian Forest" discussed previously. Preserving riparian forest would conserve habitat for Cooper's hawk, yellow warbler, and wintering sharp-shinned hawk.

- **Impact: Loss of Golden Eagle Habitat (Approximately 1,905 Acres)**

Golden eagles perch and forage in oak savanna, inland coast live oak woodland, riparian forest, maritime chaparral, coastal scrub, and grasslands at Fort Ord. It is unknown whether golden eagles nest at Fort Ord, although suitable nesting habitat is available.

Under Alternative 6R, roughly 10% (approximately 1,905 acres) of the potential golden eagle habitat at Fort Ord would be eliminated by development. The loss of 10% of the available habitat at Fort Ord would not reduce the range of the golden eagle or exclude golden eagles from the installation. Although impacts on golden eagles are not substantial, the following mitigation for impacts on other resources would result in beneficial effects for golden eagles:

- **Mitigation: Limit Loss and Compensate Losses of Coast Live Oak Woodland and Savanna through State Policies, Local Agency General Plan Land Use Policies, and Regional Programs**

This mitigation is described for the "Loss of Common Biological Communities" impacts discussed previously.

- **Mitigation: Limit Loss of Grasslands through Local Agency General Plan Land Use Policies and Regional Programs**

This mitigation is described for the "Loss of Common Biological Communities" impact discussed previously.

- **Impact: Loss of Prairie Falcon Foraging Habitat (Approximately 870 Acres)**

Prairie falcons forage in grasslands and oak savannas at Fort Ord for small mammals and birds. There are few rock outcrops or ledges suitable for nesting at Fort Ord, and prairie falcons are not expected to nest at the installation; however, one nesting pair has been recorded near Fort Ord along SR 68.

Under Alternative 6R, roughly 17% (approximately 870 acres) of the available prairie falcon foraging habitat at Fort Ord would be eliminated by development. However, substantial portions of foraging habitat would be retained in the natural resource management area. The loss of 17% of the foraging habitat at Fort Ord would not adversely affect the breeding success of prairie falcons nesting near the installation. Although impacts on prairie falcon are not substantial under Alternative 6R, the following mitigation measure for impacts on grasslands would result in beneficial effects for prairie falcon:

- **Mitigation: Limit Loss of Grasslands through Local Agency General Plan Land Use Policies and Regional Programs**

This mitigation is described for the "Loss of Common Biological Communities" impact discussed previously.

- **Impact: Loss of American Badger Habitat (Approximately 1,410 Acres)**

American badgers occur in grassland, oak savanna, and coastal coast live oak woodland habitats at Fort Ord.

Under Alternative 6R, roughly 17% (approximately 1,410 acres) of the available badger habitat on Fort Ord would be lost; however, large amounts of suitable habitat would remain in the natural resource management area. The loss of habitat would not substantially reduce the range of the species and would not affect the higher density population in the southern portion of Monterey County. Although impacts on American badger are not substantial, the following mitigation measures for impacts on other resources would result in beneficial effects for American badger:

- **Mitigation: Limit Loss of Grasslands through Local Agency General Plan Land Use Policies and Regional Programs**

This mitigation is described for the "Loss of Common Biological Communities" impact for reuse discussed previously. Implementation would reduce habitat losses for American badger.

- **Mitigation: Limit Loss and Compensate Losses of Coast Live Oak Woodland and Savanna through State Policies, Local Agency General Plan Land Use Policies, and Regional Programs**

This mitigation is described for the "Loss of Common Biological Communities" impact for reuse discussed previously. Implementation would reduce habitat losses for American badger.

- **Impact: Loss of Coast Horned Lizard Habitat (Approximately 9%)**

The coast horned lizard is distributed along the California coast from Marin County to Santa Barbara County and in the southern Sacramento Valley south through the San Joaquin Valley. Coast horned lizards occur at Fort Ord where coastal scrub and maritime chaparral habitats grow in areas with loose sandy soils. Within these broad habitat parameters this species requires specific microhabitat conditions such as open areas for sunning (i.e., roads, fuelbreaks, burned areas, or other openings in vegetation), large ant populations as prey, and extremely loose or sandy soils where they can bury themselves for cover.

Because of narrow microhabitat requirements, specific acreages for elimination of coast horned lizard microhabitat cannot be determined; however, under Alternative 6R approximately 9% of the habitats likely to contain appropriate microhabitat conditions would be eliminated by development. Therefore, it was assumed that approximately 9% of the total available microhabitat would also be eliminated.

The elimination of 9% of the available coast horned lizard habitat at Fort Ord would not reduce the range of the species or exclude the species from Fort Ord. Although impacts on coast horned lizard are not substantial under Alternative 6R, the following mitigation measure for impacts on maritime chaparral would result in beneficial effects for coast horned lizard:

- **Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan**

The HMP is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". The HMP will specifically address methods for preservation and enhancement of maritime chaparral habitat.

Special-Status Wildlife Species - Rare and Special-Interest Wildlife Species

- **Impact: Loss of Salinas Harvest Mouse Habitat (Approximately 540 Acres)**

The Salinas harvest mouse is considered a rare species in California with a very limited range, but currently has no legal status. One Salinas harvest mouse was captured in coast live oak woodland habitat at Fort Ord. It is unknown whether the harvest mouse occurs in other habitats.

Under Alternative 6R, roughly 18% (approximately 540 acres) of the available Salinas harvest mouse habitat at Fort Ord would be eliminated by development. This loss would not have a substantial affect on the Salinas harvest mouse; however, implementation of the following mitigation would minimize impacts to the species:

- **Mitigation: Limit Loss and Compensate Losses of Coast Live Oak Woodland and Savanna through State Policies, Local Agency General Plan Land Use Policies, and Regional Programs**

This mitigation is described for the "Loss of Common Biological Communities" impact discussed previously.

- **Impact: Loss of Greater Roadrunner Habitat (Approximately 935 Acres)**

The greater roadrunner population at Fort Ord is the only known population in the Monterey Bay Area (Fort Ord Parklands Group 1992). At Fort Ord, roadrunners occur in maritime chaparral and inland coast live oak woodlands.

Under Alternative 6R, roughly 7% (approximately 935 acres) of the available greater roadrunner habitat at Fort Ord would be eliminated by development. Sufficient habitat would be retained to continue to support greater roadrunners in the area. Although impacts on greater roadrunner are not substantial, the following mitigation measure for impacts on maritime chaparral would result in beneficial effects for greater roadrunner:

- **Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan**

The HMP is described for the "Reduction in Federal Protection for Sand Gilia and Monterey Spineflower" impact discussed previously under "Disposal Impacts". The HMP will specifically address methods for preservation and enhancement of maritime chaparral habitat.

- **Impact: Loss of Swainson's Thrush and Common Yellowthroat Habitat (Approximately 5 Acres)**

Populations of Swainson's thrush and common yellowthroat are thought to be declining in the Monterey Bay area (Fort Ord Parklands Group 1992). However, these species still occur in mixed riparian forest habitat at Fort Ord. Under Alternative 6, roughly 2% (approximately 5 acres) of the available habitat for Swainson's thrush and common yellowthroat at Fort Ord would be eliminated by development. This loss would not have a substantial affect on Swainson's thrush and common yellowthroat populations in the region. However, implementation of the following mitigation for riparian forest would minimize impacts for both species:

- **Mitigation: Avoid and Compensate for Loss of Riparian Forest**

This mitigation is described for the "Avoid and Compensate for Loss of Riparian Forest" impact discussed previously.

Wetlands and Other Waters of the United States

- **Impact: Loss of Vernal Pools, Freshwater Marsh, Streams, and Ponds (Approximately 2 Acres)**

Alternative 6R would remove or degrade approximately 1 acre of vernal pools, about 1 acre of freshwater marsh and ponds, and approximately 2,350 linear feet of streams at Fort Ord (Tables 6.11-1 and 6.11-4). Vernal pools and freshwater marsh are potentially jurisdictional wetlands and stream channels and ponds are potentially other waters of the United States protected under the Clean Water Act. The placement of dredged or fill material into wetlands and other waters of the United States is prohibited under Section 404 of the Clean Water Act without a permit from the Department of the Army. The loss of wetlands and waters of the United States could be avoided by implementing the following mitigation:

**Table 6.11-4 Loss of Perennial and Intermittent Streams and
Potential Waters of the United States by Reuse Alternative**

Reuse Alternative	Linear Extent (feet)
Alternative 1	96,400
Subalternative A	96,400
Subalternative B	96,400
Subalternative C	110,700
Alternative 2	71,400
Subalternative A	71,400
Subalternative B	71,400
Alternative 3	4,000
Alternative 4	10,500
Alternative 5	2,200
Subalternative A	2,200
Alternative 6R	2,350
Total extent of all streams at Fort Ord	655,800

Note: Streams identified on U.S. Geological Survey 1:100,000-scale digital database.

■ **Mitigation: Avoid or Limit Losses, and Restore Vernal Pools, Freshwater Marsh, Streams, and Ponds**

All future landowners would have to comply with Section 404 of the Clean Water Act if the placement of dredged or fill material is proposed in wetlands or other waters of the United States. Federal agencies must coordinate with USFWS under the Fish and Wildlife Coordination Act if actions or permits would result in the modification of wetland or open water habitats. Development entities would have to reach agreement with DFG before they could undertake alterations of streambeds, ponds, or vernal pools from which wildlife receive benefit.

Freshwater marsh, ponds, and streams could be avoided where feasible, and wetland or open water habitat of equal or greater wildlife value could be created to replace lost wetland and open water habitats. Artificial ponds and freshwater marsh could be created to replace the artificial ponds and associated freshwater marsh removed. Vernal pools should be avoided because suitable soils for vernal pools are limited in the Fort Ord area and artificial vernal pool creation has a low probability of success. Alteration of the watersheds of the vernal pools should be avoided.

These wetland and open water habitats are small landscape features, and projects can be designed to incorporate the water body and its watershed within developed areas. Implementing this mitigation would avoid or limit the adverse impacts on California linderella, California red-legged frog, California tiger salamander, southwestern pond turtle, vernal pools, freshwater marsh, streams, ponds, and CNPS plant preserves with vernal pools. Modification of developments proposed under Alternative 6R would be necessary to avoid or limit adverse impacts on these habitats.

The mitigation discussed above is both realistic and feasible. (State and local agencies and private entities responsible for development)

6.11.4 Cumulative Effects

U.S. Department of Defense ownership of Fort Ord has protected biological resources from development as cities and agriculture have expanded in the Monterey Bay region over the last 50 years. Many special-status vegetation and wildlife species and biological resources found at Fort Ord have suffered incremental losses of habitat within the region and statewide caused by urban and agricultural expansion and other land uses. Biological resources that are not substantially affected at the time of actions taken at Fort Ord may be more severely affected by cumulative impacts of continued development in Monterey and Santa Cruz Counties and throughout California.

6.11.4.1 Disposal Impacts

Impacts from loss of habitat from disposal of Fort Ord lands to entities planning development would affect vegetation and wildlife to some degree for all alternatives. Although disposal impacts for Alternative 6R are mitigated by the proposed HMP, implementation of Alternative 6R would result in some losses to biological resources that have already sustained incremental losses from other projects in Monterey and Santa Cruz Counties and statewide.

The cumulative loss of populations of CNPS List 4 species, plant species determined by CNPS to be of limited distribution, could eventually result in threatened or endangered status for these species. One CNPS List 4 species that is not a federal candidate for listing as threatened or endangered would be affected by disposal activities: Monterey Indian plantbrush. The loss of populations of this species could be long term, but populations could recover. Restoring native dune habitat would reduce impacts on this species.

Impacts on wildlife populations from habitat losses at Fort Ord are compounded by cumulative habitat losses in the Monterey Bay region and throughout California. The cumulative loss of habitat for California species of special concern, wildlife species determined by DFG to be rare or declining in California, could eventually result in threatened or endangered status for these species under the California or federal Endangered Species Act. All 10 California species of special concern mentioned in the text could be affected by disposal impacts.

6.11.4.2 Reuse Impacts

Reuse of Fort Ord would add to the continued decline in extent of biological communities that have not been identified as rare by DFG. Removal of coastal scrub and coast live oak woodland and savanna at Fort Ord would be a cumulative impact on these biological communities. Local agency general plans land use policies and regional programs could be implemented to reduce impacts on oak woodlands in northern Monterey County.

The following CNPS List 4 plant species, which are not federal candidates for listing as threatened or endangered, would be adversely affected by reuse under Alternative 6R: Monterey Indian plantbrush, Douglas' spineflower, Lewis' clarkia, virgate eriastrum, small-leaved lomatium, curly-leaved monardella, and purple-flowered piperia. Development of land would result in the permanent loss of populations and habitat of these species. The cumulative loss of populations and habitat for these species could eventually result in threatened or endangered status.

Loss of CNPS List 4 plants could be reduced by modifying development designs to avoid populations of plants and leaving as much natural habitat as possible between developed areas. Sites that are typically landscaped (e.g., road medians and industrial park lawns) could be kept as natural vegetation.

All 10 California species of special concern discussed in the text would be adversely affected to some degree by reuse. The Salinas harvest mouse, a rare species with a limited range but no formal legal status, also would be adversely affected. Development of land would result in the permanent loss of habitat for these species. The cumulative loss of habitat for these species within California could eventually result in threatened or endangered status under the California or federal Endangered Species Act.

Losses of habitat for California species of special concern and the Salinas harvest mouse could be minimized by modifying development designs to preserve areas of open space and natural vegetation. As much open space as possible should be preserved within and between developed areas. Areas of open space within adjacent developments could be connected to provide the largest continuous area possible. Large continuous corridors of habitat are of greater value to wildlife than small disjunct blocks. Natural vegetation could be preserved within open space areas, and habitat could be enhanced.

6.11.5 Summary Comparison of Reuse Alternatives

Alternative 1 would have the greatest impact on federally listed threatened and endangered plant and wildlife species at Fort Ord, as well as on all other special-status plant and wildlife species and wetland resources on the installation. Alternative 1, Subalternative C would have additional impacts on dune habitats, the marine environment, and associated federally listed threatened and endangered species. Alternative 2 would have the next greatest impact on special-status plant and wildlife species and wetland resources, followed by Alternative 3. Alternative 4 would have a lesser impact overall than Alternative 3; however, greater impacts on dune habitats and wetlands and associated special-status plant and wildlife species would occur. Alternative 5 would have the least impact on all vegetation, wildlife, and wetland resources. Alternative 6R would have impacts intermediate between Alternative 5 and Alternative 3.

6.12 VISUAL RESOURCES

6.12.1 Introduction

Visibility, visual quality, and visual sensitivity for Fort Ord have been identified using geographic information system technology and are described in Section 4.12, "Visual Resources". Fort Ord's sensitivity to visual impacts was evaluated by combining mapped elements of visibility and visual quality.

The approach for assessing the impacts of Alternative 6R involved evaluating the land use intensity of the proposed land uses (Table 6.12-1) and comparing the land use intensity of the proposed land uses with the visual sensitivity ratings (Figure 4.12-3 in Section 4.12, "Visual Resources") for Fort Ord. The resulting map (Figure 6.12-1) indicates the potential of Alternative 6R to alter the visual character and quality of Fort Ord. Proposed land uses were ranked for intensity based on their potential for producing visual impacts. Attributes evaluated in determining the visual impact potential of specific land uses included the relative extent of vegetation removal and land disturbance and the extent of new construction or modification required. Potential visual impacts of the proposed land uses were then assessed by combining land use visual intensity with visual impact sensitivity information previously generated as part of the analysis described in Section 4.12, "Visual Resources". Land use visual impact potential for each proposed land use included in Alternative 6R was identified and compared to the existing visual setting and the result described as high, medium, or low visual impact potential (Figure 6.12-1).

This analysis assumes that no new construction, surface disturbance or vegetation removal will occur in the disturbed habitat zone and coastal dunes zone land uses proposed for the coastal area. Additionally, this analysis assumes that no construction or surface disturbing activities (e.g., removal of vegetation or substantial grading) will be associated with the Army's proposed POM annex.

6.12.2 Disposal Impacts

There would be no disposal impacts on visual resources.

6.12.3 Reuse Impacts

- *Impact: Reduced Visual Unity and Intactness for Some Visually Sensitive Areas Resulting from Short- and Long-Term Construction Impacts*

Implementation of Alternative 1 would require construction of a substantial number of buildings, renovation of existing buildings, and modification of infrastructure. These activities would produce short-term visual impacts and could produce long-term visual impacts. Short-term visual impacts would occur from construction activities, including location of equipment storage areas, removal of vegetation, and infrastructure modifications. Long-term visual impacts could occur from the removal of vegetation; construction of new buildings; alteration of the appearances of buildings and other structures; and construction of improvements, such as recreation facilities, parking areas, lighting standards, and fences.

The activities described above could result in substantial reduction in visual unity and intactness for some visually sensitive areas for views from SR 1 and other important visitor use areas in and around Monterey Bay. The resulting visual impacts would be inconsistent with Policy 30251 of the California Coastal Act of 1976 concerning the protection of scenic and visual qualities of coastal areas.

- *Mitigation Measure: None Available*

- **Impact: Reduced Visual Quality of Areas Seen from State Route 68 and State Route 1**

Implementing Alternative 6R would substantially alter the visual character and reduce the visual quality of some areas seen from SR 68 and SR 1 (Figure 6.12-1).

Views of Fort Ord from SR 68, a state-designated scenic route that is heavily travelled by tourists and recreationists, would be reduced in visual quality by encroaching land uses of high impact potential. Land uses of high and moderate impact potential would be located in the foreground and middleground distance zones, respectively, in the south-central portion of the study area. Land uses of high impact potential would also be located in middleground distance zones in the southeastern and south-central portion of the study area. Some views from SR 68 may be lost because of built elements in the foreground distance zone that would screen views. Vividness and intactness of views in these areas would be reduced.

Viewed from SR 1, a proposed scenic route that is also heavily travelled by tourists and recreationists, high intensity land uses would encroach on the foreground and middleground distance zones of some views. Built elements associated with the transit center and service area proposed land uses would contrast in form, line, and color, with the fairly intact natural character of the surrounding coastal landscape.

Full mitigation of visual impacts on areas seen from SR 68 and SR 1 from this alternative would not be possible because the intactness and vividness of the views would be substantially reduced. However, implementing the following mitigation may reduce the magnitude of this impact:

- **Mitigation: Develop a Mechanism to Ensure the Consistent Application of Visual Resource Management Standards at Fort Ord**

A mechanism could be developed to ensure that such restrictions consistently apply visual resource management standards at Fort Ord. For example, a visual resources protection plan could be developed to identify existing visual sensitivity and visual quality; establish visual quality management zones; and identify precise performance objectives, standards, and guidelines for design and planning activities for the approximately 28,000 acres comprising Fort Ord. Additionally, a permanent aesthetics review board could be established at Fort Ord. The aesthetics review board could be composed of other federal, state, and local agency representatives. The aesthetics review board could be responsible for administering development of the plan, reviewing all proposed activities and plans for compliance with the visual resources protection plan, and identifying inconsistencies and forwarding recommendations and conditions to decision-making bodies to ensure compliance of the proposed activities and plans with the visual resources protection plan. Additionally, the visual resources protection plan could include the following guidelines: site structures in less sensitive locations not easily visible from important viewing locations; maintain overall heights of buildings and structures consistent in scale with the heights of surrounding vegetation and topography so they are nonintrusive on the surrounding landscape; minimize grading and other changes to land surface elements; and minimize removal or disturbance of existing vegetation and screen structures and other built elements with berms and native vegetation while maintaining views of important visual features. (Other federal, state, or local agencies)

- **Impact: Reduced Visual Quality of Areas Seen from the Salinas Valley**

Implementing Alternative 6R would substantially alter the visual character and reduce the visual quality of some areas seen from the Salinas Valley. Land uses of medium and high visual impact potential, proposed for the area north of Reservation Road and the East Garrison, would be located in middleground distance zones viewed from the Salinas Valley. The overall vividness and intactness of the study area landscape, as viewed from the Salinas Valley, would be substantially reduced.

- **Mitigation: Develop a Mechanism to Ensure the Consistent Application of Visual Resource Management Standards at Fort Ord**

This mitigation measure is described above for the "Reduced Visual Quality of Areas Seen from SR 68 and SR 1" impact.

6.12.4 Cumulative Effects

Implementing Alternative 6R would not substantially contribute to the regional urbanization of the greater Monterey Bay region because lower intensity land uses would occupy most of the installation's interior.

6.12.5 Summary Comparison of Reuse Alternatives

Impacts on visual resources would be greater under Alternatives 1, 2, and 3, which would require extensive removal of vegetation, regrading, and facility construction. The forms, lines, colors, and textures of built elements would differ substantially from those of the existing landscape, which is mostly natural in appearance. Alternatives 4 and 5 and portions of Alternative 6R are less intensive and emphasize retention of open space that would preserve the natural character of the area. Compared to Alternatives 1, 2, and 3, impacts on visual resources would be less under Alternatives 4, 5, and 6R.

6.13 CULTURAL RESOURCES

6.13.1 Introduction

This analysis is based on an archeological research design and a draft historic building inventory report prepared for Fort Ord by the U.S. Army Corps of Engineers' Construction Engineering Research Laboratory and on past archeological and architectural inventory studies that have been conducted for the facility.

The potential effects of Alternative 6R on archeological, architectural, and Native American traditional cultural properties during the disposal and reuse of Fort Ord properties were estimated, in part, by the intensity of the proposed land use. The more intense the proposed land use, the more likely these types of cultural resources would be adversely affected by the alternative. For this analysis, it was assumed that 33 permanent East Garrison buildings and two permanent buildings in the main cantonment may be eligible for the National Register. It was also assumed that the areas of greatest archeological sensitivity at Fort Ord include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible Canyons. All other installation lands are recommended in the research design as having low to medium potential for possessing archeological resources.

6.13.2 Disposal Impacts

- **Impact: Loss of Federal Protection for Buildings Listed in or Eligible for Listing in the National Register**

This alternative has the potential to affect National Register-eligible historic buildings by loss of federal protection, by splitting proposed National Register districts, and by inappropriate use or maintenance of historic buildings during the interim between closure and disposal. However, if lands possessing National Register eligible properties are transferred to other federal agencies, these agencies will have the same obligation as the Army to be responsible stewards of these properties.

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- **Mitigation: Maintain Historic Buildings and Condition Their Sale or Transfer with Protective Covenants**

The loss of federal protection can largely be offset by ensuring that deeds transferring Fort Ord historic properties incorporate preservation covenants as a condition of sale. These covenants will be developed in consultation with the State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, and interested parties. Historic buildings must be adequately maintained until they are transferred to a new owner, and the Army must require lessees to do the same. The Army will also attempt to dispose of National Register districts as a single entity. (Army)

- **Impact: Loss of Federal Protection for Lands That Have the Potential to Contain Archeological Resources**

Proposed land developments recommended under this alternative have the potential to affect archeological resources.

- **Mitigation: Conduct Archeological Surveys of Fort Ord Lands**

Complete (100%) archeological surveys are being conducted for those Fort Ord lands recommended as having the greatest potential to contain archeological resources. Archeological sample surveys are being conducted for those areas recommended as having low to medium potential to contain archeological resources. Adverse impacts on National Register-eligible archeological resources can be avoided by a combination of actions, including imposing restrictive covenants as a condition of sale on lands containing significant archeological sites, avoiding splitting properties that make up archeological districts, and including lease clauses that require compatible use and protection as conditions for leased properties that contain significant archeological sites. (Army)

- **Impact: Loss of Federal Protection for Lands That Have the Potential to Contain Native American Traditional Cultural Properties**

Proposed land developments recommended under this alternative have the potential to affect Native American traditional cultural properties.

- **Mitigation: Contact California Native American Groups that May Have Traditional Cultural Properties Located on Fort Ord Lands**

Before disposal of Fort Ord lands, California Native American groups will be contacted to determine whether any traditional cultural properties exist on Fort Ord. If traditional cultural properties are found to exist on Fort Ord, the loss of federal protection can largely be offset by ensuring that deeds transferring Native American traditional properties include covenants that protect and allow Native Americans access to these properties. These covenants will be developed in consultation with interested Native American groups, the SHPO, and the Advisory Council on Historic Preservation. Leases will contain clauses that require compatible use and protection as a condition of the lease.

6.13.3 Reuse Impacts

The impacts identified above under "6.13.2 Disposal Impacts" would be identical for reuse. The principal impact from both disposal and reuse is the loss of federal protection for National Register-eligible properties and Native American traditional cultural properties.

6.13.4 Cumulative Effects

U.S. government ownership has protected Fort Ord lands from intensive development for more than 50 years. Disposal of these lands under Alternative 6R to private concerns will open up this property to development that may affect any archeological sites or Native American traditional cultural properties found there or buildings identified as potentially eligible for the National Register. Alternative 6R, however, has less chance to affect these properties than other alternatives that emphasize more intensive land development plans. Potential adverse effects on National Register-eligible and Native American traditional cultural properties can be prevented or mitigated in large part by the use of protective covenants; coordination with the SHPO, the Advisory Council on Historic Preservation, Native American groups, and interested parties; and, as necessary, additional intensive archeological and architectural investigations.

6.13.5 Summary Comparison of Reuse Alternatives

Alternative 1 has the greatest potential to affect any National Register eligible properties or Native American traditional cultural properties that may be found on Fort Ord. Alternative 5 has the least potential to affect cultural resources. Alternative 6R has the potential to affect Fort Ord buildings recommended as potentially eligible for listing in the National Register by loss of federal protection and by splitting a proposed National Register district. Alternative 6R and Alternative 2 would have similar effects on any archeological sites or Native American traditional cultural properties found to be located on Fort Ord. If any archeological sites or Native American traditional cultural properties are found on Fort Ord, Alternative 6R would preserve more of these in open spaces, institutional/public areas, or in parks than would occur under Alternative 1.

The areas of greatest archeological sensitivity include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible Canyons. All other installation lands are recommended as having low to medium potential to contain archeological resources.

6.14 COASTAL RESOURCES

6.14.1 Introduction

This section discusses the consistency of the proposed action and Alternative 6R with applicable sections of the California Coastal Act of 1976 (Calif. Pub. Res. Code Sec. 30000 et seq). The consistency of the proposed action and Alternative 6R with each section is presented in Table 6.14-1.

This analysis is based on the following assumptions:

- The U.S. Coast Guard did not express interest in obtaining any of the Fort Ord lands during the real estate screening process and it will not be able to assert jurisdiction over Fort Ord lands during the disposal process.
- Establishment of the Army's POM annex would not require new construction, only renovation of existing structures.
- Public access to the coastal zone during pre-disposal and disposal phases would be granted only intermittently to organized groups such as the Audubon Society for passive recreational activities. This access would be limited to day use only. The Army would control access to the coastal zone by actively patrolling the area.
- Recreation facilities constructed in the DHZ during reuse could be located in sensitive habitat areas.
- The transit center land use encompasses at least twice the area needed for the facility.

Effects of the proposed action and Alternative 6R that would be inconsistent with sections of the California Coastal Act would be substantial.

6.14.2 Disposal Impacts

- ***Impact: Reduction in Federal Protection for Sand Gilia and Monterey Spineflower***

The change in ownership of lands providing habitat for federally listed threatened and endangered plants could result in a loss of federal protection for these species. The Endangered Species Act protects federally listed threatened and endangered plants only where they occur in areas under federal jurisdiction (i.e., where federal permits or monies are involved). If the Army transfers land in the coastal zone to the State Department of Parks and Recreation, sand gilia could lose federal protection. Future actions by nonfederal agencies or private individuals that do not come under federal jurisdiction could remove sand gilia populations without violating the federal Endangered Species Act. Sand Gilia would still receive some protection under the California Endangered Species Act, CEQA, and other state regulations. Should Monterey spineflower become federally listed, it also could lose its federal protection at Fort Ord following disposal. Monterey spineflower would not be protected under the California Endangered Species Act but would receive some level of protection under CEQA and other state regulations.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed, Proposed, and Candidate Plants and Wildlife through a Multispecies Habitat Management Plan***

Prior to disposal, the Army will prepare a multispecies Habitat Management Plan (HMP) for Fort Ord. This mitigation measure is described in more detail in Sections 6.11, "Vegetation, Wildlife, and Wetland Resources", and 6.11.2, "Disposal Impacts".

- ***Impact: Loss of U.S. Department of Defense Protection for Plant and Butterfly Preserves***

The plant and butterfly preserves at Fort Ord would no longer have Army protection following disposal of the land supporting these preserves.

- ***Mitigation: Preserve Habitat Characteristic of Native Plant Preserves through a Multispecies Habitat Management Plan***

Prior to disposal, the Army will prepare a multispecies HMP for Fort Ord. This mitigation measure is described in more detail in Sections 6.11, "Vegetation, Wildlife, and Wetland Resources", and 6.11.2, "Disposal Impacts".

6.14.3 Reuse Impacts

- ***Impact: Potential Inconsistency with Coastal Act Subsection 30212(a), 30214(a), and Section 30240***

Increased public access under reuse could degrade fragile coastal resources. Recreationists could disturb habitats of special-status wildlife and plant species such as Monterey spineflower, Smith's blue butterfly, nesting western snowy plovers, globose dune beetle, and black legless lizard. Increased public access would generate litter that could degrade aesthetic values of the coastal zone. Also, the construction of the service area and recreation facilities could result in a loss of coastal strand habitat and Monterey spineflower.

- ***Mitigation: Preserve Populations and Habitat of Federally Listed and Proposed Endangered Plants and Wildlife through a Multispecies Habitat Conservation Plan***

This mitigation is discussed in Section 6.11, "Vegetation, Wildlife, and Wetland Resources" under 6.11.3 "Reuse Impacts", "Special Status Wildlife Species" for the impact "Degradation of Smith's Blue Butterfly Habitat".

- **Mitigation: Minimize Disturbance to Nesting Snowy Plovers**

This mitigation is discussed in Section 6.11, "Vegetation, Wildlife, and Wetland Resources" under 6.11.3 "Reuse Impacts", "Special Status Wildlife Species", for the impact "Disturbance to Nesting Western Snowy Plovers".

- **Mitigation: Minimize Degradation of Black Legless Lizard Habitat in the Coastal Dunes Zone from Recreational Use**

This mitigation is discussed in Section 6.11, "Vegetation, Wildlife, and Wetland Resources" under 6.11.3 "Reuse Impacts", "Special Status Wildlife Species", for the impact "Degradation of Black Legless Lizard and Globose Dune Beetle Habitat in the Coastal Dunes Zone".

- **Mitigation: Provide Litter Pickup in the Coastal Zone**

Litter pickup should be provided periodically to minimize the effect of public access on the aesthetic values of the coastal zone. (State, and other local agencies).

This mitigation measure is considered feasible, as it is an integral part of a comprehensive recreation management plan.

- **Mitigation: Restore Native Dune Scrub**

This mitigation is discussed in Section 6.11 "Vegetation, Wildlife, and Wetland Resources" under 6.11.3 "Reuse Impacts", "Common and Special Native Biological Communities", for the impact "Loss of Native Dune Scrub (Approximately 1 Acre)".

- **Impact: Inconsistency with Coastal Act Sections 30230 and 30231**

New construction east of the coastal zone could result in ground disturbance, increased urban runoff, and potential spills of hazardous materials, which could damage the biological productivity of Monterey Bay. Also, the potential increased withdrawal of groundwater to supply new development east of the coastal zone could degrade local groundwater aquifers unless local water supply projects are completed (e.g. the Salinas Valley Seawater Intrusion Program and the Arroyo Seco dam).

- **Mitigation: Construct Onsite Drainage Facilities and Obtain Necessary Stormwater Discharge Permits**

This mitigation measure is discussed in Section 6.5, "Water Resources" under 6.5.1.3 "Reuse Impacts" for the impact "Water Quality Degradation from Urban Runoff".

- **Mitigation: Implement Erosion-Control Structures**

This mitigation measure is discussed in Section 6.3, "Soils, Geology, Topography, and Seismicity" under 6.3.3 "Reuse Impacts", "Erosion" for the impact "Accelerated Water Erosion".

- **Mitigation: Prepare and Implement a Hazardous Substance Control Plan for All Construction Activities**

This mitigation measure is discussed in Section 6.5, "Water Resources" under 6.5.1.3 "Reuse Impacts" for the impact "Degradation of Water Quality from Hazardous Materials Spills during Construction".

- **Mitigation: Increase Water Supply or Decrease Total Water Demand to Achieve a Balance**

This mitigation measure is discussed in Section 6.5, "Water Resources" under 6.5.2.3 "Reuse Impacts" for the impact "Increased Demand for Water (Approximately 12,000 Acre-Feet per Year)".

- **Impact: Inconsistency with Coastal Act Section 30251**

The scenic and visual qualities of the coastal zone could be adversely affected by construction of the service area, transit center, and recreation facilities.

- **Mitigation: Develop a Mechanism to Ensure the Consistent Application of Visual Resource Management Standards at Fort Ord**

This mitigation measure is described in Section 6.12 "Visual Resources" under 6.12.3 "Reuse Impacts" for the impact "Reduced Visual Quality of Areas Seen from SR 68 and SR 1".

- **Mitigation: Construct the Transit Center East of SR 1**

The transit center could be constructed within the area designated for "TC" uses east of SR 1. This would reduce effects on scenic and visual qualities of the coastal zone. (State, federal, local agencies)

- **Impact: Inconsistency with Coastal Act Section 30253**

Stilwell Hall could be rendered instable by beach erosion. If federal, state and local agencies reused this facility as a visitor center, continued beach erosion could create a risk to lives of visitors. This risk could create a need to construct protective devices to prevent further beach erosion and allow continued use of the facility.

- **Mitigation: Evaluate Reuse in Master Plan**

A master plan will be prepared for the coastal area that will evaluate the feasibility of maintenance of Stilwell Hall for reuse, relocation of Stilwell Hall, or construction of a new visitor's center and other facilities inland.

6.14.4 Cumulative Effects

No cumulative effects would occur to coastal zone resources.

6.14.5 Summary Comparison of Reuse Alternatives

Alternatives 1 and 2 propose more intensive development of the coastal zone than Alternative 6R, which is less consistent with the Coastal Act than Alternative 6R.

Alternatives 3-6 generally propose less intensive uses of the coastal zone than Alternative 6R and would generally be more consistent with the Coastal Act than Alternative 6R. Alternative 4, however, proposes a weather station in an area of the coastal zone inhabited by several special-status species, which would directly conflict with provisions of the Coastal Act. In addition to proposing less intensive use of the coastal zone than Alternative 6R, Alternative 5 proposes less intensive use of the inland area of Fort Ord. Less intense development of the inland areas of Fort Ord would generate less erosion and urban runoff, which would decrease effects on marine water quality; this would be more consistent with the Coastal Act than Alternative 6R. Alternative 6R would have slightly greater effects on the coastal zone than Alternative 6 because the transit center, which would be located partially within the coastal zone under Alternative 6R, would not be constructed under Alternative 6. This transit center would adversely affect aesthetics in the

coastal zone and would adversely affect marine water quality. Because the transit center would not be constructed under Alternative 6, it would be more consistent with the Coastal Act than Alternative 6R.

6.15 MONTEREY BAY NATIONAL MARINE SANCTUARY

6.15.1 Introduction

This analysis addresses the effects of the proposed action and Alternative 6R on the Monterey Bay National Marine Sanctuary and assumes the proposed action and Alternative 6R would have a substantial effect if an action resulted in the degradation of existing biological resources protected by the Sanctuary Management Plan which went into effect in January 1993. These biological resources include, but are not limited to, plant and animal species and their habitats, water quality issues, and overall environmental conditions as defined by the Sanctuary Management Plan.

6.15.2 Disposal Impacts

There would not be disposal impacts for this alternative.

6.15.3 Reuse Impacts

Runoff

Impacts to the sanctuary from urban runoff as a result of Alternative 6R would be similar to those identified in Section 5.2.1, "Caretaker (No-Action Alternative)". The urban pollutant load level would be proportional to reuse.

- ***Impact: Incremental Increase in Urban Pollutant Load Levels in Stormwater Runoff***

During caretaker status, it is expected that urban pollutant load levels in stormwater runoff will decrease as a result of the smaller population on Fort Ord. As reuse occurs the urban pollutant load level will again rise proportional to the reuse intensity. The type of reuse is an additional significant factor that will determine the pollutant load matrix that will occur in the runoff (i.e., residential, institutional, industrial, etc.), which ultimately affects the sanctuary.

- ***Mitigation: Comply with the National Pollutant Discharge Elimination System Point Source Industrial Permit and General Industrial Stormwater Permit***

The installation should continue to comply with the requirements of their National Pollutant Discharge Elimination System (NPDES) permit for stormwater and general industrial discharge into the Monterey Bay. Federal regulations require that NPDES permits be renewed at least once every five years and that the general stormwater permittee be required to submit water quality monitoring data annually to the California State Water Resources Control Board (SWRCB). New requirements for pollutant levels may occur once the National Oceanographic and Atmospheric Administration (NOAA) and the SWRCB have established protocols regulating discharges into the sanctuary. These new regulations should also be complied with, including the possibility of more frequent and stringent monitoring of the discharges into the sanctuary. (Army and local agencies and private entities responsible for development)

Compliance with NPDES permits is required by law and should be considered feasible mitigation. There would be no additional impacts resulting from compliance with this mitigation measure.

- ***Mitigation: Comply with the Coastal Zone Management Act's Non-Point Pollution Control Plan***

The installation should continue to participate in the California Coastal Commission and SWRCB's non-point-pollution control plan for areas in the Monterey Bay region. Continued compliance with

this plan will enable the installation to continue to operate with all requirements regulating discharges into the sanctuary. Any changes in the regulations from NOAA involvement or sanctuary Management Plan requirements will be incorporated into the non-point-pollution control plan and those regulations will be passed on to those entities that participate without a lapse in discharge controls. (Army and local water agencies)

Compliance with NPDES permits and non-point-pollution control plans are required by law and should be considered feasible mitigation. There would be no additional impacts resulting from compliance with this mitigation measure.

Erosion

Impacts to the sanctuary from erosion as a result of Alternative 6R would be similar to those identified in Section 5.2.1, "Caretaker (No-Action Alternative)". The amount of erosion would be proportional to reuse.

- ***Impact: Incremental Contribution of Sediment from Fort Ord Lands to the Salinas River***

Ongoing erosion from Fort Ord lands in the Aromas and Paso Robles formations will not stop during the transition of ownership.

- ***Mitigation: Restore Vegetation Cover through Planting***

Vegetation cover could be restored by planting or revegetation. Revegetation may be hindered by the instability of the wind-eroding soil surface, very low water-holding capacity of the sandy soils, and damage to young plants from blowing sand. Native vegetation is preferred and should be used for revegetation at Fort Ord. Once the soil surface has stabilized, additional wind erosion protection could be provided by planting trees that can grow in sandy soils, such as the native Monterey pine and Monterey cypress. Kikuyu grass has also been used to control wind erosion, but the aggressive growth of this introduced species can damage structures. (Local agencies and private entities responsible for development)

- ***Mitigation: Avoid Development on Moderately to Highly Erodible Lands***

Development could be avoided on moderately to highly erodible lands and on steep slopes greater than 15%. (Local agencies and private entities responsible for development) OR

- ***Mitigation: Limit Water Erosion by Implementing Erosion-Control Structures***

New construction in highly erosive areas would require minimal surface disturbance; and carefully designed paving of road surfaces, construction of paved drainage ditches, and conveyance of runoff to nonsloped areas; and prompt revegetation of disturbed areas. Existing erosion that threatens reuse should be mitigated with headcut repair techniques, including runoff diversion, shaping, rock riprap, and revegetation; gully downcutting should be mitigated with check dams, drop inlets, and revegetation. Erosion in some areas is so severe that restoration will be costly and potentially unsuccessful; therefore this mitigation does not completely mitigate the impact. (Local agencies and private entities responsible for development with assistance from the U.S. Soil Conservation Service)

- ***Mitigation: Avoid Development on Steep Slopes***

Development could be avoided on steep slopes susceptible to landslides (15% and greater). (Local agencies and private entities responsible for development) OR

- ***Mitigation: Implement Landslide Stabilization Measures***

Landslide stabilization measures that could be implemented include head excavation, buttressing, and subsurface drainage on active landslides; redirection of surface runoff and subsurface drainage; removal of unstable earth materials; and slope reduction. These measures are costly and unreliable and therefore do not completely mitigate the impact. (Local agencies and private entities responsible for development with assistance from the U.S. Soil Conservation Service)

■ ***Mitigation: Limit Sedimentation by Constructing Sediment Control Structures***

Constructing sediment control structures, such as sediment traps and basins, straw bale barriers, and silt fences, would reduce sediment loss from construction sites. Sources of existing sedimentation would be controlled with check dams and revegetation. (Local agencies and private entities responsible for development with assistance from the U.S. Soil Conservation Service)

Wastewater

Impacts to the sanctuary from increased discharge of wastewater as a result of Alternative 6R would be similar to those identified in Section 5.2.1, "Caretaker (No-Action Alternative)". The amount of additional wastewater discharge would be proportional to reuse.

■ ***Impact: Potential Increase of Wastewater Discharge into the Sanctuary from Monterey Regional Water Pollution Control Agency's Marina Treatment Plant***

Reuse of the installation may result in an increase in wastewater generated that would be treated and discharged into the sanctuary. Fort Ord currently generates approximately 2.4 million gallons per day (mgd) of wastewater which is treated at the treatment plant. Fort Ord has purchased 3.3 mgd of treatment plant capacity and therefore could potentially generate 0.9 mgd more and remain within existing conditions. Alternative 6R would require 4.8 mgd of treatment plant capacity, requiring either Fort Ord or the reusers to purchase an additional 1.5 mgd of treatment plant capacity. The additional capacity at the treatment plant would have to be available.

■ ***Mitigation: Implement Wastewater-Reducing Measures***

Wastewater-reducing measures could lessen the amount of wastewater treatment capacity that would be necessary to serve the new uses. (Monterey Regional Water Pollution Control Agency, county and city public works departments, and private entities)

Since this impact is only for the additional amount of discharge into the sanctuary and not because of a need for additional treatment capacity beyond the facility's ability to treat, these mitigation measures have been recommended for a reduction of the overall wastewater generation rate of the reuse alternative. These measures include the following:

- Require new uses to employ dual water systems, which enable potable water to be used for drinking and other essentials, but also allow non-septic water (gray water) to be reused for irrigation or other non-potable uses. This eliminates the need to treat gray water at a central wastewater treatment plant.
- Require new uses to employ low-flow showerheads, toilets, and faucets.
- Require hot water pipes to be insulated to reduce the amount of water wasted (and the wastewater generated) from waiting for the hot water to travel from the heater to the user.

Wastewater reduction measures are considered feasible mitigation measures for this impact. However, success depends on compliance and enforcement of the reduction measures, and results will vary from jurisdiction to jurisdiction. There would be no additional impacts resulting from compliance with this

mitigation measure other than impacts associated with the development of a dual water system or other infrastructure.

- ***Mitigation: Continue Compliance with National Pollutant Discharge Elimination System Permits***

The Monterey Regional Water Pollution Control Agency's (MRWPCA's) Marina treatment plant should continue to comply with the NPDES permit it has to discharge into the sanctuary. Additional monitoring requirements and discharge regulations may be put in place once the NOAA, the California Coastal Commission and the SWRCB have established new sanctuary regulations on discharge based on the new sanctuary Management Plan. As long as the Marina facility remains within regulations, the installation's increased amount of wastewater generation will not be significant. (Monterey Regional Water Pollution Control Agency)

Compliance with NPDES permits are required by law and should be considered feasible mitigation. There would be no additional impacts resulting from compliance with this mitigation measure.

6.15.4 Cumulative Effects

As of January 1993, the sanctuary has been regulated by the sanctuary's Management Plan, which is enforced jointly by the NOAA, California Coastal Commission, and the SWRCB. As protocols are developed between these agencies and additional regulations are adopted based on the requirements of the sanctuary's Management Plan, the sanctuary will continue to be protected by these regulations contained in the Management Plan. The overall cumulative effects on the sanctuary are positive because with time and experience, the management entities will solidify the overall approach to protecting the sanctuary and will approach enforcement of the regulations and permit requirements as a cohesive unit, enhancing the overall protection of the sanctuary.

6.15.5 Summary Comparison of Reuse Alternatives

Alternatives 1 and 2 propose coastal development which is inconsistent with the sanctuary's Management Plan. The other alternatives propose various other reuses that may contribute to increased runoff and erosion. Impacts to the sanctuary are a result of specific reuses as well as natural processes. Alternatives 3 and 4 propose reuses that would increase the potential for impacts of the sanctuary, but less than Alternatives 1 and 2. Alternative 6R proposes reuse, which may contribute to impacts to the sanctuary, but less than Alternatives 3 and 4, and Alternative 5 proposes open space uses, which too may result in increased erosion and other impacts to the sanctuary.

6.16 POTENTIAL HOSPITAL OPERATION

Alternative 6R does not include a hospital because it was not requested through the real estate screening process. However, Alternative 6R could be modified to include a combined-care facility or an outpatient facility.

6.16.1 Combined-Care Facility Scenario

A hospital would be operated as a combined-care facility under this scenario. The hospital probably would be operated by a private provider, possibly offering a managed care plan to military beneficiaries through the Uniformed Services Treatment Facility system. This scenario assumes that the capacity and types of services offered by the facility would be the same as those offered by Silas B. Hays Army Community Hospital in 1991. Both civilians and military beneficiaries would be served at the facility; however, military beneficiaries would not receive priority healthcare, but healthcare costs to beneficiaries would be the same as under a military healthcare facility.

- ***Impact: Reduction in the Availability of Healthcare Services for Military Retirees***

Because the combined-care facility would not provide priority healthcare services to military retirees and their family members, these military beneficiaries would compete for medical services with the remainder of the civilian population.

- ***Mitigation: None Available without Changing Legislation***

Current legislation would not allow the U.S. Department of Defense to compensate for the loss of inpatient medical services to retirees.

- ***Impact: Reduction in Costs for Medical Care to Retirees and their Family Members***

As a Uniformed Services Treatment Facility, the combined care facility would provide services to military retirees and their family members under a managed care plan system. Similar to the current plan offered to these beneficiaries by Silas B. Hays Army Community Hospital, beneficiaries would receive free healthcare for covered services. Implementation of this scenario would substantially reduce cost impacts on retirees and their family members.

- ***Mitigation: None Required***

- ***Impact: Need for Medical and Emergency Medical Services for Approximately 23,000 Residents***

Alternative 6R is expected to result in approximately 23,000 residents in the Fort Ord area that would need medical and emergency services. The need for these services would be provided by surrounding facilities as well as the combined-care facility under this scenario. Natividad Medical Center, Salinas Valley Memorial Hospital, and Community Hospital of the Monterey Peninsula would serve up to an estimated 90,000 additional residents based on 1990 admissions and occupancy rates and allowing for service of the existing retiree population. This does not take into account potential future growth in the Monterey Peninsula area. However, with this existing capacity to provide these medical services, there would not be any additional need for medical services under this alternative.

- ***Mitigation: None Required***

6.16.2 Outpatient Facility Scenario

An outpatient clinic would be established at Silas B. Hays Army Community Hospital or at one of the existing clinics located at Fort Ord under this scenario. No inpatient services would be offered. The clinic would probably be operated by a private provider, possibly with an agreement with the Army to provide no-cost outpatient services to military beneficiaries. The clinic would offer the same level of outpatient services provided by Fort Ord medical facilities in 1991.

- ***Impact: Reduction in the Availability of Inpatient Healthcare Services for Military Retirees***

Implementation of this scenario would restore the outpatient services lost under downsizing. Military retirees and their family members would receive outpatient services similar to 1991 levels. Inpatient services, however, would be in short supply because no hospital would be developed under this scenario and military beneficiaries would compete with the remainder of the civilian population for inpatient services at CHAMPUS hospitals.

- ***Mitigation: None Available without Changing Legislation***

Current legislation would not allow the U.S. Department of Defense to compensate for the loss of inpatient medical services.

- ***Impact: Reduction in Costs for Medical Care to Retirees and their Family Members***

Assuming that the clinic would be operated under a contract with the Army to provide outpatient services to military beneficiaries for a cost similar to costs under a military healthcare facility, implementation of this scenario would substantially reduce outpatient costs to military retirees and their family members.

- ***Mitigation: Encourage the Number of Civilian Health and Medical Programs of the Uniformed Services PRIME Providers***

To limit the increase in healthcare costs to retirees and their family members, Foundation Health will be encouraged to increase the number of hospitals and physicians under contract to provide services to CHAMPUS/PRIME patients. Beneficiaries will also be encouraged to enroll in the CHAMPUS/PRIME program by providing additional information to retirees on the costs benefits associated with CHAMPUS/PRIME. The impact of increased cost to CHAMPUS-eligible retirees and their family members for medical care would be partially mitigated by enrolling in the CHAMPUS/PRIME program; however, the impact on beneficiaries over the age of 64 would not be reduced. (U.S. Department of Defense)

- ***Impact: Military Beneficiaries Would Be Able to Use the New Medical Care Facility***

Under this hospital scenario, military beneficiaries would be able to use the new medical care facility on an equal basis with the civilian population. This would reduce the demand for services at the Oakland Naval Hospital, David Grant U.S. Air Force Medical Center, the PRIMUS clinic, and local Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) providers.

- ***Mitigation: None Required***

- ***Impact: Need for Inpatient Medical Services for Approximately 23,000 Residents***

Alternative 6R is expected to result in approximately 23,000 residents in the Fort Ord area that would need inpatient medical services. The need for these services would be provided by surrounding facilities as well as the inpatient only facility under this scenario. Natividad Medical Center, Salinas Valley Memorial Hospital, and Community Hospital of the Monterey Peninsula would serve up to an estimated 90,000 additional residents based on 1990 admissions and occupancy rates and allowing for service of the existing retiree population. This does not take into account potential future growth in the Monterey Peninsula area. However, with this existing capacity to provide these medical services, there would not be any additional need for medical services under this alternative.

- ***Mitigation: None Required***

- ***Impact: Reduced Need for Additional Outpatient Services for Military Beneficiaries***

Under this scenario, military beneficiaries would be able to use outpatient services at Fort Ord. This would reduce the demand for services at the Oakland Naval Hospital, David Grant U.S. Air Force Medical Center, the PRIMUS clinic, and local CHAMPUS providers.

- ***Mitigation: None Required***

6.17 SECONDARY AND CUMULATIVE EFFECTS OF REUSE IN NO PROPOSED USE AREAS

6.17.1 Introduction

In Alternative 6R, the Army identifies future land uses through the screening process for all portions of the Installation, except the no proposed use (NPU) areas (Figure 3-14 in Section 3.0, "Alternatives"). Although no uses have been proposed in these areas, there would be secondary and cumulative effects of reuse in the NPU areas.

Reuse in the NPU areas could include any of the uses described for the reuse alternatives and subalternatives described in Section 3.0. The following analysis of reuse impacts in the NPU areas is based on the range of reasonably foreseeable actions of others. It is reasonably foreseeable that:

- newer residential developments would remain in residential use;
- existing developed areas in the cantonment area would be reused with similar or more intensive uses;
- other undeveloped areas would require infrastructure and other services to accommodate future land uses; and
- existing vegetation in existing residential areas would not be disturbed, unless a different land use (e.g., commercial) is being considered, which could cause some disturbance.

For the purposes of this general analysis, the following range of land uses is assumed for the eight NPU areas in Alternative 6R. The numbers below correspond with the NPU areas in Figure 6.17-1.

1. Remains residential
2. Range of uses, from commercial to light industrial
3. Remains residential
4. Range of uses, from residential to commercial
5. Mixed use--residential/commercial/light industrial
6. Range of uses, from residential to commercial
7. Mixed use--residential/commercial/light industrial
8. Open space use similar to RV park/campground

6.17.2 Land Use

The buildout of the NPU areas would result in an increase in land use impacts, including incompatibilities between land uses and inconsistencies with relevant plans and policies. The buildout of the existing residential NPU areas would result in potential incompatibilities with the proposed McKinney Act housing facilities that are located throughout these areas. The potential increase in trespassing from the residential areas onto the university research area just south of Imjin Road may also be considered a land use incompatibility between these two uses. Other areas of potential land use incompatibility are those uses proposed for the NPU areas just north of the proposed NRMA area. Various activities in the NRMA may be incompatible with residential, commercial, or industrial uses in this NPU area, as would fire training activities be incompatible with the NPU area that would likely be reused as a campground-type facility. Proposed uses in the NPU area adjacent to SR 1 north of the proposed POM Annex may also be incompatible with the coastal zone and several McKinney Act areas within this area.

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In addition to the potential land use incompatibilities discussed above, the buildout of these NPU areas would also result in policy inconsistencies that would include the protection of sensitive environmental habitat and resources; the expansion of development into areas without adequate infrastructure; and the expansion of development into areas not designated for growth and development or outside of established urban service areas. These impacts would relate to any development of NPU areas that currently are not developed. Other policy and plan inconsistencies would involve land use incompatibilities (discussed above); groundwater resources (the amount of additional development that potentially could occur in the NPU areas that would add to the increased water demand described in the detailed analysis of the Alternative 6R); and infill and underdeveloped land.

The buildout of the NPU areas would potentially result in land use incompatibility impacts and policy consistency impacts greater than those identified in the detailed Alternative 6R analysis.

6.17.3 Socioeconomics

Areas designated as NPU in Alternative 6R are designated as such because those properties will be put on the private market and developed in an unknown fashion. The following discussion assumes the eight areas outlined in Figure 6.17.1 will be developed or will allow existing uses on the property to remain and be reused.

Area 1 is assumed to remain a residential area and currently supports Patton Park, Preston Park, and Abrams Park which include a total of 2,107 family housing units. All these units are in the City of Marina. Area 2 is assumed to support commercial and light industrial uses at buildout and would support over 2,000 jobs. Area 3 is assumed to remain a residential area and currently supports Thorson Village, Brostrom Park, and Hayes Park, which include a total of 1,191 family housing units. All these units are in the City of Seaside. Area 4 is assumed to remain partially a residential area and also support commercial uses. Area 4 currently supports Stilwell Park, which includes 1,009 housing units. Commercial uses could support approximately 240 employees. Area 5 is assumed to remain partially a residential area and also support light industrial and commercial uses. Area 5 currently supports Marshall Park, which includes 353 family housing units in the City of Seaside. Commercial and light industrial uses could generate approximately 11,000 jobs. Area 6 is assumed to be reused by commercial and light industrial land uses that could generate over 500 jobs in unincorporated Monterey County. Area 7 is assumed to be reused by residential, commercial, and light industrial uses. Assuming seven units per acre, the area would likely generate 40 housing units and approximately 110 jobs. Area 8 is assumed to be used as an open space/campground area and could generate up to 30 employees.

Combined, Areas 1 through 8 would result in the reuse or construction of 4,702 housing units, of which 2,107 would be located in the City of Marina, 2,553 in the City of Seaside, and approximately 40 in unincorporated Monterey County. Assuming a population per household of three, these housing units could accommodate an increase in population of over 14,000 people. Marina's population could increase by over 6,300, Seaside's by 7,600, and the unincorporated county's by over 120. These housing units would, by themselves, help to alleviate the county's and the Monterey Peninsula's existing housing shortage.

Allowing for full buildout of the light industrial and commercial uses in Areas 1 through 8 could generate approximately 14,000 employees, of which over 2,000 would be located in the City of Marina, over 11,000 in the City of Seaside, and approximately 600 in unincorporated Monterey County. In addition, this employment would generate approximately \$367 million in personal income within the county.

Although an increase in employment and personal income is generally considered beneficial, the severe housing shortage currently being experienced by the county would be aggravated by the increased demand generated by employment growth. Assuming the county average of employees per household of

1.45, new employees would demand approximately 9,500 housing units; the reuse of existing housing units in the NPU areas would satisfy less than 5,000 units of that demand.

The buildout of the NPU areas would result in a substantial increase of population on the installation, as well as an increase in employment opportunities in the Monterey area. These increases would result in numerous additional households generating additional students. The buildout of the NPU areas would create a demand for school capacity in the Monterey area. This demand would result in the need for additional school facilities and staffing, resulting in construction-related impacts, growth-inducing impacts, and economic impacts on the various school districts that would be required to expand to accommodate the increased demand. The buildout of the NPU areas would result in an increase in students over that indicated in the detailed analysis of Alternative 6R.

The buildout of the NPU areas would result in an increased population on the installation. The increased population would require an increase in available developed park acreage and developed recreational opportunities. However, the developed recreational opportunities proposed in Alternative 6R should be sufficient to meet or exceed the park acreage standards of the area even with the buildout of the NPU areas. The buildout of the NPU areas should not result in any additional recreation impacts other than those identified for Alternative 6R.

6.17.4 Soils, Geography, Topography, and Seismicity

Because NPU areas 1-4 are already developed, potential reuse effects would be limited to extension of the area of possible increase in wind erosion as a result of vegetation removal and soil surface disturbance, engineering limitation due to the excavation caving and embankment piping potential of the soil, and susceptibility of existing and new structures to damage from ground shaking.

Potential reuse development of NPU areas 5-7 would have substantial secondary and cumulative effects on the loss of the soil substrate as an integral component of the ecosystem supporting natural habitats and rare plant communities. Other potential development effects include those described above for NPU areas 1-4. Portions of NPU area 5 underlain by the Aromas formation may be subject to increased hazard of water erosion. The potential reuse of NPU area 8 as a RV park/campground would have no substantial effect.

6.17.5 Public Services and Utilities

6.17.5.1 Wastewater and Solid Waste

The buildout of the NPU areas would result in an increase in the amount of wastewater and solid waste generated on the installation. Buildout would result in a need for greater wastewater treatment capacity than is currently available in the region, most likely requiring a new treatment plant(s) in order to adequately provide treatment to the additional wastewater. Buildout would also result in the need for additional landfill capacity at the MRWMD's Marina Landfill, reducing the life expectancy of the landfill by approximately 25 years, potentially requiring an additional landfill in the Monterey region sooner than regional waste management projections had indicated. Buildout would require modification and expansion of the existing wastewater and solid waste infrastructure, potentially resulting in construction impacts, growth-inducing impacts, additional discharge from the wastewater facility, and various land use impacts relating to locating a new landfill in the region. The impacts related to the buildout of the NPU would result in an increase in the impacts identified in the detailed analysis of Alternative 6R.

6.17.5.2 Telephone, Gas, Electric, and Cable Television Service

The buildout of the NPU areas would result in increases in the demand for telephone, gas, electric, and cable television service. Many of the residential NPU areas are provided services by existing purveyors, so no additional infrastructure would be necessary for these services (however, some of the existing infrastructure may require upgrades to effectively continue to provide service to these areas). Those NPU areas that currently have no infrastructure for these services would require that the system(s) be extended. Those areas that are within the Army's existing service area would have to await the Army's plans for their system(s). If the Army decides to dispose of its system(s), these areas would require that the non-Army purveyor extend its system(s) into these areas. If the Army decides to retain and upgrade its system(s), these areas would retain the Army's service. The buildout of the NPU areas may require the Army to either dispose of or retain its system(s) and may require non-Army purveyors to expand theirs. Expanding these systems would result in various construction-related impacts. The buildout of the NPU may lessen the impacts related to the deterioration of the existing systems as a result of a decrease in demand because these systems would be used and maintained.

6.17.5.3 Storm Drainage and Water Supply Infrastructure

The buildout of the NPU areas would result in increases in the demand for storm drain and water supply infrastructure. Many of the NPU areas have some level of development and may not need additional infrastructure necessary to provide for these services. However, depending on condition or capacity, some of the existing infrastructure may require upgrades to effectively continue to provide service to these areas. Those NPU areas that currently have no infrastructure for these services may require that the existing system be extended. Expansion of these systems would result in various construction-related impacts. The expansion of the storm drain infrastructure would also result in an increased amount of urban and industrial runoff from the additional uses. Additional runoff will have impacts on water quality of the Monterey Bay and the Salinas River and will contribute to increased erosion activity. The buildout of the NPU areas would create a need for additional water supply. The buildout of the NPU areas may lessen the impacts related to the deterioration of the existing systems as a result of a decrease in demand because these systems would be used and maintained.

6.17.6 Water Resources

The buildout of the NPU areas would result in an increase in surface runoff and associated urban runoff pollutant constituents. The NPU buildout will also cause an increase in demand for storm drain infrastructure. The expansion of storm drain infrastructure and additional runoff could cause increases in water quality degradation in the drainages within the installation, Monterey Bay, and the Salinas River. Additional runoff from NPU areas may also cause increased erosion potential, both during and after construction. The impacts related to the buildout of the NPU would result in an increase in the impacts identified in the detailed analysis of Alternative 6R.

About 98% of the 3,456 acres categorized as NPU for Alternative 6R would be for a combination of residential, commercial, and light industrial uses. The water demand factors for these uses are about 2.01, 2.09, and 1.59 af/yr per acre. Assuming an average water demand of 2 af/yr per acre, the suggested uses of the NPU areas would increase the total water demand for Alternative 6R by about 6,800 af/yr, or 57%.

The new total water demand would be about 18,800 af/yr, which is about three times greater than existing water use on Fort Ord. If the demand were met by local wells, the rate of seawater intrusion would be greatly accelerated. The new total water demand is about the same as the demand for Alternatives 3 and 6, greater than the demand for Alternative 5 and Alternative 6R, and less than the demand for Alternatives 1 and 2.

6.17.7 Public Health and Safety

6.17.7.1 Law Enforcement and Fire Protection

The buildout of the NPU areas would result in an increase of population on the installation. This increase would generate the need for additional law enforcement officers, fire fighters, and associated equipment, resulting in the need for additional staffing and facilities by local fire fighting and law enforcement entities with jurisdiction over portions of the installation. This could result in construction-related impacts as a result of the need for new facilities, growth-inducing impacts, and economic impacts to local entities who would have to increase their staffs and purchase additional equipment to adequately provide these services to these areas. The detailed analysis of Alternative 6R indicated that there would be a decrease in the demand for these services from existing conditions; however, buildout of the NPU areas would result in an increase in the demand for these services.

6.17.7.2 Medical and Emergency Medical Services

The buildout of the NPU areas would result in an increase of population on the installation. This increase would generate the need for additional medical and emergency medical services available in the Monterey area. Buildout of these areas would also expose a larger number of people on the installation to the dangers of Lyme disease. The increased demand for medical and emergency medical services would require additional medical facilities in the region. The need for new facilities could result in construction-related impacts and growth-inducing impacts. The detailed analysis of Alternative 6R indicated that there would be a decrease in the demand for these services from existing conditions; however, the buildout of the NPU areas would result in an increase in the demand for these services.

6.17.7.3 Seismic Safety

The buildout of the NPU areas would result in an increase of population on the installation. This increase would result in a far larger number of people exposed to seismic hazards than that identified in the analysis of Alternative 6R.

6.17.8 Traffic and Circulation

The definition of Alternative 6R included 3,456 acres of land designated as NPU. The traffic analysis of Alternative 6R assumed no uses in these areas. Were these areas to be developed as a mixture of residential, commercial, and light industrial uses, the traffic generated by this reuse alternative would increase substantially.

Alternative 6R includes between 5,000 and 6,000 acres of developed uses (depending on how some uses, such as the RV park, are characterized). The addition of over 3,000 additional acres of intense development would substantially increase the number of trips generated by this alternative, and many more lanes of roadway would be required to satisfy this demand.

Because Alternative 6R included very few housing units and many work sites, it had a poor jobs/housing balance, which could result in long commute trips from outside Fort Ord. If the ratio of housing to industrial and commercial uses in the NPU areas were high enough, then the jobs/housing imbalance of Alternative 6R would be improved, which could result in shorter trip lengths.

6.17.9 Air Quality

The mixture of residential, commercial, light industrial, and recreational uses being considered for the NPU areas would generate a mixture of air quality impacts from construction, vehicle traffic, and

stationary or area sources associated with the land uses. The air quality impacts of disposal and reuse of Alternative 6R would be increased somewhat with development of the NPU areas. Inclusion of the NPU areas might cause population levels associated with Alternative 6R to exceed the population forecast used for the 1991 AQMP, thus making Alternative 6R inconsistent with that plan. Mitigation measures similar to those discussed for disposal and reuse under Alternative 6R without development of the NPU areas would be appropriate.

6.17.10 Noise

The mixture of residential, commercial, light industrial, and recreational uses being considered for the NPU areas would generate noise impacts from construction, vehicle traffic, and equipment sources associated with the land uses. The noise impacts of disposal and reuse of Alternative 6R would be increased somewhat with development of the NPU areas. The major added sources of noise would be associated with additional construction activities and added vehicle traffic. Land use details are insufficient to determine whether light industrial uses would contribute significant additional noise sources. Noise-related land use conflicts are a possibility if light industrial uses are developed adjacent to residential areas. Mitigation measures similar to those discussed for disposal and reuse under Alternative 6R without development of the NPU areas would be appropriate.

6.17.11 Hazardous and Toxic Waste Site Remediation

The effects from reuse of the NPU areas on hazardous and toxic waste site remediation are similar to the impacts identified in the Alternative 6R analysis.

Reusing the NPU areas would likely require demolishing more buildings than under Alternative 6R; thus, the potential for generating hazardous waste during building demolition could increase relative to Alternative 6R. Approximately eight hazardous waste investigation sites are located within the NPU areas; developing these areas would increase the amount of remediation required and would pose a slightly higher risk to human health and safety from development on unidentified hazardous waste or unexploded ordnance than under Alternative 6R.

6.17.12 Vegetation, Wildlife, and Wetland Resources

Lands designated NPU are considered in the analysis of Alternative 6R as open space and, therefore, not adversely affected by implementation of the alternative. Because no requests were received for these lands during the real estate screening process, they are assumed to remain under Army control in caretaker status until requests from private parties are received and processed. These lands could be completely or partially developed, remain undeveloped, or become protected with conservation easements under the disposal HMP.

Between 5% and 10% of common biological communities at Fort Ord could be removed by buildout of NPU areas. This includes small areas of beaches and blowouts, ice plant mats, and disturbed dunes; and slightly larger areas of oak woodland and savanna and annual grassland. Small areas of habitat which currently occur within residential areas are assumed to be preserved if the proposed use of the NPU area is continued residential and existing structures are utilized.

Between 500 and 750 acres of maritime chaparral habitat would also be removed under the assumed NPU buildout and two vernal pools would be removed in the 20 acre NPU area adjacent to the proposed RV park.

Between 4% and 8% of the occupied habitat of sand gilia and between 8% and 13% of the occupied habitat of Monterey spineflower could be removed during buildout of NPU areas. Under the assumed

buildout between 8% and 13% of the occupied habitat of coast wallflower and between 1% and 4% of the occupied habitat of toro manzanita, Monterey ceanothus, Eastwood's ericameria, and wedge-leaved horkelia would be removed by development. The one known population of Yadon's piperia at Fort Ord occurs in an area proposed for continued residential use utilizing existing structures and is assumed to be preserved. Between 800 and 1,400 acres of habitat occupied by special-status plant species with no federal or state status occurs in NPU areas and could be removed under the assumed development scenario.

No potential or occupied habitat of Smith's blue butterfly or western snowy plover occurs within NPU areas. Two vernal pools considered potential California linderiella and California tiger salamander habitat could be removed during buildout of the 20 acre NPU area adjacent to the RV park. One of these pools is a known California tiger salamander breeding site. Between 10% and 15% of the potential habitat at Fort Ord for black legless lizard and Monterey ornate shrew would also be removed under the proposed NPU buildout. Tricolored blackbird would not be affected. All other federal candidate species and California species of special concern would have habitat losses between 1% and 10%.

Plant preserve 3 and a small part of significant natural areas MNT-040 could also be affected by NPU buildout.

6.17.13 Visual Resources

Areas 1 and 3. Retention of this area as residential land use, with no disturbance of existing vegetation, would have no secondary or cumulative effects on visual resources.

Area 2. Impacts on visual resources in Area 2 resulting from proposed commercial to light industrial land uses would be similar in nature to the impacts described for this area in Alternative 1. High-intensity land uses would introduce numerous built elements differing in form, line, color, and texture from the existing landscape, which is mostly natural in appearance. Views of Fort Ord from SR 1, Monterey Bay, and other important tourist and recreation areas along Monterey Peninsula would be reduced in visual quality by encroaching land uses of potentially high visual impact. The cumulative impact on visual resources resulting from the proposed land uses would be decreased visual quality of the region.

Areas 4 and 6. Impacts on visual resources resulting from the development of areas 4 and 6 as either various densities of residential use (i.e., low, medium, or high) or as commercial use would range from slight to substantial, depending on the extent of vegetation removal, grading, and introduction of built elements associated with the land use. Development of area 4 would be visible from SR 1 and other important tourist and recreation areas along Monterey Peninsula. Cumulative impacts on regional visual quality and reduced intactness and vividness of views from important tourist and recreation areas could result from high-intensity development of this area.

Areas 5 and 7. Development of areas 5 and 7 as mixed use, composed of residential, commercial, and light industrial land uses, will result in varying degrees of visual impacts depending on the relative proportion of low, medium, and high intensities of land use associated with the selected land use mix. Development of areas 5 and 7 would be visible from important primary and secondary travel routes. Reduced visual quality of primary and secondary travel route viewsheds could result from the development of a land use mix with a large proportion of high-intensity land uses.

Area 8. The development of area 8 as open space similar to the RV park/campground land use identified in Alternative 6R would likely have no visual impacts. The land use definition for RV park/campground calls for upgrading campground utilities, with little, if any, ground disturbance. No cumulative impacts on visual resources would likely result from the development of area 8 as open space.

6.17.14 Cultural Resources

Since none of the buildings recommended as potentially eligible for the National Register are located within the NPU areas, the buildout of these areas will have no effect on these resources. The NPU buildout within areas 1, 5, 6, 7, and 8 has the potential to affect any archeological resources that may be located within sensitive areas. Archaeologically sensitive areas include all terraces and benches adjacent to the Salinas River and El Toro Creek, the peripheries of the wet cycle lakes, and lands adjacent to the streams that flow through Pilarcitos and Impossible Canyons. Additionally, the NPU buildout has the potential to affect any Native American traditional cultural properties that may be found at Fort Ord, most especially if these properties are found within the undeveloped portions of areas 1, 5, 6, 7, and 8. The more intensive the proposed development, the more likely that development will impact upon any archeological or Native American traditional cultural properties that may be found within these areas.

6.16.15 Coastal Resources

The definition of Alternative 6R included 3,456 acres of land designated as NPU. The coastal resources analysis of Alternative 6R, although not quantitative, assumed no uses in these areas. None of these areas is located within the coastal zone, so no direct impacts would result. However, if these areas developed as a mixture of residential, commercial, and light industrial uses, indirect impacts would be associated with Coastal Act Sections 30230 and 30231.

Additional construction east of the coastal zone could result in greater ground disturbance, increased urban runoff, and a higher potential for spills of hazardous materials, which could damage the biological productivity of Monterey Bay. Also, the potential increased withdrawal of groundwater to supply new development east of the coastal zone could degrade local groundwater aquifers unless local water supply projects are completed. This impact and the recommended mitigation measures are discussed in more detail in Section 6.14.2, "Disposal Impacts".

6.17.16 Monterey Bay National Marine Sanctuary

The buildout of the NPU areas would result in an increase in the wastewater generated by uses on the installation, as well as a substantial amount of additional urban and industrial runoff from these areas. This additional runoff will have impacts on the water quality of the Monterey Bay and the Salinas River and will contribute to increased erosion activity. If a new wastewater treatment plant(s) were to be built because of the additional demand for treatment capacity, the resulting discharge from the facility (or facilities) would be substantially greater than existing conditions or those identified for Alternative 6R. The increased urban and industrial runoff from activities and uses in these NPU areas would also result in greater water quality and erosion impacts to the sanctuary and the Salinas River. The impacts related to the buildout of the NPU areas would result in an increase in the significance of those impacts identified in the detailed analysis of Alternative 6R.

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Section 8.0 List of Preparers

This environmental impact statement was prepared under the direction of the U.S. Department of the Army, Forces Command. A list of persons who participated in the preparation of this document is presented below.

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Section 9.0 Persons Consulted

- Addington, Steve. Resources staff chief. U.S. Bureau of Land Management - Hollister Resource Area, Hollister, CA. September 4, 1992 - telephone conversation.
- Allayaud, Bill. California Coastal Nonpoint Pollution Control Program coordinator. California Coastal Commission, Sacramento, CA. September 3, 1992 - telephone conversation about the program for coastal non-point-source pollution control.
- Ambriz, Raymond. Operations coordinator. Sacramento Fire Department, Sacramento, CA. October 21, 1992 - telephone conversation about typical staffing levels of fire stations in Sacramento.
- Arsinas, Ray. Business manager. Salinas City Unified School District, Salinas, CA. August 21, 1992 - telephone conversation about school district enrollments and capacities.
- Barran, Frank. Planner. Association of Monterey Bay Area Governments, Marina, CA. July 2, 1992 - telephone conversation.
- Bischoff, Pat. Administrator. Seaside School District, Seaside, CA. August 20, 1992 - telephone conversation.
- Bishop, Will. Vice president of finance. Community Hospital of Monterey Peninsula, Monterey, CA. September 1, 1992 - telephone conversation.
- Bittner, Mike. Engineer. City of Seaside Department of Public Works/Engineering, Seaside, CA. January 7, 1992 - facsimile transmittal of traffic count data to Craig Stevens.
- Blackie, Jim. Maintenance supervisor. Magic Mountain Theme Park, Valencia, CA. August 25, 1992 - telephone conversation.
- Brennan, Janet. Air quality planner. Monterey Bay Unified Air Pollution Control District, Monterey, CA. July 2 and August 19, 1992 - telephone conversations.
- Cavanaugh, Joe. Project coordinator. Fort Ord Task Force, Marina, CA. October 1992 - telephone conversation.
- Cofer, Jim. General manager. Monterey Peninsula Water Management District, Monterey, CA. April 30, 1993 - telephone conversation.
- Cook, Jim. Executive officer. Monterey County Local Agency Formation Commission, Salinas, CA. February-October 1992 - letters, meetings, memoranda, and telephone conversation.
- Crawford, Alan. Building manager. Moscone Convention Center, San Francisco, CA. September 9, 1992 - telephone conversation.
- Davies, Dan. Division manager. Pacific Gas and Electric Company, Monterey, CA. August 14, 1992 - telephone conversation regarding electric capability, financing, and reuse.
- Day, Alva. Research botanist. California Academy of Sciences, San Francisco, CA. August 3 and 10, 1992 - telephone conversations; August 10, 1992 - letter.

Dillon, Ellen. Biologist. U.S. Fish and Wildlife Service. October 22, 1992 - meeting.

Dixon, David. Park Ranger. California Department of Fish and Game, Marina, CA. April 20, 1993 - telephone conversation.

Dorrell, Joey. Botanist (graduate student). San Jose State University, Carmel, CA. May 20 and October 9, 1992 - letter; August 6, 1992 - telephone conversation.

Feather, Tim. Senior analyst. Planning and Management Consultants, Inc., Carbondale, IL. October 8, 1992 - telephone conversation with Gus Yates of Jones & Stokes Associates, Inc.

Foster, John. Project manager. Ryan Ranch Office Park, Monterey, CA. July 8, 1992 - telephone conversation.

Fraier, Marsha. Controller. Salinas Valley Memorial Hospital, Salinas, CA. September 1, 1992 - telephone conversation.

Furst, Dawby. Water resources planner. Monterey Peninsula Water Management District, Monterey, CA. August 27, 1992 - telephone conversation.

Gandy, Curt. Aircraft mechanic. Fort Ord Task Force, Education Committee, Monterey, CA. March 5, 1992 - meeting.

George, Doug. Biologist. Point Reyes Bird Observatory. Point Reyes, CA. April 16, 1992 - telephone conversation; April 22, 1992 - letter to Pam Couch, U.S. Army, Department of Engineering and Housing, Fort Ord, CA.

Gerossek, Mark. Assistant director for operations. San Francisco Zoo, San Francisco, CA. August 18, 1992 - telephone conversation.

Granger, Wendy. Assistant director. Monterey County Department of Social Services, Salinas, CA. September 29, 1992 - telephone conversation regarding caseload and funding of social services in the county.

Graziano, Francesca. Water use analyst. Monterey Peninsula Water Management District, Monterey, CA. July 15, 1992 - telephone conversation.

Griffith, Jim. Public works superintendent. City of Seaside Public Works Department, Seaside, CA. August 10 and 11, 1992 - telephone conversations regarding Fort Ord Task Force report.

Hernandez, Juan. Engineer. County of Monterey Department of Public Works, Salinas, CA. January 9, 1992 - telephone conversation with Craig Stevens.

Hillyard, Deborah. Regional plant ecologist. California Department of Fish and Game, Aromas, CA. August 6, 1992 - letter; October 22, 1992 - meeting.

Iacopi, Tony. General manager. Coastside Cable, Fort Ord, CA. August 19, 1992 - telephone conversation regarding hardware, contracts, and level of service.

Imai, Roy. Administrator. Sacramento County Parks and Recreation Department, Sacramento, CA. September 3, 1992 - telephone conversation regarding employment requirements of park and open space land uses.

Israel, Keith. Agency manager. Monterey Regional Water Pollution Control Agency, Pacific Grove, CA. August 21, 1992 - telephone conversation; October 20, 1992 - telephone conversation about contract with Army and MRWPCA; October 21, 1992 - telephone conversation about termination of contract between MRWPCA and Army.

Jurek, Ron. Biologist. California Department of Fish and Game, Sacramento, CA. March 13 and May 13, 1992 - telephone conversations.

Kay, Rebecca. Engineer. Pacific Bell, Salinas, CA. August 12, 1992 - telephone conversation; August 17, 1992 - letter.

Laska, Leo. Hydrologist. Monterey County Water Resources Agency, Salinas, CA. March 19, 1993 - telephone conversation.

Littlefield, Mark. Biologist. U.S. Fish and Wildlife Service, Sacramento, CA. June 18, 1992 - telephone conversation.

Long, Bob. Director of out patient services. Natividad Medical Center, Patient Financial Services, Salinas, CA. September 2, 1992 - telephone conversation.

Lopez, Ralph. Pacific regional manager. U.S. National Oceanic and Atmospheric Administration, Washington, DC. July 7 and 30, 1992 - telephone conversations.

Luallen, Connie. Major account representative. Pacific Gas and Electric Company, Coast Valleys Division, Salinas, CA. August 13, 1992 - telephone conversation regarding consumption at Fort Ord; August 14, 1992 - telephone conversation requesting map of gas and electric lines; August 17 and 18, 1992 - letters regarding consumption at Fort Ord. September 1, 1992 - telephone conversation.

Mallone, Mike. Senior hydrogeologist. Harding Lawson Associates, Novato, CA. September 4, 1992 - meeting.

Martin, Bill. Emergency services coordinator. Monterey County Communication Center, Salinas, CA. September 8, 1992 - telephone conversation.

McElroy, Bob. Administrative Services Officer. Monterey County Public Library, Marina, CA. March 30, 1993 - telephone conversation in regard to MCPL standards for library service provision.

McLean, Rodger. Operations manager. Marina Water and Sewer Department, Marina, CA. August 28, 1992 - telephone conversation.

Mercy, Carlene. Senior geophysicist. Harding Lawson Associates, Novato, CA. February 21, 1992 - draft letter to the Corps describing preliminary geophysical data.

Meyers, David. General manager. Monterey Regional Waste Management District, Marina, CA. August 21, 1992 - telephone conversation.

Mick, Mickey. Office assistant. Monterey Fire Department. Monterey, CA. October 21, 1992 - telephone conversation about typical staffing levels of fire stations in Monterey.

Morgan, Randall. Botanist. Soquel, CA. August 18, 1992 - telephone conversation.

Mullone, Mike. Senior hydrogeologist. Harding Lawson Associates, Novato, CA. September 4, 1992 - meeting to review Fort Ord hydrogeology.

Petrowski, Joseph. Assistant general manager. Monterey Peninsula Airport, Seaside, CA. July 15, 1992 - telephone conversation.

Pierson, Elizabeth. Wildlife Biologist. University of California at Berkeley. Berkeley, CA. March 17, 1993 - telephone conversation.

Posten, Don. Division chief. Gavilan Conservation Camp, California Department of Forestry and Fire Protection, Soledad, CA. September 4, 1992 - telephone conversation.

Pugmire, Bob. Director. Private Industry Council. Salinas, CA. September 29, 1992 - telephone conversation regarding JPTA funded programs.

Quetin, Douglas. Division chief. Administration, Planning, and Technical Services. Monterey Bay Unified Air Pollution Control District, Monterey, CA. December 17, 1991 - telephone conversation.

Richer, Michael. Water demand analyst. Monterey Peninsula Water Management District, Monterey, CA. September 3, 1992 - meeting.

Roberson, Don. Biologist. Monterey Chapter of the Audubon Society, Pacific Grove, CA. March 2 and 12, 1992 - telephone conversations; June 1, 1992 - telephone conversation and letter.

Schurr, Alan. Major accounts project manager. Pacific Gas and Electric Company, Economic Development, San Francisco, CA. August 13, 17, 18, and 19, 1992 - telephone conversations; August 19, 1992 - facsimile transmittal of estimated energy consumption.

Senate, Christine. Vice president. Peninsula Paramedics, Pacific Grove, CA. August 21, 1992 - telephone conversation regarding service and response times.

Skinner, Mark. Botanist. California Native Plant Society, Sacramento, CA. April 17, 1992 - letter.

Slater, Scott. Attorney. Hatch & Parent, Santa Barbara, CA. March 26, 1993 - telephone conversation.

Smith, Chris. Principal hydrogeologist. Harding Lawson Associates, Novato, CA. March 25, 1992 - facsimile transmittal of remedial investigation feasibility status for Fort Ord; August 31, 1992 - facsimile transmittal to the U.S. Army Corps of Engineers, Sacramento District.

St. John, Leo. Superintendent. North County Unified School District, Castroville, CA. August 21, 1992 - telephone conversation about school enrollments and capacities.

Stanley, Scott. Graduate student. University of California, Davis. Department of Zoology, Davis, CA. January 2, 1992 - telephone conversation and facsimile of information on California tiger salamander.

Stedman, William. Gas and electric operations manager. Pacific Gas and Electric Company, Salinas, CA. August 13, 1992 - telephone conversation regarding Army systems.

Taketomo, Amy. Air quality planner. Monterey Bay Unified Air Pollution Control District, Monterey, CA. August 12 and 19, 1992 - telephone conversation.

Townsend, Bob. Battalion Chief, Monterey Peninsula. California Department of Forestry and Fire Protection, Pacific Grove, CA. September 4, 1992 - telephone conversation.

Walton, Brian. Biologist. University of California, Santa Cruz, Predator Bird Research Group, Santa Cruz, CA. March 12, April 28, 1992, and August 28, 1992 - telephone conversations.

Watson, Karen. Information specialist. University of California, Davis Public Relations Department, Davis, CA. September 3, 1992 - telephone conversation regarding University of California, Davis personnel.

Wilcer, Bruce. Senior geologist. Harding Lawson Associates. Novato, CA. October 5, 1992 - letter to Gus Yates transmitting Marina pumpage data.

Wilson, Larry. Plant operations supervisor. U.S. Davis Medical Center, Sacramento, CA. August 21, 1992 - telephone conversation.

Zaman, Mohammed. Water resources analyst. Monterey County Water Resources Agency, Salinas, CA. August 20 and 21, 1992 - telephone conversations.

Section 10.0 Distribution List

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Federal Communications Commission, Engineering Division
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Federal Highway Administration, Property & Services Branch, HMS-21
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National Oceanic and Atmospheric Administration, Region 9
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National Oceanic and Atmospheric Administration, WASC WC41
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Naval Postgraduate School
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California Assembly Committee on Natural Resources
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California Department of Conservation
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California Department of Food and Agriculture
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California Department of General Services
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California Department of Navigation and Ocean Development
California Department of Parks and Recreation
California Department of Transportation, District 5
California Department of Toxic Substances Control, Site Mitigation Branch
California Department of Water Resources
California Energy Commission
California Environmental Protection Agency Department of Toxic Substances Control
California Native American Heritage Commission

California Office of Emergency Services
 California Office of Historic Preservation
 California Public Utilities Commission Energy Branch
 California Integrated Waste Management Board
 California State Clearing House Office of the Governor
 California State Coastal Conservancy
 California State Lands Commission
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 California State University, San Jose
 California State Water Resources Control Board
 California Water Commission
 California Wildlife Conservation Board
 Economic Development Administration
 Marina State Beach
 University of California, Community Planning and Land
 Development

REGIONAL AGENCIES

Association of Monterey Bay Area Governments
 California Regional Water Quality Control Board Central Coast
 Region
 County of Monterey Local Agency Formation Commission
 County of Monterey Water Resources Agency
 County of Santa Cruz, Regional Transportation Commission
 Marina County Water District
 Monterey Bay Unified Air Pollution Control District
 Monterey Coast Resource Conservation District
 Monterey County Water Resources Agency
 Monterey Peninsula Airport District
 Monterey Peninsula Regional Park District
 Monterey Peninsula Unified School District
 Monterey Regional Waste Management District
 Monterey Regional Water Pollution Control Agency
 Monterey Salinas Transit
 Northern Salinas Valley Mosquito Abatement District
 Pajaro Valley Water Management Agency
 Salinas Rural Fire District
 Salinas Valley Memorial Hospital District
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LOCAL AGENCIES

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 City of Carmel-by-the-Sea
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 County of Monterey, Health Department, Division of Environmental
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 County of Monterey, Steinbeck Library
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 County of San Luis Obispo, Armas Branch Library
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 County of San Luis Obispo, Morro Bay Public Library
 County of San Luis Obispo, Paso Robles Public Library
 County of Santa Cruz
 Monterey County Office of the Assessor
 San Luis Obispo Public Library
 Seaside Branch Municipal Public Library
 Steinbeck Library, Salinas Public Library

ORGANIZATIONS

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 A.F.G.R. Local 2082 Monterey Green Party
 AGS Architectural Glass Structures
 American Cetacean Society
 Audubon Society of Monterey
 Baker and McKenzie
 B & V-Waste Science and Technology Corporation
 Biosystems Analysis
 Breon, O'Donnell, Miller, Brown & Dannis
 Burgum and Grimm Limited
 California Preservation Foundation
 California-American Water Company
 California Native Plant Society
 Carmel Realty
 Carmel Valley Historical Society
 Carmel Valley Trails Association
 Center for Natural Lands Management, Inc.
 Central California Management Company
 Church of the Oaks
 Citizens For A State Seashore
 Community Hospital of the Monterey Peninsula
 Conference of California Historical Society Region 21

Crown Packing Company, Inc.
Dames & Moore
D'Amico and Associates
Davis and Schroeder
Defenders of Wildlife
Denise Duffy and Associates
Dynamic Corporation
EMC Planning Group
Empire West Companies
Engineering-Science
Environmental Defense Fund
Environmental Law Services
Firestone Business Park
Fort Ord Federal Credit Union
Fort Ord Task Force
Foundation Health
Foxx, Nielsen and Associates
Friends of the Sea Otter
Golden State Wildlife Federation
Goodwill Industries Public Relations & Development
Greater Victory Temple
Gromax
HMH, Inc.
Harding Lawson Associates
Hoge, Fenton, Jones, and Appel
Johnson Municipal Engineering
Kuhn and Grimm Consulting Partnership, Inc.
League of Women Voters
Lowerison Consultant Service
Merrill Fong
Mid-Coast Health Systems Agency
Monterey Bay Dunes Coalition
Monterey Bay Search Dogs, Inc.
Monterey County Cattleman's Association
Monterey Culinary Insurance & Pension Funds
Monterey Institute of International Studies
Monterey Institute for Research and Astronomy
Monterey Mountain Bike Association
Monterey Peninsula Audubon Society
Monterey Peninsula College
Monterey Velo Club
National Audubon Society
Natividad Medical Center
Pacific Bell
Pacific Gas and Electric Company
Pacific Grove Eco-Corps
Parsons Brinckerhoff
Peace Coalition
Peninsula Paramedics
Pozzi Brothers
Public Affairs Management
Purus, Inc.
Ranchero Partners
Red Carpet Mast Realty
Reimer and Associates
RKG Associates, Inc.
Seaside/Sand City Chamber of Commerce
Seaside Task Force
Sierra Club, Ventana Chapter

Southern Pacific Transportation Company
SMWM
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The Cleaning Machine
The Nature Conservancy
The Rancho Buena Vista Coalition
The York School
University of California, Santa Cruz
Wallace Holm Architects, Inc.
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Wilbur Smith Associates
Window to the West

MEDIA

Carmel Pine Cone/Carmel Valley Outlook
Carmel Valley Sun
Casey Newspapers
Community Spirit
El Sol Spanish Newspaper
Exchange Coast Weekly
Free Lance Newspaper
Gonzales Tribune
Greenfield News
KAZU 90.3FM Public Radio
KCBA News
Monterey Bay Tribune
Monterey Peninsula Herald
Paso Robles Daily Press
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Seaside Post News Sentinel
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Wilmot, John
Wright, Norma

Note: A complete distribution list is available upon request.

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Community Vision Package Used in Development of EIS Alternatives	Vol. III, Appendix E
Contaminated Sites	Vol. I, Sec. 5
Contaminated Site Cleanup	Vol. I, Sec. 2
Contaminated Site Remediation	Vol. I, Sec. 1
Coordination with Reuse Committees	Vol. I, Sec. 1
Cultural Resources	Vol. I, Sec. 4, 5; Vol. II
Disposal Effects	Vol. I, Sec. 5; Vol. II
Disposal Process	Vol. I, Sec. 2
Emergency Medical Services	Vol. I, Sec. 4, 5
Erosion	Vol. I, Sec. 4
Fire Protection	Vol. I, Sec. 4, 5; Vol. II
Gas and Electric Service	Vol. I, Sec. 4, 5; Vol. II
Grassland Communities	Vol. I, Sec. 4
Groundwater	Vol. I, Sec. 4
Hazardous and Toxic Waste Site Remediation	Vol. I, Sec. 4, 5; Vol. II
Historic Storage and Disposal of Hazardous Waste	Vol. I, Sec. 4
Hydrology and Water Quality	Vol. I, Sec. 4, 6; Vol. II
Installation Land Uses	Vol. I, Sec. 4
Interim Use	Vol. I, Sec. 2, 5
Land Use Definitions	Vol. III, Appendix H
Land Use	Vol. I, Sec. 4, 5; Vol. II
Law Enforcement	Vol. I, Sec. 4, 5; Vol. II
Livestock Grazing	Vol. I, Sec. 4

Local Reuse Planning Status	Vol. I, Sec. 2; Vol. III, Appendix G
Location	Vol. I, Sec. 2
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Mission	Vol. I, Sec. 2
Mitigation Summary	Vol. I, Sec. 5
Monterey Peninsula College	Vol. I, Sec. 4
Monterey Peninsula Unified School District	Vol. I, Sec. 4
No Action	Vol. I, Sec. 3
No Presidio of Monterey Annex	Vol. I, Sec. 5
Noise	Vol. I, Sec. 4, 5; Vol. II
Noise Appendix	Vol. III, Appendix O
North County Unified School District	Vol. I, Sec. 4
Notice of Intent	Vol. I, Sec. 1; Vol. III, Appendix A
Other Federal, State, and Local Agency Reuse Proposals	Vol. III, Appendix F
Overview of the Biological Resources at Fort Ord	Vol. I, Sec. 4
Parcels	Vol. I, Sec. 2
Population and Housing	Vol. I, Sec. 4, 5; Vol. II
Potential Remedial Measures	Vol. I, Sec. 5
Pre-Disposal Actions	Vol. I, Sec. 2, 5
Preserves and Significant Natural Areas	Vol. I, Sec. 4
Presidio of Monterey Annex, Appendix	Vol. III, Appendix D
Presidio of Monterey Annex, Army's Proposed	Vol. I, Sec. 2, 3, 5
Presidio of Monterey Annex, City of Seaside's Recommended	Vol. I, Sec. 3, 5
Presidio of Monterey Annex, Establishment of	Vol. I, Sec. 2, 3, 5
Proposed Action	Vol. I, Sec. 2
Public Health and Safety Appendix	Vol. III, Appendix L
Public Hearing	Vol. I, Sec. 1
Public Involvement	Vol. I, Sec. 1
Public Services and Utilities	Vol. I, Sec. 4, 5; Vol. II
Public Services and Utilities Appendix	Vol. III, Appendix J
Public Workshops	Vol. I, Sec. 1
Public Health and Safety	Vol. I, Sec. 4, 5; Vol. II
Purpose and Need	Vol. I, Sec. 1
Real Estate Disposal Process	Vol. I, Sec. 2
Realignment of Personnel and Functions	Vol. I, Sec. 2
Recreation	Vol. I, Sec. 4, 5; Vol. II
Regional Economy	Vol. I, Sec. 4
Regulation of Hazardous Materials and Waste	Vol. I, Sec. 4
Relevant Plans and Policies	Vol. I, Sec. 4; Vol. III
Retention of Reserve Center	Vol. I, Sec. 2, 3, 5
Reuse	Vol. I, Sec. 2, 3
Reuse Alternatives	Vol. I, Sec. 5; Vol. II
Reuse Alternatives Appendix	Vol. III, Appendix I
Reuse Development Process	Vol. I, Sec. 2
Riparian Communities	Vol. I, Sec. 4
Salinas Elementary School District	Vol. I, Sec. 4
Salinas Union High School District	Vol. I, Sec. 4
Schools	Vol. I, Sec. 4, 5; Vol. II
Scope	Vol. I, Sec. 1
Scoping Meeting Participants	Vol. III, Appendix C
Scoping Meeting Announcements	Vol. III, Appendix B
Scoping Process	Vol. I, Sec. 1
Seismic Safety (Public Health)	Vol. I, Sec. 4, 5; Vol. II

Seismic Hazards (Soils)	Vol. I, Sec. 4, 5; Vol. II
Site Characterization and Remedial Investigations	Vol. I, Sec. 4
Social Services	Vol. I, Sec. 4, 5, Vol. II
Socioeconomics	Vol. I, Sec. 4, 5; Vol. II
Soils, Geology, Topography, and Seismicity	Vol. I, Sec. 4, 5; Vol. II
Solid Waste	Vol. I, Sec. 4, 5; Vol. II
Source Areas of Hazardous and Toxic Waste	Vol. I, Sec. 4
Special Native Biological Communities	Vol. I, Sec. 4
Special-Status Biological Resources	Vol. I, Sec. 4
Special-Status Plant Species	Vol. I, Sec. 4
Storm Drainage System	Vol. I, Sec. 4, 5; Vol. II
Subalternatives	Vol. I, Sec. 3, 5; Vol. II
Surface Water	Vol. I, Sec. 4
Telephone Service	Vol. I, Sec. 4, 5; Vol. II
Topography	Vol. I, Sec. 4
Toxic Contaminants and Live Ordnance	Vol. I, Sec. 4
Traffic and Circulation	Vol. I, Sec. 4, 5; Vol. II
Traffic and Circulation Appendix	Vol. III, Appendix M
Transmission Lines	Vol. I, Sec. 4
Vegetation, Wildlife, and Wetland Resources	Vol. I, Sec. 4, 5; Vol. II
Vegetation Management Programs	Vol. I, Sec. 4
Visual Resources	Vol. I, Sec. 4, 5; Vol. II
Wastewater	Vol. I, Sec. 4, 5; Vol. II
Water Supply and Demand	Vol. I, Sec. 4, 5; Vol. II
Water Quality	Vol. I, Sec. 4, 5; Vol. II
Water Resources	Vol. I, Sec. 4, 5; Vol. II
Water Distribution System	Vol. I, Sec. 4
Water Resources Appendix	Vol. III, Appendix K
Wetland and Open Water Communities	Vol. I, Sec. 4

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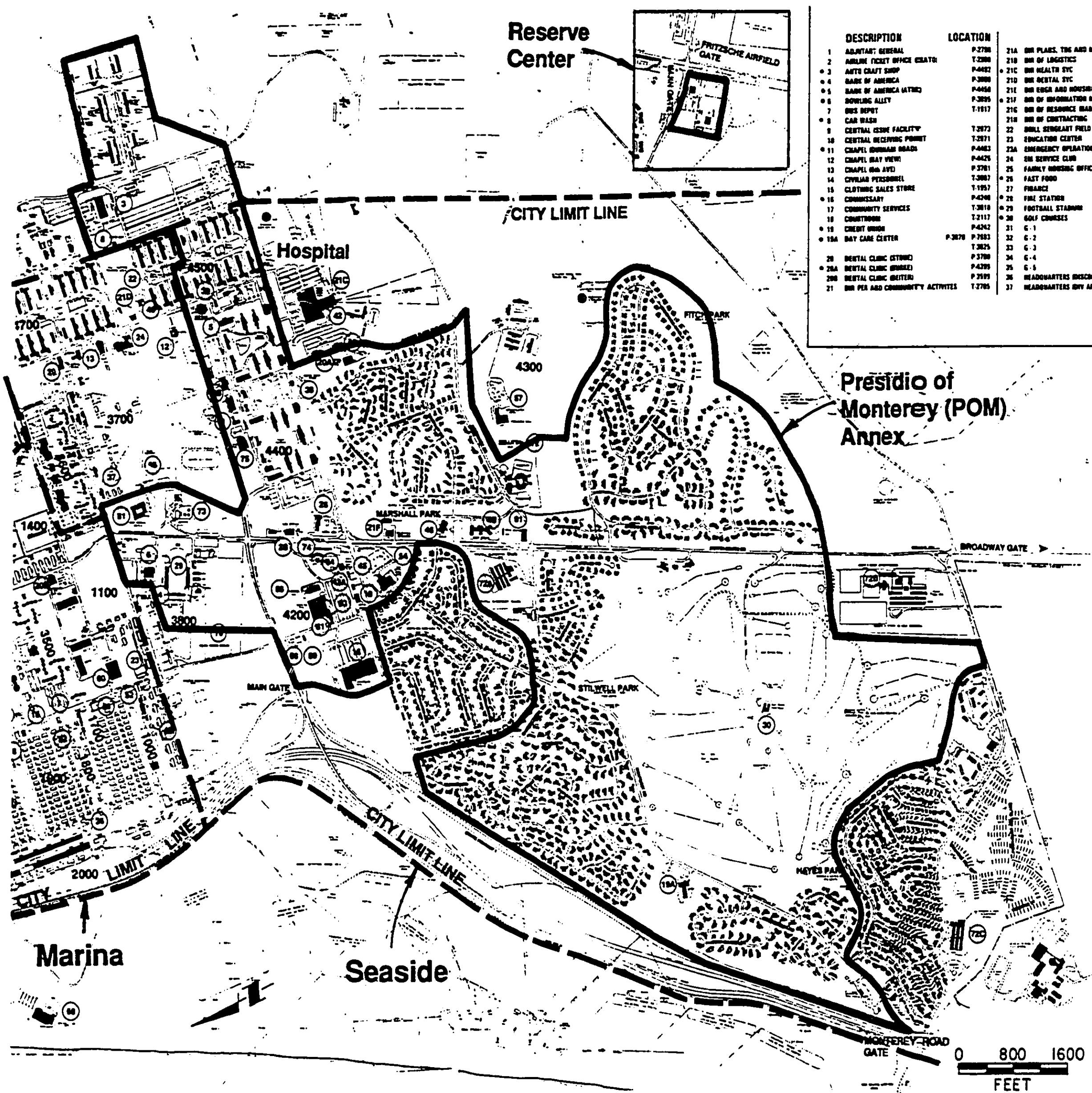
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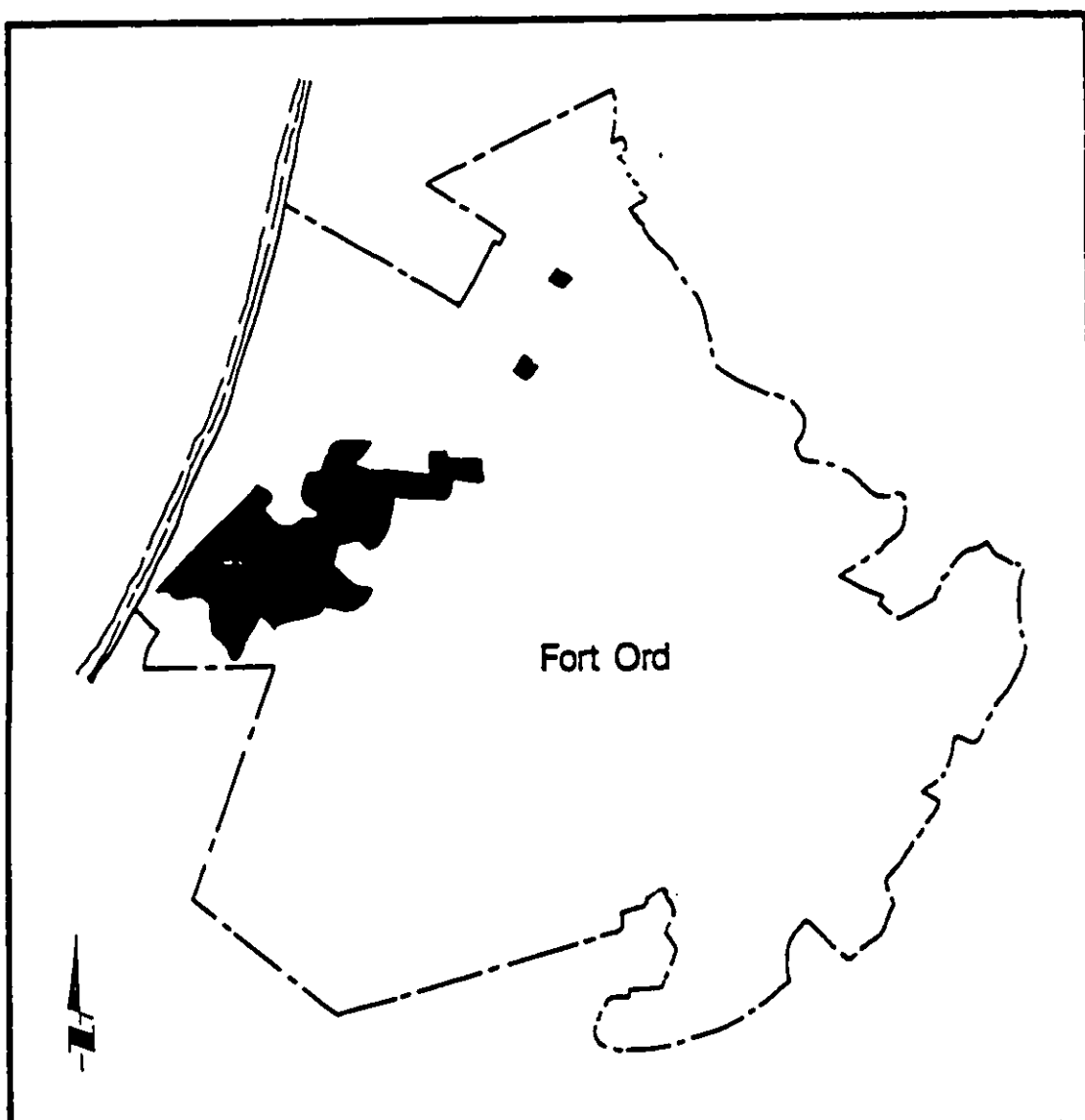
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Army's Proposed Presidio of Monterey Annex and Reserve Center



DESCRIPTION	LOCATION						
1 ADJUTANT GENERAL	P-2708	21A BIR PLANS, THE AID BLDG	T-2943	38 HEADQUARTERS BMS CHQ	P-4463	56 OPTICAL CLINIC	P-4305 P-4308
2 AIRLINE TICKET OFFICE (SATO)	T-2980	21B BIR OF LOGISTICS	T-2796	39 HEADQUARTERS (1st BDR)	P-4423	58 PACKAGE STORE	T-2531 P-4254
3 AUTO CRAFT SHOP	P-4452	21C BIR HEALTH SVC	P-4385	46 HEADQUARTERS CHW BDR	P-4570	59 PHYSICAL FITNESS CENTER	P-3500
4 BANK OF AMERICA	P-3888	21D BIR RENTAL SVC	P-4673	46A HEADQUARTERS CHW BDR	P-4610	61 POST EXCHANGE	P-4235
5 BANK OF AMERICA (ATM)	P-4456	21E BIR ECGS AND HOUSING	P-4699	46B HEADQUARTERS LAVN BDR	P-4609	62 POST HEADQUARTERS	T-2950
6 BOWLING ALLEY	P-3895	21F BIR OF INFORMATION MANAGEMENT	P-4251	41 HORSE STABLES	P-4251	63 POST LAUNDRY	T-2700
7 BUS DEPOT	T-1917	21G BIR OF RESOURCE MANAGEMENT	T-2700		P-4285	64 POST OFFICE	P-4276
8 CAR WASH		21H BIR OF CONTRACTING	T-2342		T-2355	65 POST VET CLINIC	T-3140
9 CENTRAL ISSUE FACILITY	T-2973	22 BRILL SERGEANT FIELD		43 HQ BDR	S-4220	66 PRIVATE MARSHAL	T-1829
10 CENTRAL RECEIVING POINT	T-2971	23 EDUCATION CENTER	S-1810	43A VTY OFFICE	T-2963	67 RANGE SUPPLY	T-2064
11 CHAPEL (BROADWAY ROAD)	P-4465	23A EMERGENCY OPERATIONS CENTER	19-2790	44 INSPECTOR GENERAL	P-4277	68 STILLWELL HALL	P-2675
12 CHAPEL (BAY VIEW)	P-4475	24 SW SERVICE CLUB	S-2782	45 LANDMOMENTS	T-2100	69 RED CROSS	P-2642
13 CHAPEL (SUN AVE)	P-2761	25 FAMILY HOUSING OFFICE	T-2798	46 LIBRARIES	T-2795	70 REPLACEMENT DET	T-2542
14 CIVILIAN PERSONNEL	T-2887	26 FAST FOOD	P-4465	46A LIBRARY (BDR)	T-2233	71 SANITARY PHL	P-3798
15 CLOTHING SALES STORE	T-1957	27 FRANCE	T-2437	47 MAIN CAFETERIA	P-2947	72 SCHOOL (MARSHALL)	P-4290
16 COMMUNITY SERVICES	P-4246	28 FIRE STATION	P-4480	48 MAIN CHAPEL	P-3852	72A SCHOOL (STILLWELL)	P-4290
17 COMMUNITY SERVICES	T-3818	29 FOOTBALL STADIUM	P-3852	49 MAIN PARADE FIELD	P-2790	72B SCHOOL (STILLWELL)	P-4290
18 COURTYARD	T-2117	30 GOLF COURSES	P-4181	50 MARTINEZ HALL	P-3723	72C SCHOOL (STILLWELL)	P-4290
19 CREDIT UNION	P-4242	31 G-1	T-2235	51 MEDICAL CENTER (TROOP)	T-1849	73 SELF HELP SHOP	P-3883
19A DAY CARE CENTER	P-3878	32 G-2	T-2947	52 MILITARY POLICE STATION	T-3880	74 SERVICE STATIONS	T-1068 P-4279
20 DENTAL CLINIC (STROM)	P-3780	33 G-3	T-2975	53 MUSEUM	P-4248		P-7958 P-4164
20A DENTAL CLINIC (BDR)	P-4385	34 G-4	T-2783	54 BDR CLUB	P-3878	75 SHIA GYMNASIUM	P-4480
20B DENTAL CLINIC (SATO)	P-2595	35 G-5	T-2534	55 NURSERY (DAY CARE CENTER)	P-3878	76 SOUTH PARADE FIELD	P-2726
21 BIR PER AND COMMUNITY ACTIVITIES	T-2785	36 HEADQUARTERS (DISCOM)	T-1528	56 NURSERY (PLANT)	T-3878	77 SPORTS ARENA	T-2791
		37 HEADQUARTERS (BY ARTY)	P-3718	57 OFFICERS' CLUB	P-4368	78 STAFF JUDGE ADVOCATE	



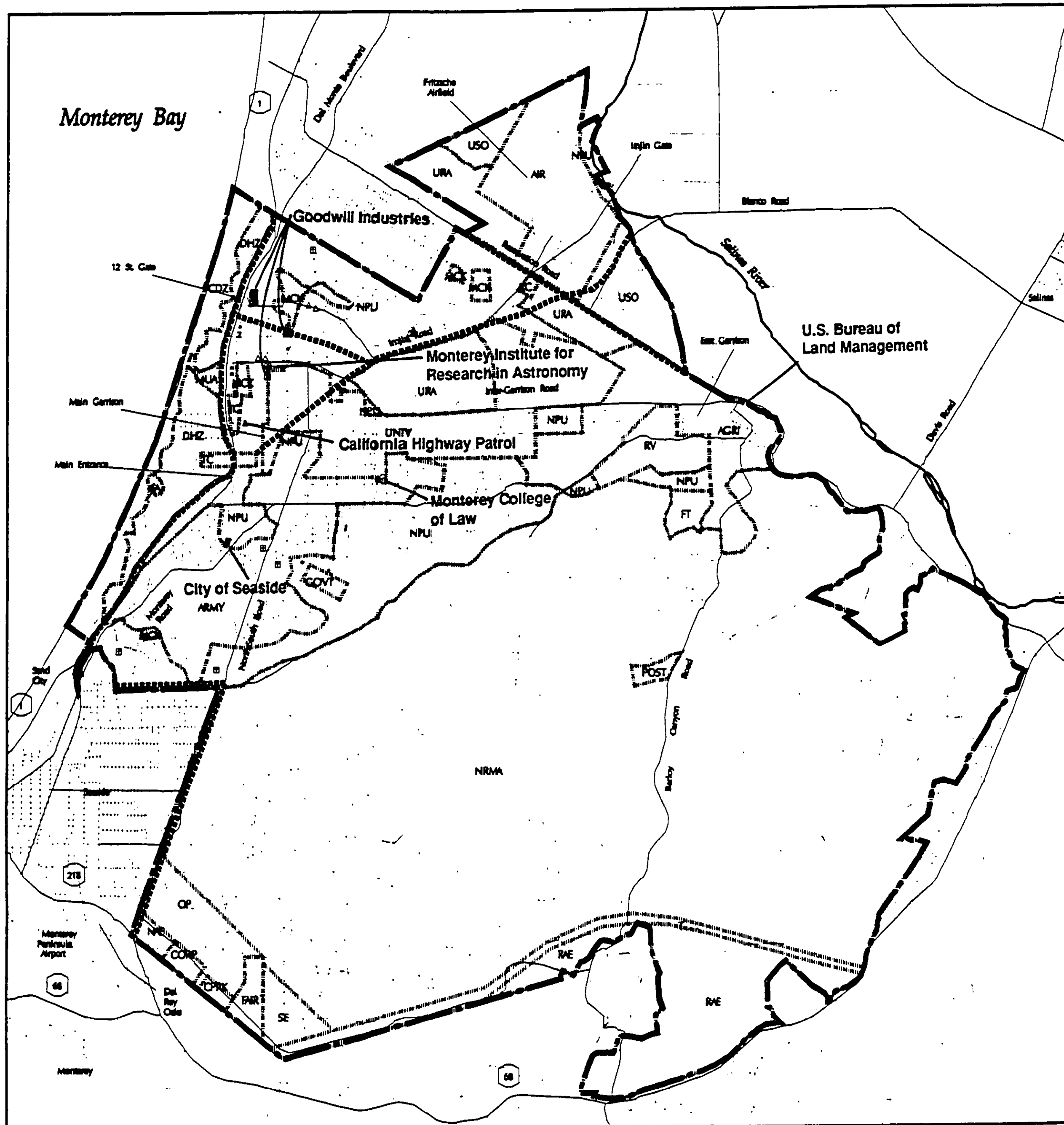
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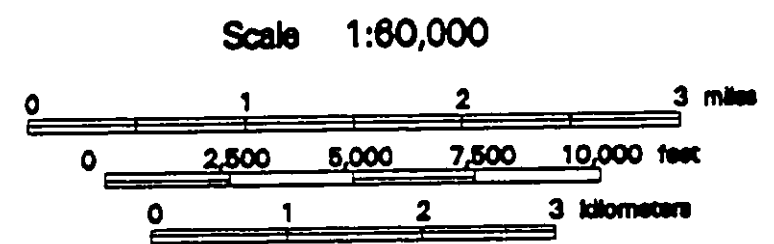
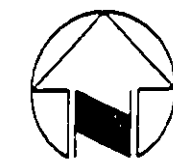
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Figure 2-10



Building Requests Received through the Real Estate Screening Process

- Monterey County
- △ City of Marina
- City of Seaside
- Monterey College of Law
- Monterey Institute for Research in Astronomy
- △ California Highway Patrol
- Goodwill Industries
- Monterey Peninsula Unified School District
- ▽ U.S. Bureau of Land Management



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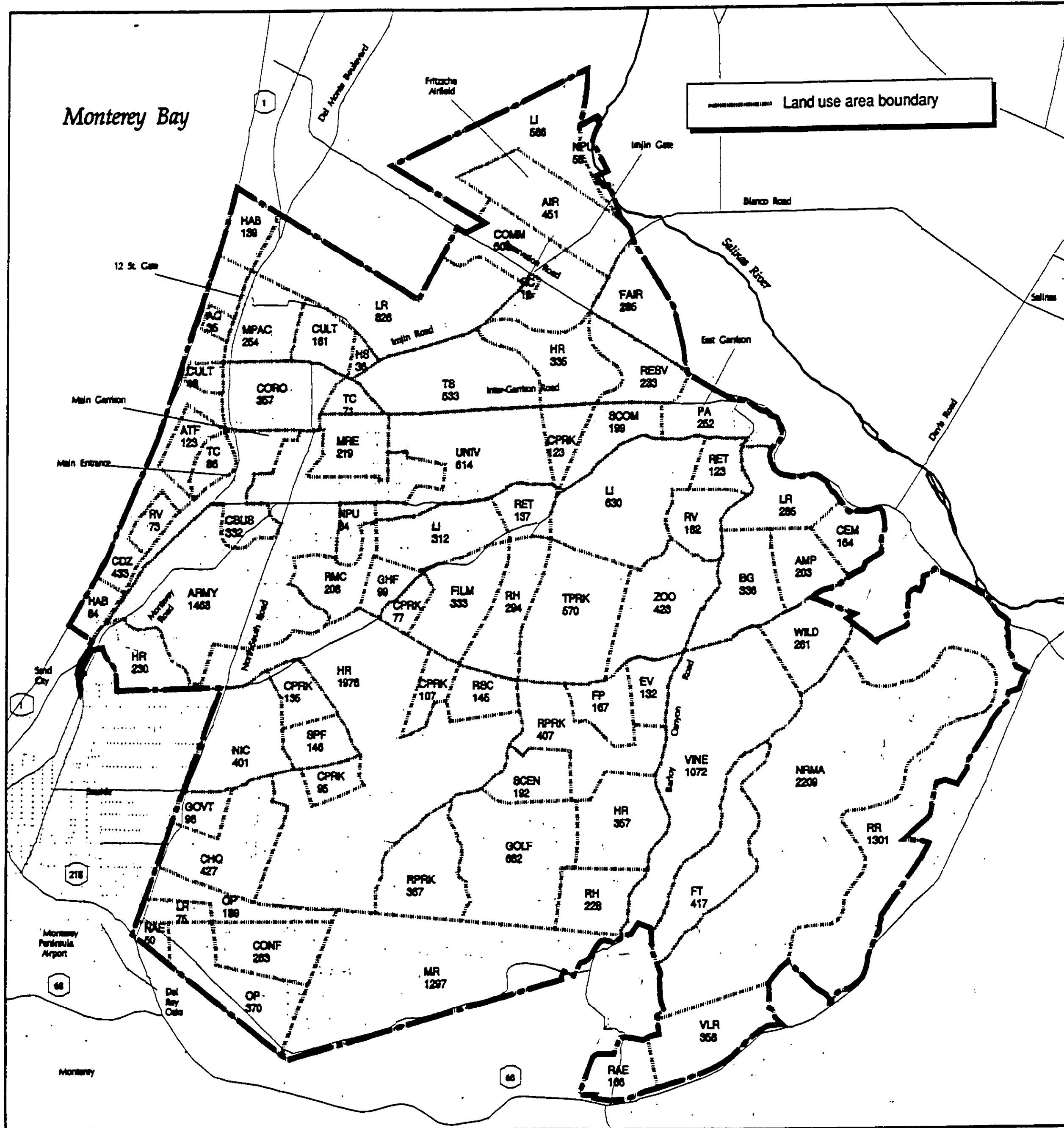
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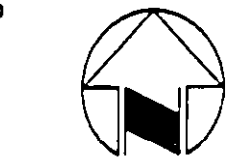
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Figure 3-1

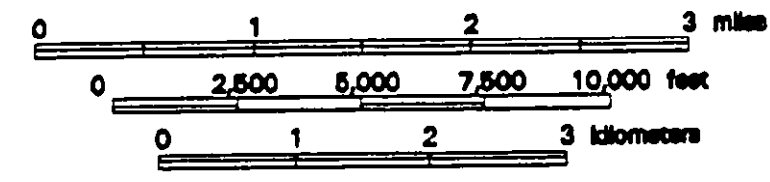
Alternative 1:
High-intensity Mixed Use



AIR	Airport
AMP	Amphitheater
AO	Aquaculture
ARMY	Army Proposed Presidio of Monterey Annex
ATF	Automated Type Facility
BG	Botanical Garden
CBUS	Central Business District
CDZ	Coastal Dunes Zone
CEM	Cemetery
CHO	Corporate Headquarters
COMM	Commercial Center
CONF	Conference Center
CORO	Corporate Offices
CPRK	Community Park
CULT	Cultural Center
EV	Ethnic Village
FAIR	Fairgrounds
FILM	Film Complex
FP	Festival Plaza
FT	Fire Training
GHF	Golf Hall of Fame/Smithsonian West
GOLF	Golf
GOVT	Government Center
HAB	Habitat Preserve
HR	High Residential
HS	High School
LI	Light Industry
LR	Low Residential
MPAC	Museum/Performing Arts Center
MR	Medium Residential
MRE	Marine Research
NAE	Natural Area Expansion
NPU	No Proposed Use (Caretaker Status)
NIC	National Innovation Center
NRMA	Natural Resource Management Area
OP	Office Park
PA	Police Academy
RAE	Recreational Area Expansion
RC	Reserve Center
RESV	Reservoir
RET	Retail
RH	Resort Hotels
RMC	Regional Medical Center
RPRK	Regional Park
RR	Rural Residential
RSC	Regional Shopping Center
RV	RV Park/Campground
SCEN	Sports Center
SCOM	Sports Complex
SPF	Sports Field
TC	Transit Center
TPRK	Theme Park
TS	Trade Schools
UNIV	University
VINE	Vineyards
VLR	Very Low Residential
WILD	Wildlife Park
ZOO	Zoo



Scale 1:60,000



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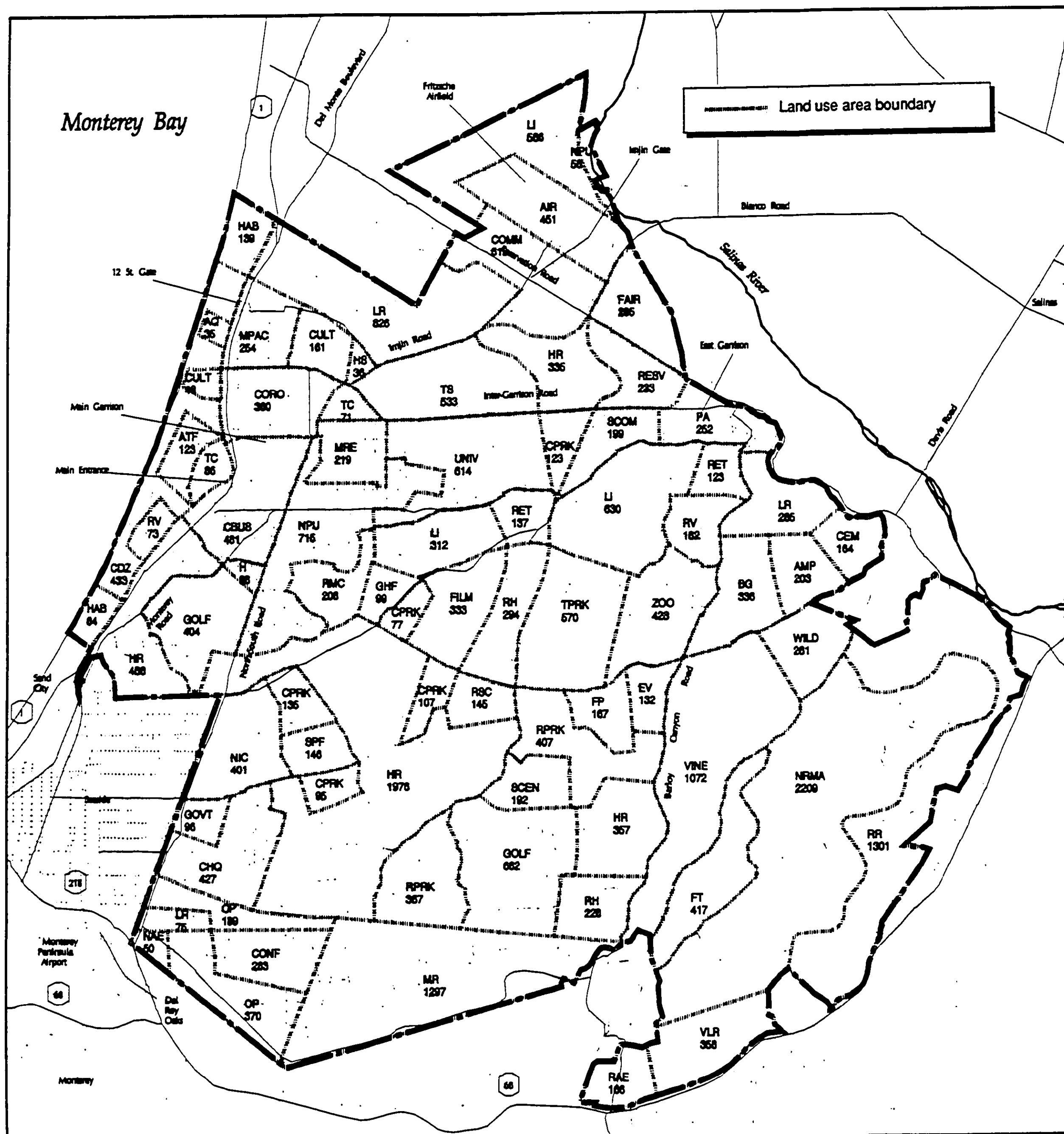
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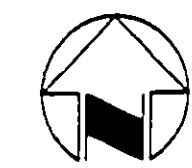
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Figure 3-2

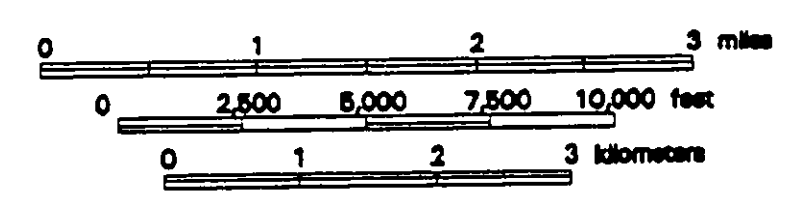
Alternative 1:
High-Intensity Mixed Use
Subalternative A: No Presidio of
Monterey Annex/No Reserve Center



- | | |
|------|------------------------------------|
| AIR | Airport |
| AMP | Amphitheater |
| AQ | Aquaculture |
| ATF | Asiomatic Type Facility |
| BG | Botanical Garden |
| CBUS | Central Business District |
| CDZ | Coastal Dunes Zone |
| CEM | Cemetery |
| CHO | Corporate Headquarters |
| COMM | Commercial Center |
| CONF | Conference Center |
| CORO | Corporate Offices |
| CPRK | Community Park |
| CULT | Cultural Center |
| EV | Ethnic Village |
| FAIR | Fairgrounds |
| FILM | Film Complex |
| FP | Festival Plaza |
| FT | Fire Training |
| GHF | Golf Hall of Fame/Smithsonian West |
| GOLF | Golf |
| GOVT | Government Center |
| H | Hotel |
| HAB | Habitat Preserve |
| HR | High Residential |
| HS | High School |
| LI | Light Industry |
| LR | Low Residential |
| MPAC | Museum/Performing Arts Center |
| MR | Medium Residential |
| MRE | Marine Research |
| NAE | Natural Area Expansion |
| NPU | No Proposed Use (Caretaker Status) |
| NIC | National Innovation Center |
| NRMA | Natural Resource Management Area |
| OP | Office Park |
| PA | Police Academy |
| RAE | Recreational Area Expansion |
| RESV | Reservoir |
| RET | Retail |
| RH | Resort Hotels |
| RMC | Regional Medical Center |
| RPRK | Regional Park |
| RR | Rural Residential |
| RSC | Regional Shopping Center |
| RV | RV Park/Campground |
| SCEN | Sports Center |
| SCOM | Sports Complex |
| TC | Transit Center |
| TPRK | Theme Park |
| TS | Trade Schools |
| UNIV | University |
| VINE | Vineyards |
| VLR | Very Low Residential |
| WILD | Wildlife Park |
| ZOO | Zoo |



Scale 1:60,000



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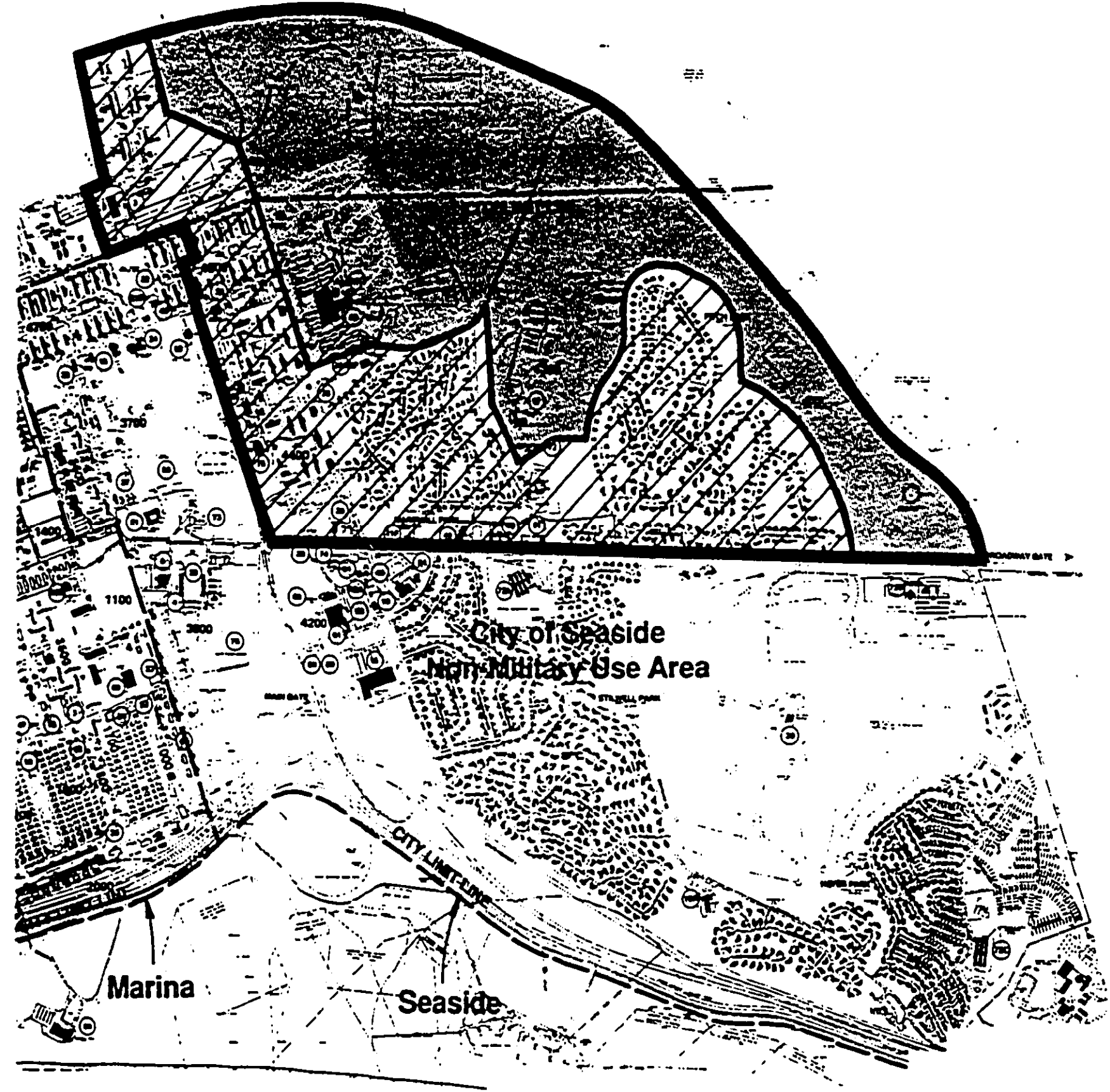
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Figure 3-3

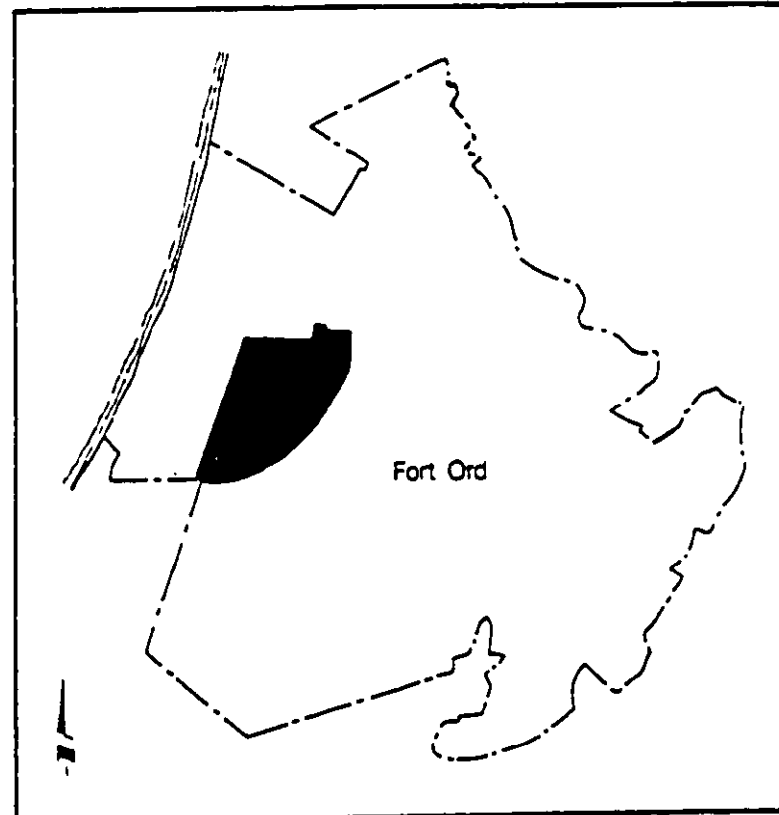
City of Seaside's Recommended
Presidio of Monterey Annex

DESCRIPTION	LOCATION	DESCRIPTION	LOCATION	DESCRIPTION	LOCATION	DESCRIPTION	LOCATION
1 AIRFARE OFFICE	P-3700	21A ON PLANK, TIC AND BUD	T-3842	38 HEADQUARTERS BUS CORP	P-4882	50 OPTICAL CLINIC	P-4395 P-4398
2 AIRLINE TICKET OFFICE (MATH)	T-3280	21B ON OF LOGISTICS	T-3700	39 HEADQUARTERS (1st BND)	P-4822	51 PACKAGE STORE	T-2531 P-4250
3 AUTO CRAFT SHOP	P-4882	21C ON HEALTH SVC	P-4380	40 HEADQUARTERS (2nd BND)	P-4870	52 PHYSICAL FITNESS CENTER	P-3888
4 BANK OF AMERICA	P-3888	21D ON DENTAL SVC	P-4872	41 HEADQUARTERS (3rd BND)	P-4870	53 POST EXCHANGE	P-4226
5 BANK OF AMERICA (MATH)	P-4880	21E ON BOND AND INSURANCE	P-4880	42 HEADQUARTERS (4th BND)	P-4880	54 POST HEADQUARTERS	T-3888
6 BOWLING ALLEY	T-3888	21F ON OF INFORMATION MANAGEMENT	P-4251	43 BUNDS STABLES	T-3142	55 POST LABORATORY	T-3700
7 BUS DEPOT	T-1817	21G ON OF RESOURCE MANAGEMENT	T-3700	44 BUS STATION	P-4380	56 POST OFFICE	P-4226
8 CAB STAND		21H ON OF CONTRACTING	T-3242	45 BUS STOP	T-3286	57 POST VET CLINIC	T-3140
9 CENTRAL ISSUE FACILITY	T-3872	21I GOLF COURSE FIELD		46 BUS STOP	T-3286	58 PROPERTY BARRICADE	T-1025
10 CENTRAL RECEIVING POINT	T-3871	21J EDUCATION CENTER	T-1810	47 INSPECTOR GENERAL	T-3883	59 BARRIC SUPPLY	T-3888
11 CHAPEL (GARDEN ROAD)	P-4882	21K EMERGENCY OPERATIONS CENTER	P-3700	48 LABORER	P-4227	60 STEWELL HALL	P-3875
12 CHAPEL (DAY VIEW)	P-4880	21L ON SERVICE CLUB	P-3702	49 LIBRARIAN	P-3700	61 STEWELL HALL	P-3882
13 CHAPEL (ON AVE)	P-3701	21M FAMILY BARRICADE OFFICE	T-2700 T-2706	50 LIBRARY	P-4275	62 STEWELL HALL	T-2542
14 CIVILIAN PERSONNEL	T-3887	21N FAST FOOD	P-4880	51 LIBRARY BOND	P-4880	63 STEWELL HALL	P-3700
15 CLOTHING SALES STORE	T-1887	21O FRANCHISE	T-3827	52 MAIN CAPTIVITY	P-3887	64 STEWELL HALL	P-4226
16 COMMUNICATORY	P-4248	21P FIRE STATION	P-4880	53 MAIN CHAPEL	P-4226	65 STEWELL HALL	P-4880
17 COMMUNITY SERVICES	T-3816	21Q FOOTBALL STADIUM	P-3882	54 MAIN PARADE FIELD	P-2700	66 STEWELL HALL	P-3880
18 COURTHOUSE	T-1117	21R GOLF COURSE	P-4181	55 MATHIEZ HALL	P-2700	67 SELF HELP SHOP	T-3883
19 CREDIT UNION	P-4242	21S G-1	T-2225	56 MEDICAL CENTER (TRUMP)	P-3722	68 SERVICE STATIONS	T-1000 P-4226
20 DAY CARE CENTER	P-3870 P-7883	21T G-2	T-2847	57 MILITARY POLICE STATION	T-1000	69 SERVICE STATIONS	P-7880 P-4180
	T-3825	21U G-3	T-3875	58 BRIGADE	P-4226	70 SHELTER	P-4880
21 DENTAL CLINIC (BUD)	P-3700	21V G-4	T-2700	59 BUS CLUB	P-3880	71 SOUTH PARADE FIELD	P-2226
22 DENTAL CLINIC (BUD)	P-4226	21W G-5	T-3824	60 EMERGENCY DAY CARE CENTER	P-3870	72 SPORTS AREA	T-2701
23 DENTAL CLINIC (BUD)	P-3888	21X HEADQUARTERS (BUD)	T-1820	61 EMERGENCY (PLANT)	T-3820	73 STAFF JUDGE ASSOCIATE	
24 ON PLS AND COMMUNITY ACTIVITIES	T-2706	21Y HEADQUARTERS (OFF ACTV)	P-3710	62 OFFICER'S CLUB	P-4380	74 STOCKPILE / COMPONENT FACILITY	P-4883
						75 SUMMER POND	T-2727
						76 TIC "SIDE STOP"	T-3888
						77 TACO STAND	T-1000
						78 TELEGRAPHY WESTERN BARRIC	P-4226
						79 TRUCKS COURTS	T-1770 P-3888
						80 THEATERS	T-1001 P-4226
						81 TRIFT SHOP	P-3700
						82 TV STORE	T-3816
						83 TRUCKING COLLECTOR OFFICE	T-2700
						84 VEHICLE INFORMATION OFFICE	T-4214
						85 VETERANS INFORMATION CENTER	T-4214
						86 WELCOME CENTER / MATHIEZ HALL	P-3700
						87 YOUTH CENTER	P-4226 P-3115

• = Within Annex



-  Part of Army's Proposed Presidio of Monterey Annex
-  Recommended Presidio of Monterey Annex Expansion



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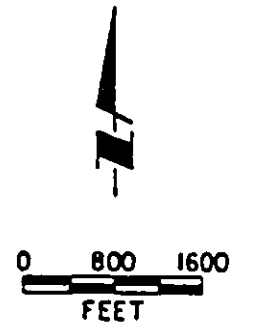
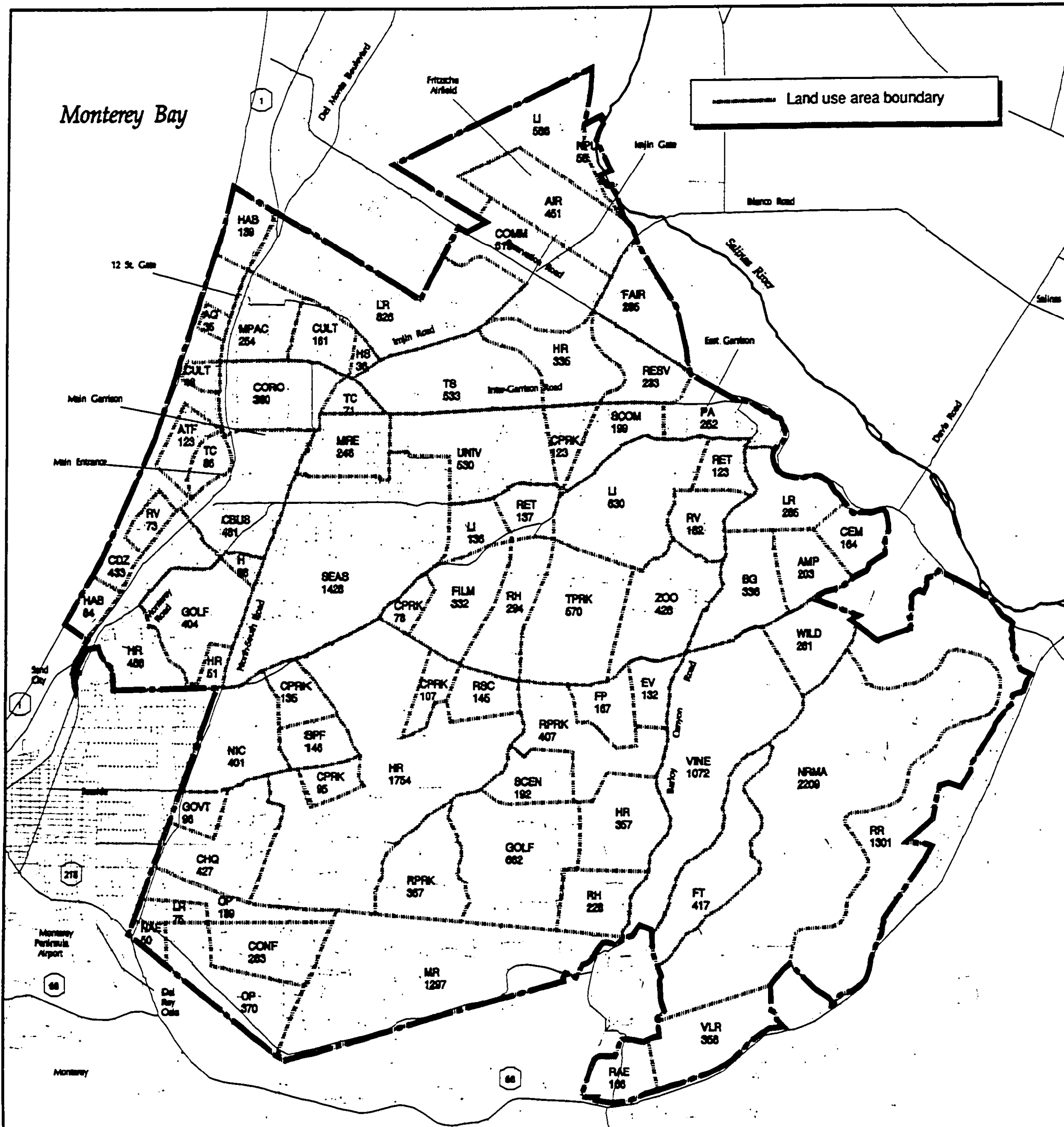
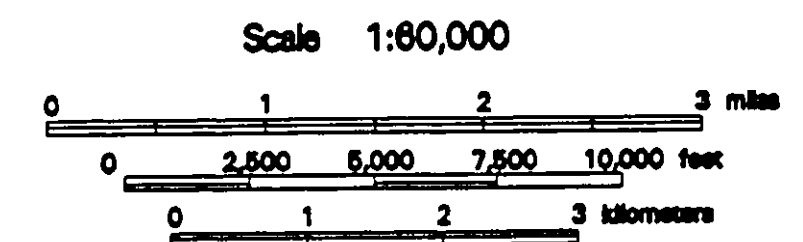
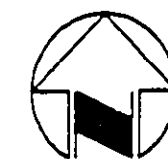


Figure 3-4

Alternative 1:
High-Intensity Mixed Use
Subalternative B: Seaside's
Recommended Presidio of
Monterey Annex/No Reserve Center



- AIR Airport
- AMP Amphitheater
- AQ Aquaculture
- ATF Asilomar Type Facility
- BG Botanical Garden
- CBUS Central Business District
- CDZ Coastal Dunes Zone
- CEM Cemetery
- CHO Corporate Headquarters
- COMM Commercial Center
- CONF Conference Center
- CORO Corporate Offices
- CPRK Community Park
- CULT Cultural Center
- EV Ethnic Village
- FAIR Fairgrounds
- FILM Film Complex
- FP Festival Plaza
- FT Fire Training
- GOLF Golf
- GOVT Government Center
- H Hotel
- HAB Habitat Preserve
- HR High Residential
- HS High School
- LI Light Industry
- LR Low Residential
- MPAC Museum/Performing Arts Center
- MR Medium Residential
- MRE Marine Research
- NAE Natural Area Expansion
- NPU No Proposed Use (Carotaker Status)
- NIC National Innovation Center
- NRMA Natural Resource Management Area
- OP Office Park
- PA Police Academy
- RAE Recreational Area Expansion
- RESV Reservoir
- RET Retail
- RH Resort Hotels
- RPRK Regional Park
- RR Rural Residential
- RSC Regional Shopping Center
- RV RV Park/Campground
- SCEN Sports Center
- SCOM Sports Complex
- SEAS Seaside Recommended Presidio of Monterey Annex
- SPF Sports Field
- TC Transit Center
- TPRK Theme Park
- TS Trade Schools
- UNIV University
- VINE Vineyards
- VLR Very Low Residential
- WILD Wildlife Park
- ZOO Zoo



If this image is not as legible as this overlay, it's due to the poor quality of the original document

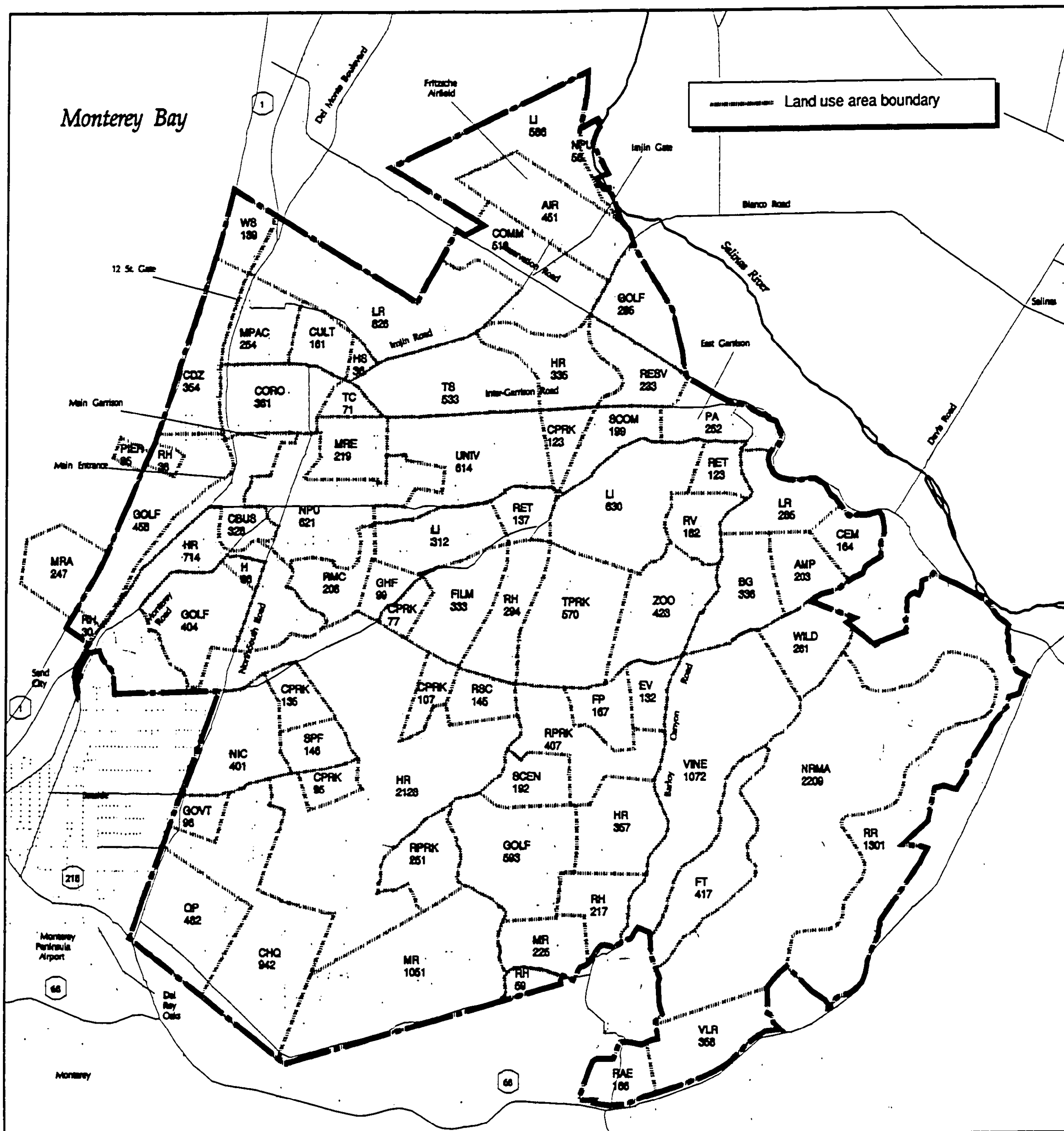
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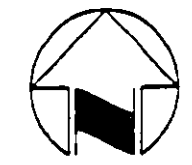
Document # BW-1348

Figure 3-5

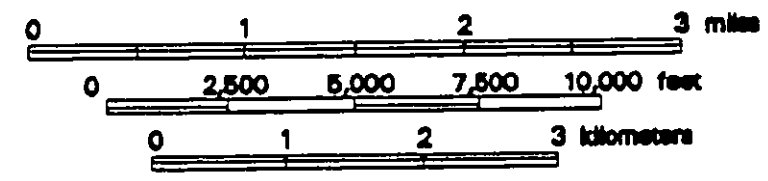
Alternative 1:
High-Intensity Mixed Use
Subalternative C: Partial Variation of
High-Intensity Mixed Use



- AIR Airport
- AMP Amphitheater
- BG Botanical Garden
- CBUS Central Business District
- CDZ Coastal Dunes Zone
- CEM Cemetery
- CHO Corporate Headquarters
- COMM Commercial Center
- CORO Corporate Offices
- CPRK Community Park
- CULT Cultural Center
- EV Ethnic Village
- FILM Film Complex
- FP Festival Plaza
- FT Fire Training
- GHF Golf Hall of Fame/Smithsonian West
- GOLF Golf
- GOVT Government Center
- H Hotel
- HR High Residential
- HS High School
- LI Light Industry
- LR Low Residential
- MPAC Museum/Performing Arts Center
- MR Medium Residential
- MRA Marina
- MRE Marine Research
- NPU No Proposed Use (Caretake Status)
- NIC National Innovation Center
- NRMA Natural Resource Management Area
- OP Office Park
- PA Police Academy
- PIER Cruise Ship Pier
- RAE Recreational Area Expansion
- RESV Reservoir
- RET Retail
- RH Resort Hotels
- RMC Regional Medical Center
- RPRK Regional Park
- RR Rural Residential
- RSC Regional Shopping Center
- RV RV Park/Campground
- SCEN Sports Center
- SCOM Sports Complex
- SPF Sports Field
- TC Transit Center
- TPRK Theme Park
- TS Trade Schools
- UNIV University
- VINE Vineyards
- VLR Very Low Residential
- WILD Wildlife Park
- WS Weather Station
- ZOO Zoo



Scale 1:60,000



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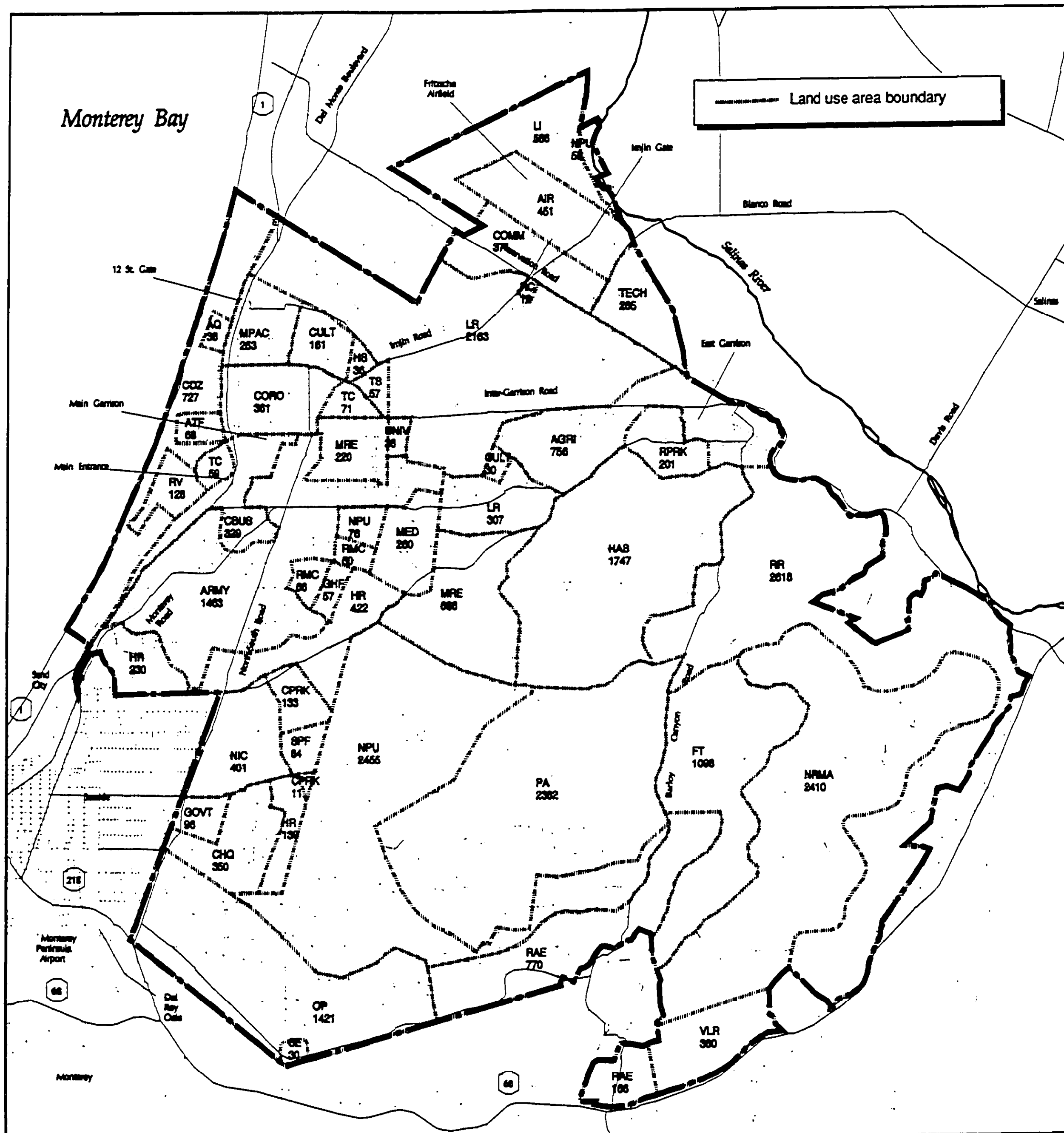
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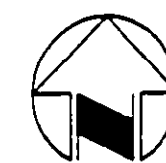
Document # BW-1348

Figure 3-6

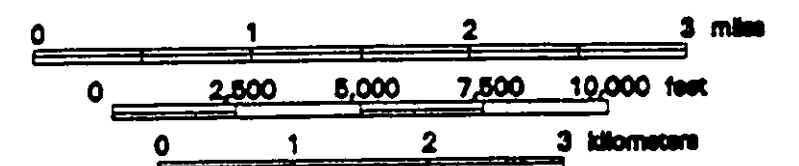
Alternative 2: Medium-Intensity Mixed Use



- AGRI Agricenter
- AIR Airport
- AO Aquaculture
- ARMY Army Proposed Presidio of Monterey Annex
- ATF Airliner Type Facility
- CBUS Central Business District
- CDZ Coastal Dunes Zone
- CHQ Corporate Headquarters
- COMM Commercial Center
- CORO Corporate Offices
- CPRK Community Park
- CULT Cultural Center
- FT Fire Training
- GHF Golf Hall of Fame/Smithsonian West
- GOVT Government Center
- HAB Habitat Preserve
- HR High Residential
- HS High School
- LI Light Industry
- LR Low Residential
- MED Medical Research
- MPAC Museum/Performing Arts Center
- MRE Marine Research
- NPU No Proposed Use (Carotaker Status)
- NIC National Innovation Center
- NRMA Natural Resource Management Area
- OP Office Park
- PA Police Academy
- RAE Recreational Area Expansion
- RC Reserve Center
- RMC Regional Medical Center
- RPRK Regional Park
- RR Rural Residential
- RV RV Park/Campground
- SE School Expansion
- SPF Sports Field
- TC Transit Center
- TECH High Tech Business Park
- TS Trade Schools
- UNIV University
- VLR Very Low Residential



Scale 1:80,000



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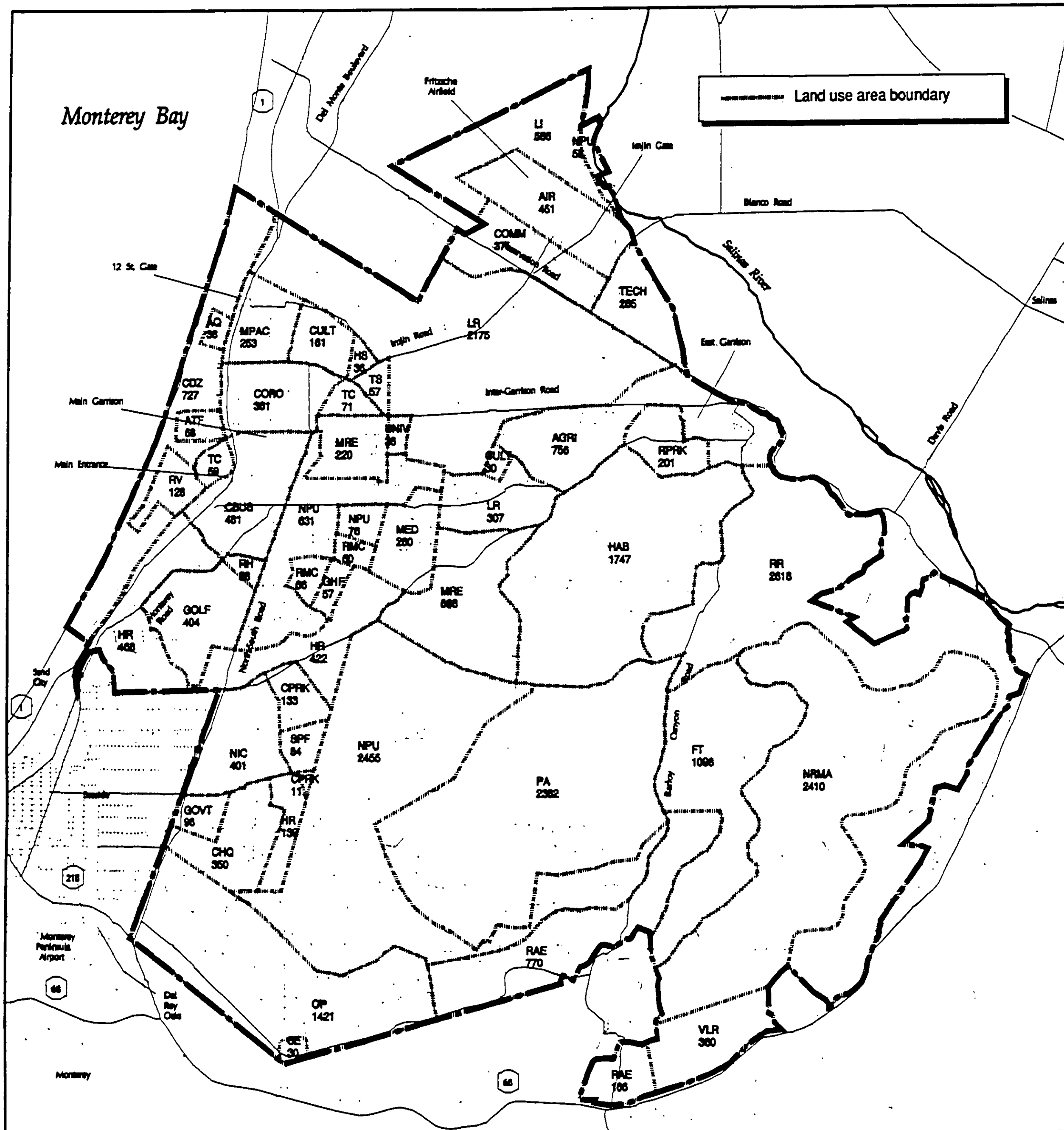
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Document # BW-1348

Figure 3-7

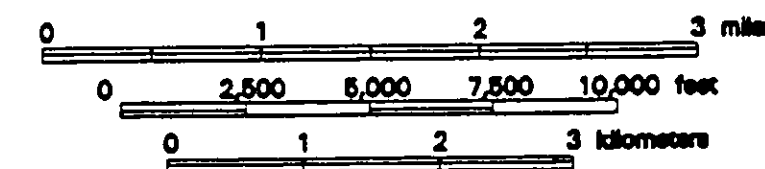
Alternative 2:
 Medium-Intensity Mixed Use
 Subalternative A: No Presidio of
 Monterey Annex/No Reserve Center



- | | |
|------|------------------------------------|
| AGRI | Agricenter |
| AIR | Airport |
| AQ | Aquaculture |
| ATF | Airliner Type Facility |
| CBUS | Central Business District |
| CDZ | Coastal Dunes Zone |
| CHO | Corporate Headquarters |
| COMM | Commercial Center |
| CORO | Corporate Offices |
| CPRK | Community Park |
| CULT | Cultural Center |
| FT | Fire Training |
| GHF | Golf Hall of Fame/Smithsonian West |
| GOLF | Golf |
| GOVT | Government Center |
| HAB | Habitat Preserve |
| HR | High Residential |
| HS | High School |
| LI | Light Industry |
| LR | Low Residential |
| MED | Medical Research |
| MPAC | Museum/Performing Arts Center |
| MRE | Marine Research |
| NPU | No Proposed Use (Caretaker Status) |
| NIC | National Innovation Center |
| NRMA | Natural Resource Management Area |
| OP | Office Park |
| PA | Police Academy |
| RAE | Recreational Area Expansion |
| RH | Resort Hotels |
| RMC | Regional Medical Center |
| RPRK | Regional Park |
| RR | Rural Residential |
| RV | RV Park/Campground |
| SE | School Expansion |
| SPF | Sports Field |
| TC | Transit Center |
| TECH | High Tech Business Park |
| TS | Trade Schools |
| UNIV | University |
| VLR | Very Low Residential |



Scale 1:60,000



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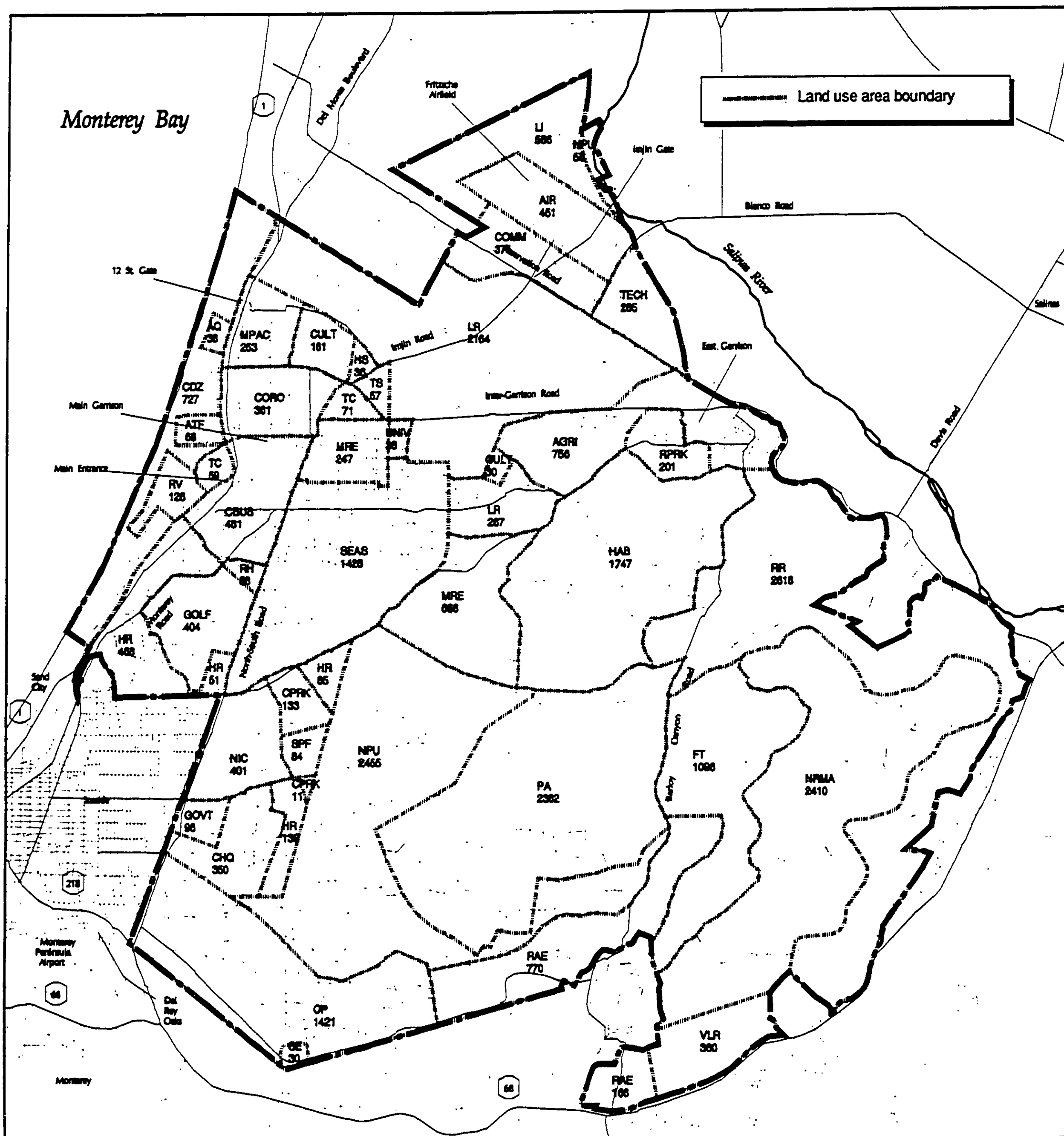
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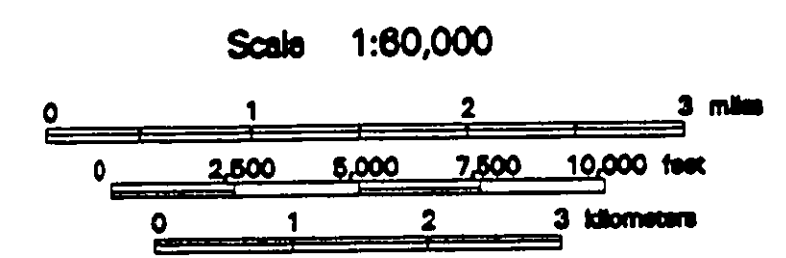
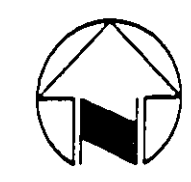
Document # BW-1348

Figure 3-8

Alternative 2:
 Medium-Intensity Mixed Use
 Subalternative B: Seaside's
 Recommended Presidio of
 Monterey Annex



- AGRI Agricenter
- AIR Airport
- AO Aquaculture
- ATF Ailomar Type Facility
- CBUS Central Business District
- CDZ Coastal Dunes Zone
- CHO Corporate Headquarters
- COMM Commercial Center
- CORO Corporate Offices
- CPRK Community Park
- CULT Cultural Center
- FT Fire Training
- GOLF Golf
- GOVT Government Center
- HAB Habitat Preserve
- HR High Residential
- HS High School
- LI Light Industry
- LR Low Residential
- MPAC Museum/Performing Arts Center
- MRE Marine Research
- NPU No Proposed Use (Caretaker Status)
- NIC National Innovation Center
- NRMA Natural Resource Management Area
- OP Office Park
- PA Police Academy
- RAE Recreational Area Expansion
- RH Resort Hotels
- RPRK Regional Park
- RR Rural Residential
- RV RV Park/Campground
- SE School Expansion
- SEAS Seaside Recommended Presidio of Monterey Annex
- SPF Sports Field
- TC Transit Center
- TECH High Tech Business Park
- TS Trade Schools
- UNIV University
- VLR Very Low Residential



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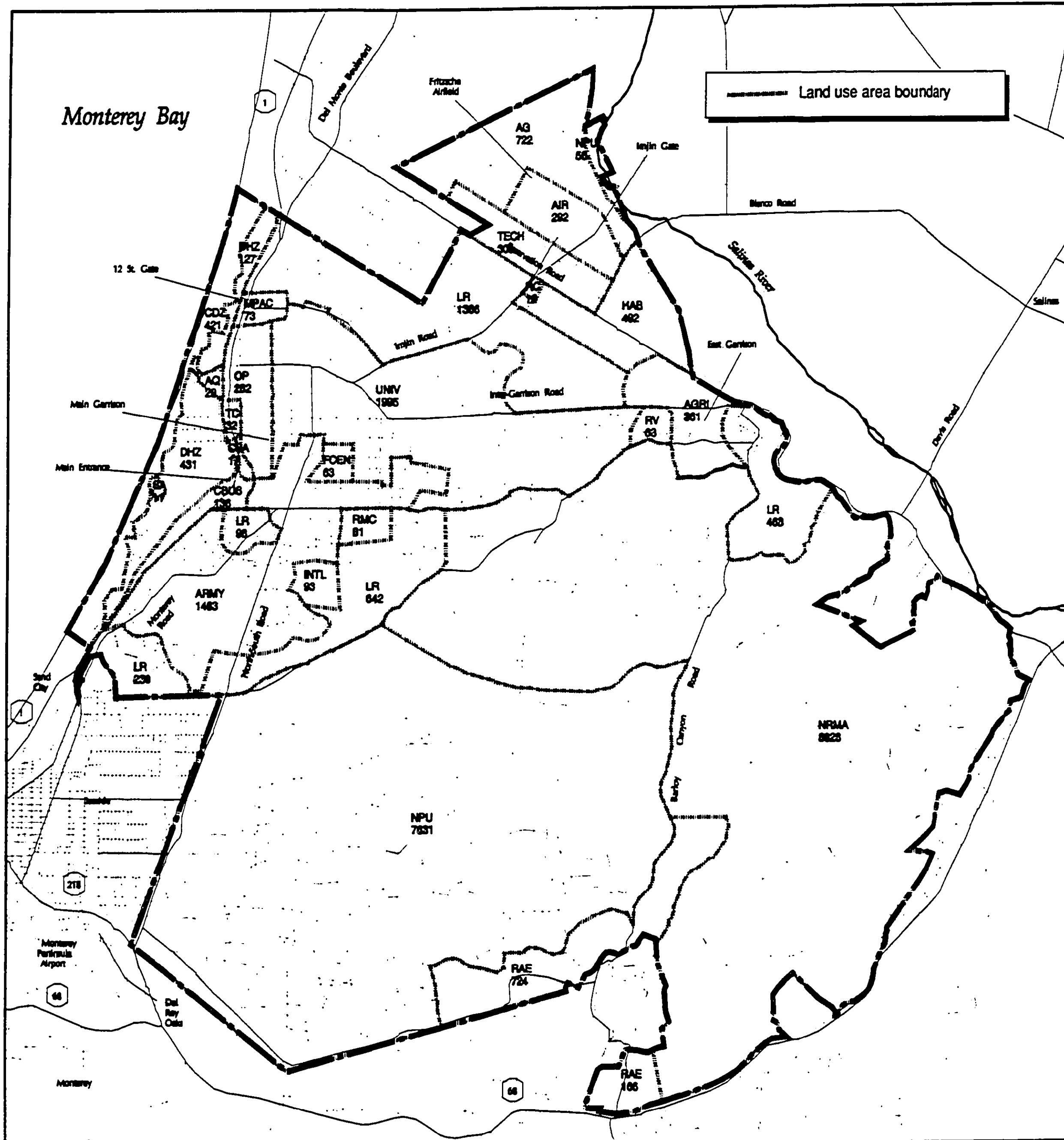
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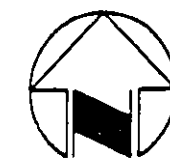
Document # BW-1348

Figure 3-9

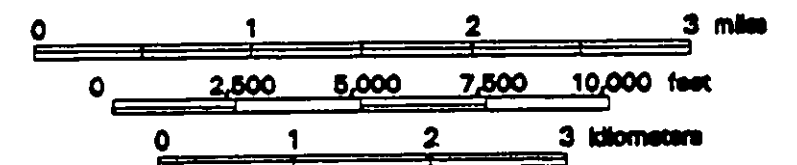
Alternative 3: Low-Intensity Mixed Use



- AG General Agriculture
- AGRI Agricenter
- AIR Airport
- AQ Aquaculture
- ARMY Army Proposed Presidio of Monterey Annex
- CBUS Central Business District
- CDZ Coastal Dunes Zone
- CSA Contact Station Area
- DHZ Disturbed Habitat Zone
- FCEN Financial Center
- HAB Habitat Preserve
- INTL International Studies
- LR Low Residential
- MPAC Museum/Performing Arts Center
- NPU No Proposed Use (Caretaker Status)
- NRMA Natural Resource Management Area
- OP Office Park
- RAE Recreational Area Expansion
- RC Reserve Center
- RMC Regional Medical Center
- RV RV Park/Campground
- SA Service Area
- TC Transit Center
- TECH High Tech Business Park
- UNIV University



Scale 1:80,000



If this image is not as legible as this overlay, it's due to the poor quality of the original document

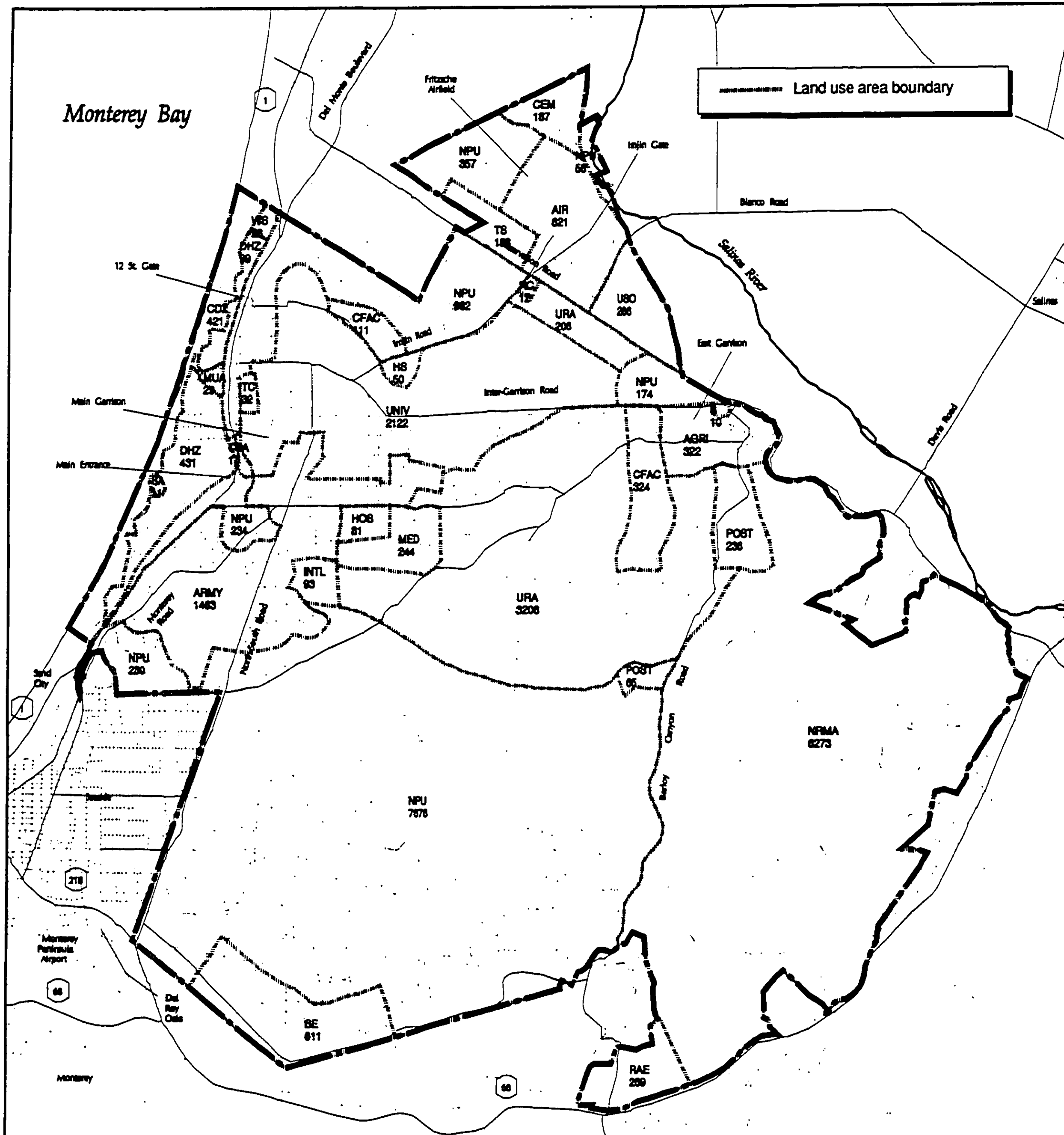
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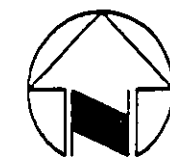
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Figure 3-10

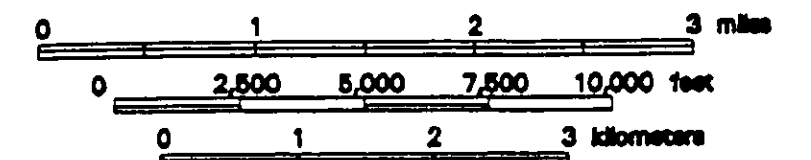
Alternative 4: Institutional Use



- AGRI Agricenter
- AIR Airport
- ARMY Army Proposed Presidio of Monterey Annex
- CDZ Coastal Dunes Zone
- CEM Cemetery
- CFAC Correctional Facility
- CSA Contact Station Area
- DHZ Disturbed Habitat Zone
- HOS Hospital
- HS High School
- INTL International Studies
- MED Medical Research
- MUA Multi Use Area
- NPU No Proposed Use (Caretaker Status)
- NRMA Natural Resource Management Area
- POST Post Academy
- RAE Recreation Area Expansion
- RC Storage Center
- S Storage
- SA Service Area
- SE School Expansion
- TC Transit Center
- TS Trade Schools
- UNIV University
- URA University Research Area
- USO University/Science Office
- WS Weather Station



Scale 1:80,000

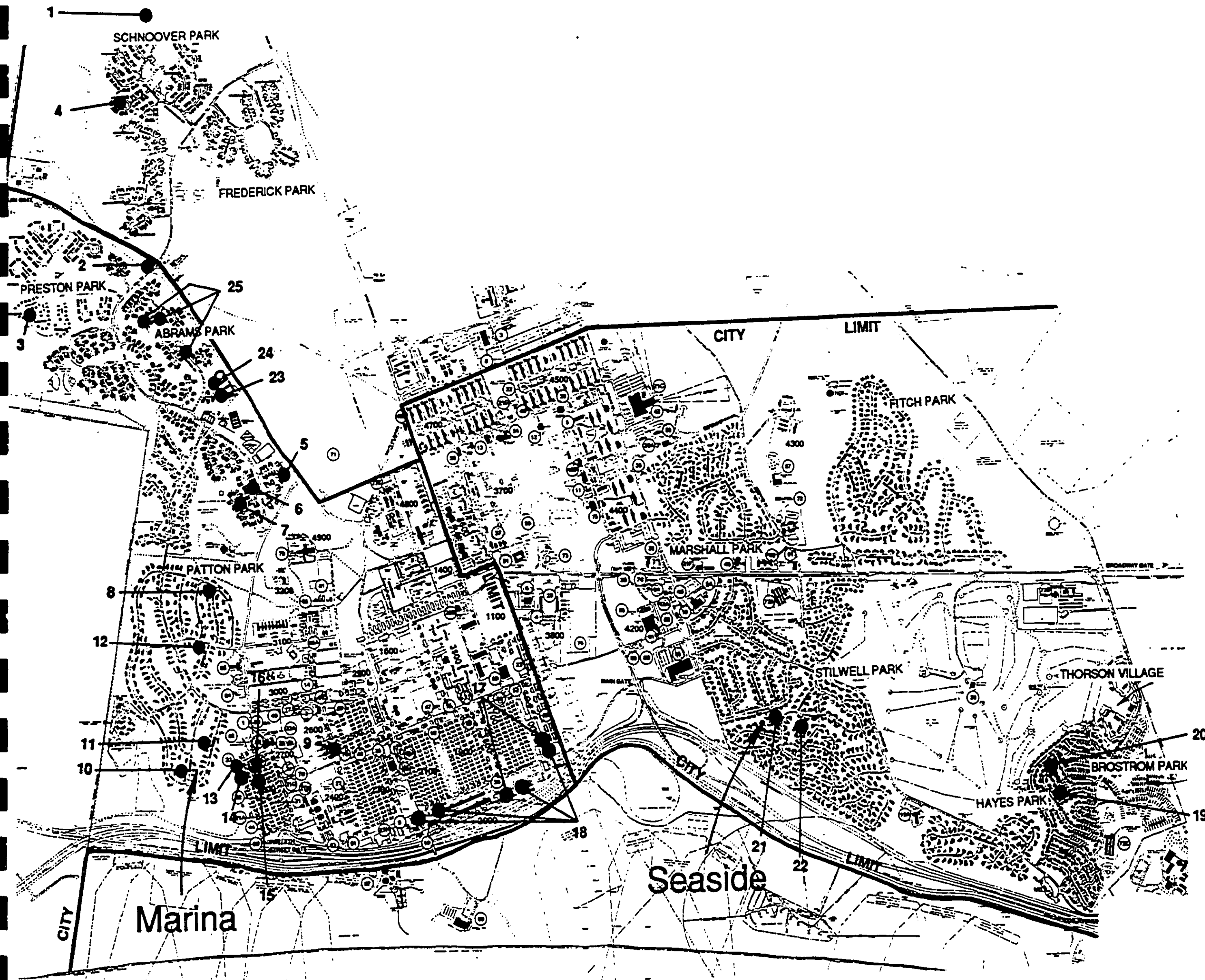


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Figure 3-11

McKinney Homeless Assistance Act
Proposed Areas of Interest

- 1 Shelter Plus
- 2 Rehabilitation Services of Northern California/ Valley Center
- 3 Door-to-Hope
- 4 Door-to Hope, 2nd choice
- 5 Housing Authority
- 6 Housing Authority, 3rd choice
- 7 Housing Authority, 2nd choice
- 8 YWCA, 2nd choice
- 9 Shelter Plus
- 10 YWCA
- 11 Vietnam Veterans of Monterey County
- 12 John XXIII AIDS Ministry, 2nd choice
- 13 Peninsula Outreach
- 14 Rehabilitation Services of Northern California/ Valley Center
- 15 Housing Authority
- 16 Shelter Plus, 2nd choice
- 17 Peninsula Outreach, 2nd choice
- 18 Food Bank
- 19 Salvation Army, 2nd choice
- 20 Peninsula Outreach, 2nd choice
- 21 Salvation Army, 3rd choice
- 22 John XXIII AIDS Ministry, 2nd choice
- 23 Peninsula Outreach
- 24 Salvation Army
- 25 Interim, Inc.

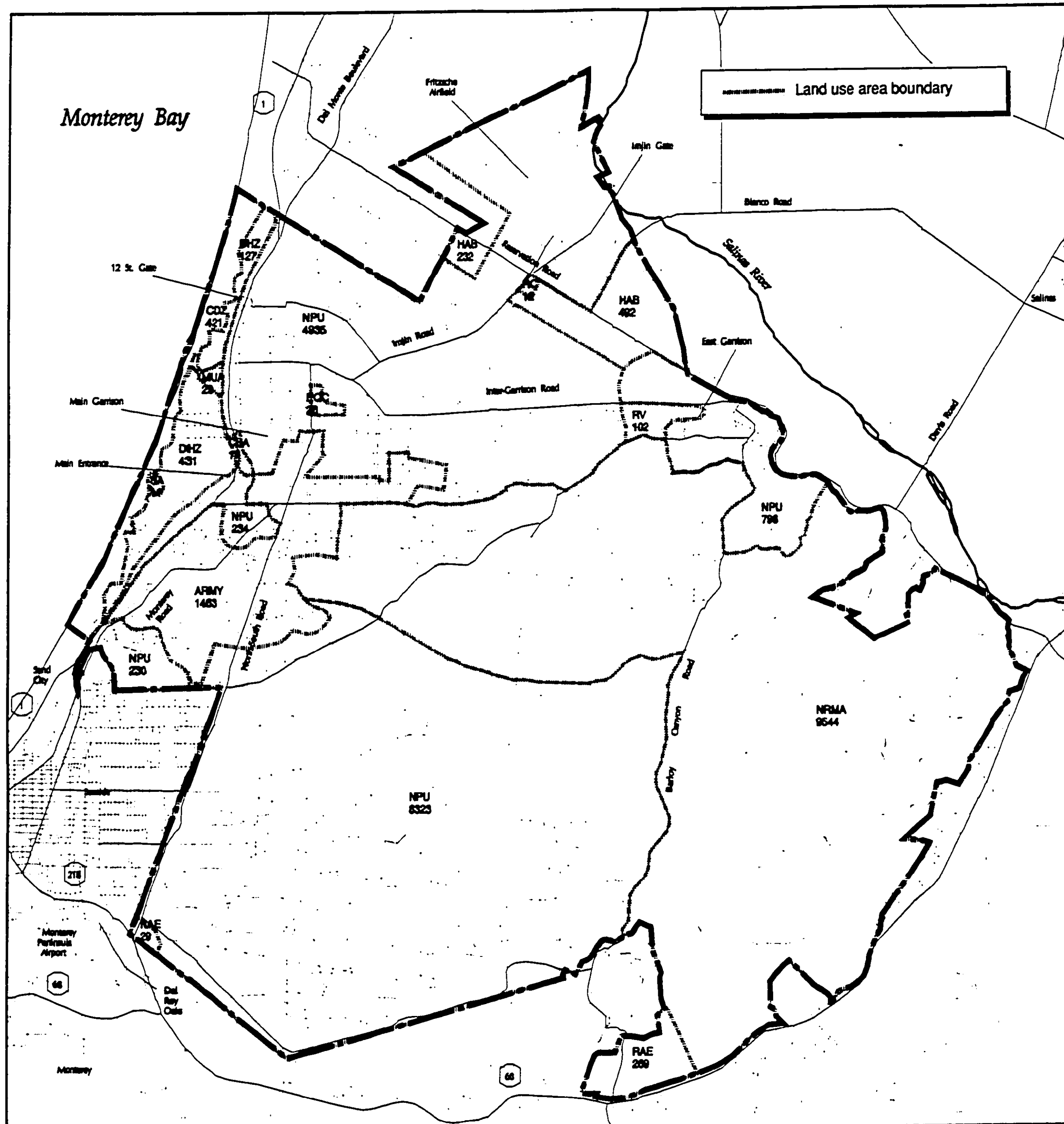


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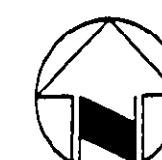
Source: U.S. Army Corps of Engineers 1991

Figure 3-12

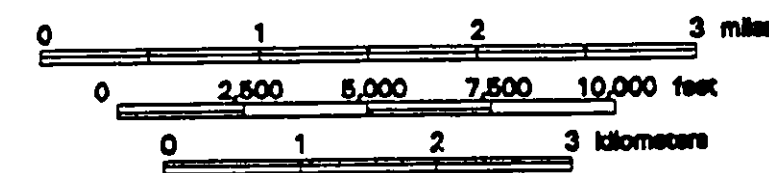
Alternative 5: Open Space



- ARMY Army Proposed Presidio of Monterey Annex
- CDZ Coastal Dunes Zone
- CSA Contact Station Area
- DHZ Disturbed Habitat Zone
- EOC Equestrian Center
- HAB Habitat Preserve
- MUA Multi Use Area
- NAE Natural Area Expansion
- NPU No Proposed Use (Caretaker Status)
- NRMA Natural Resource Management Area
- RAE Recreational Area Expansion
- RC Reserve Center
- RV RV Park/Campground
- SA Service Area



Scale 1:60,000



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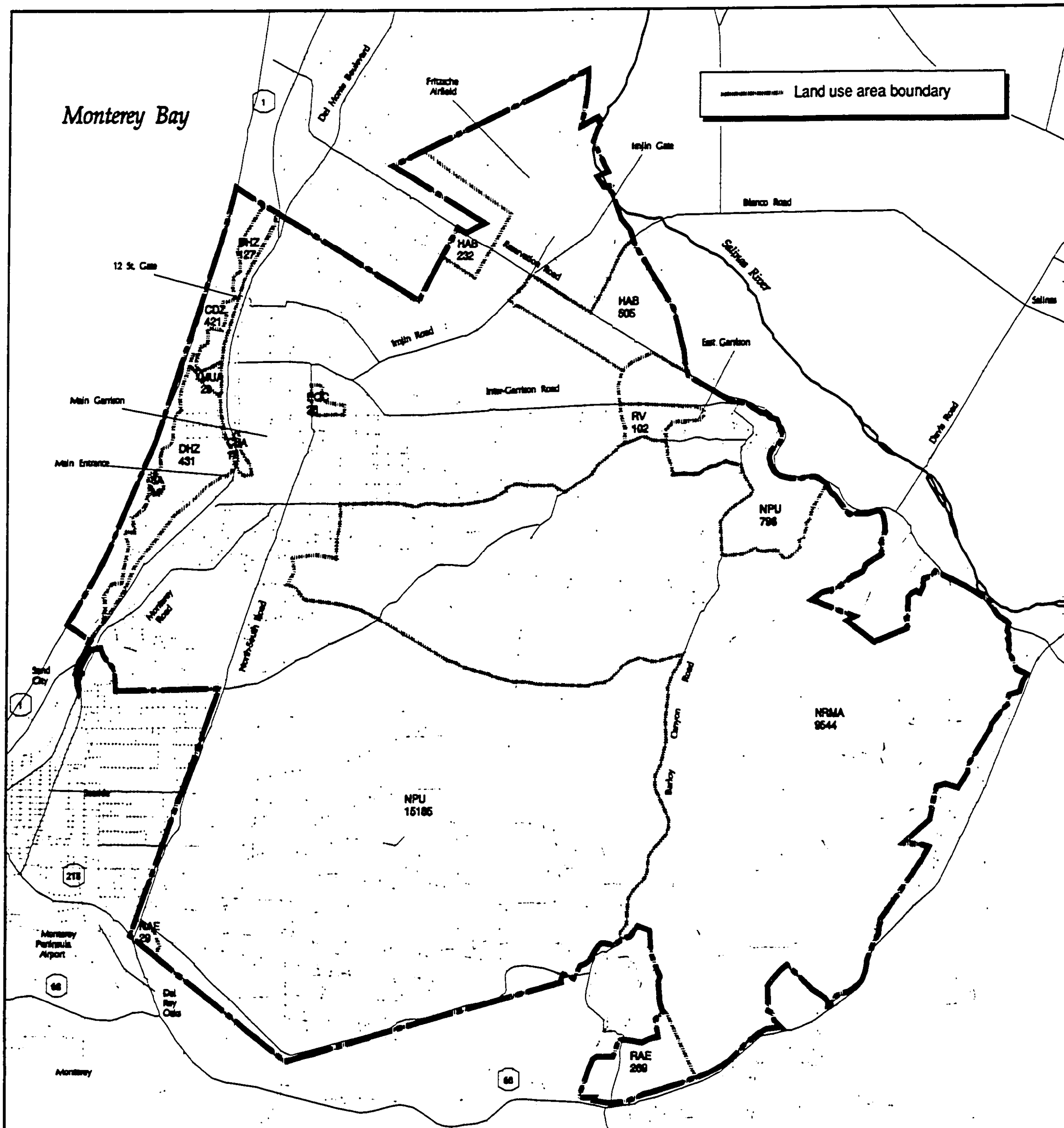
Page # 98 (1 PG.)

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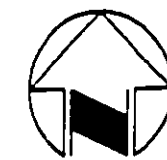
Document # BW-1348

Figure 3-13

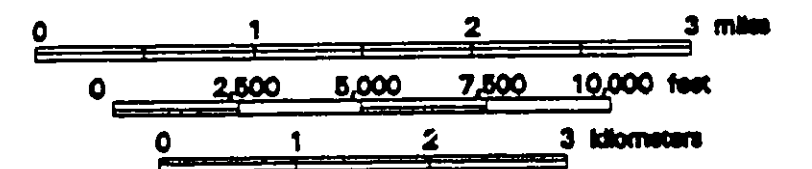
Alternative 5: Open Space
 Subalternative A: No Presidio of
 Monterey Annex/No Reserve Center



- CDZ Coastal Dunes Zone
- CSA Contact Station Area
- DHZ Disturbed Habitat Zone
- EQC Equestrian Center
- HAB Habitat Preserve
- MUA Multi Use Area
- NAE Natural Area Expansion
- NPU No Proposed Use (Caretaker Status)
- NRMA Natural Resource Management Area
- RAE Recreational Area Expansion
- RV RV Park/Campground
- SA Service Area



Scale 1:80,000



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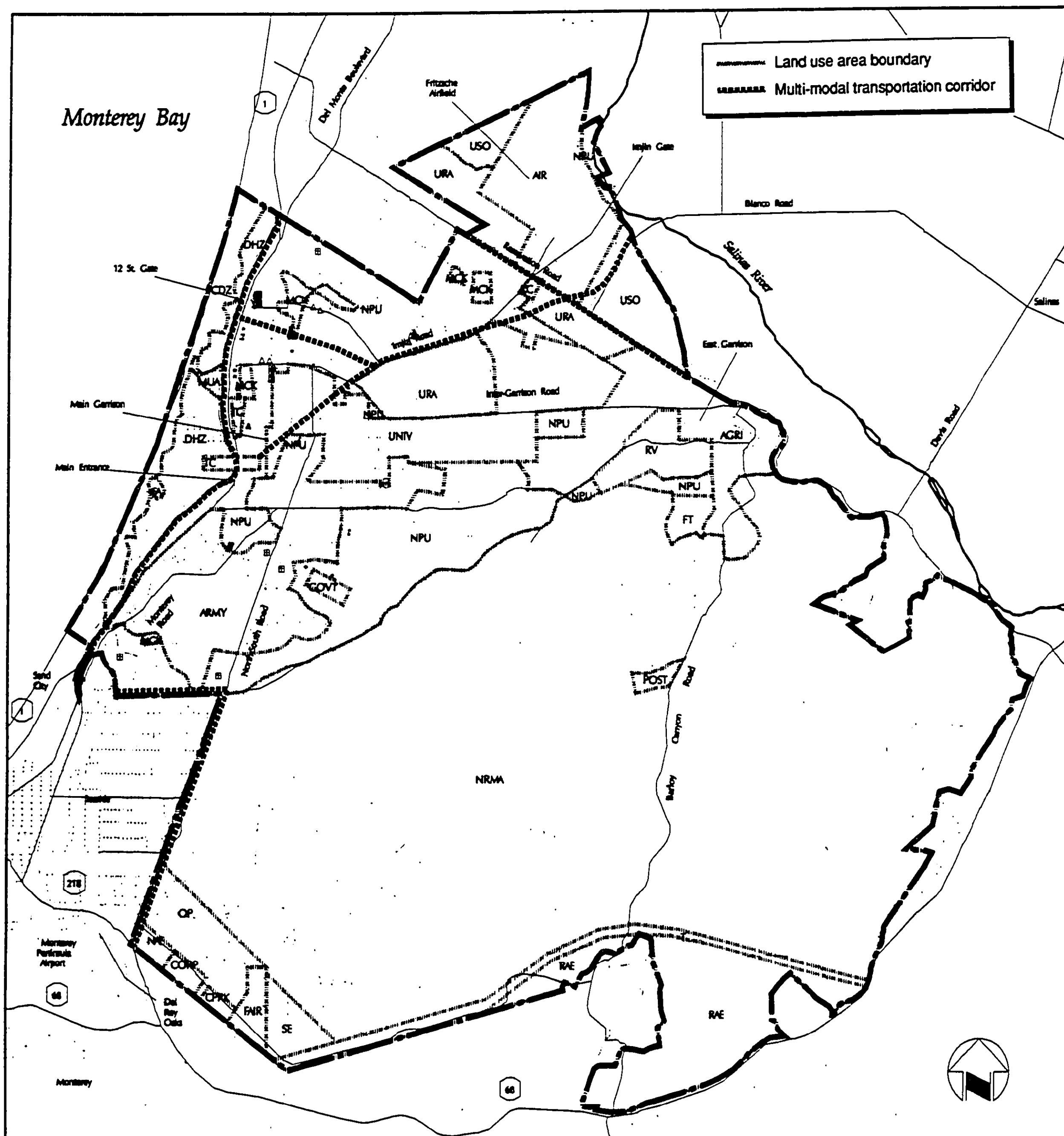
Page # 100 (1 PG.)

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Figure 3-14

Alternative 6R:
Anticipated Reuse (Revised)



Buildings

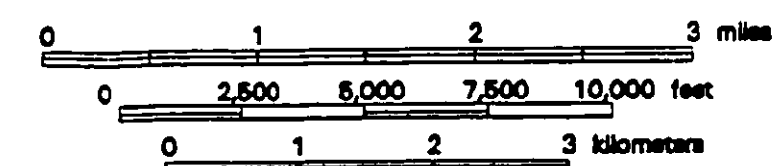
- ◻ Monterey County
- ◻ City of Marina
- ◻ City of Seaside
- ◻ Monterey College of Law
- ◻ Monterey Institute for Research in Astronomy
- ◻ California Highway Patrol
- ◻ Goodwill Industries
- ◻ Monterey Peninsula Unified School District
- ◻ U.S. Bureau of Land Management

LEGEND

- AGRI Agricenter
- AIR Airport
- ARMY Army Proposed Presidio of Monterey Annex
- CDZ Coastal Dunes Zone
- CORP Corporation Yard
- CPRK Community Park
- DHZ Disturbed Habitat Zone
- FAIR Fairgrounds
- FT Fire Training Center
- GOVT Government Center
- MCK McKinney Act Housing
- MUA Multi Use Area
- NAE Natural Area Expansion
- NPU No Proposed Use (Caretaker Status)
- NRMA Natural Resource Management Area
- OP Office Park
- POST Peace Officer Standard Training Academy
- RAE Recreational Area Expansion
- RC Reserve Center
- RV RV Park/Campground
- SA Service Area
- SE School Expansion
- T Transportation Corridor
- TC Transit Center
- UNIV University
- URA University Research Area
- USO University/Science Office

Note: Building requests shown on this map are those that are not located within a larger land area requested by the specific agency or do not overlap with other requests. All building requests are mapped in Figure 2-10 and/or discussed in Volume V.

Scale 1:60,000



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Page # 104 (2 PGS.)

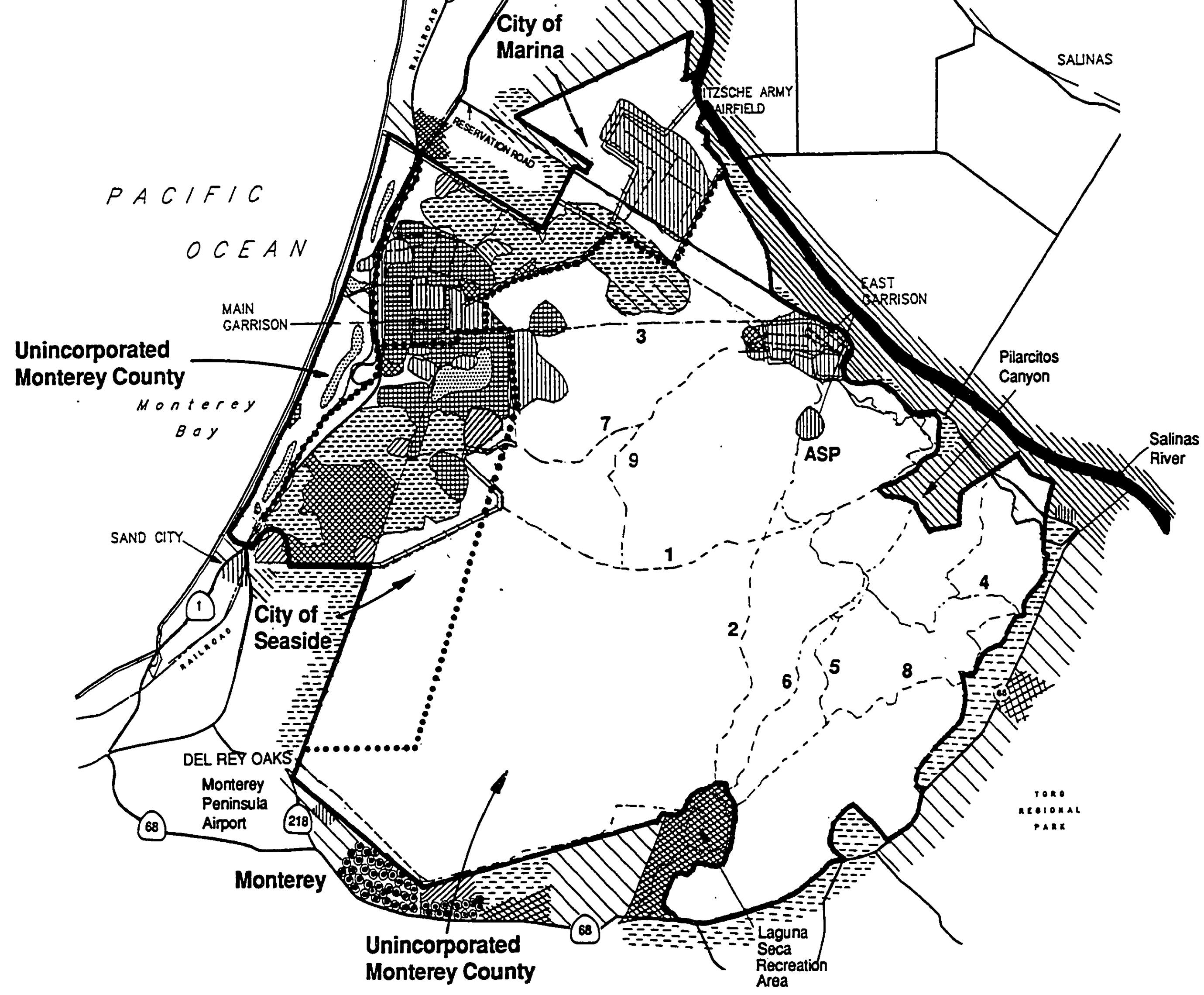
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Figure 4.1-1

Fort Ord Existing Land Use Map



- Land Uses within Fort Ord**
- Developed**
- Residential
 - Commercial
 - Industrial
 - Mixed (Residential/Commercial/Industrial)
 - Institutional
 - Training Areas
 - Parks and Recreation
- Undeveloped Open Space within Fort Ord**
- Open Space/Training
- Other Land Uses Adjacent to Fort Ord**
- Office/Business Park
 - Agriculture
 - Grazing/Rangelands
 - Fort Ord Boundary
 - Jurisdictional Division within Fort Ord
 - Roadways
 - 1) Eucalyptus Road
 - 2) Barloy Canyon Road
 - 3) Inter-Garrison Road
 - 4) Jacks Road
 - 5) Skyline Road
 - 6) Pilarcitos Canyon Road
 - 7) Gigling Road
 - 8) Oil Well Road
 - 9) Watkins Gate Road
- ASP = ammunition supply point

Note: Land uses outside the Fort Ord boundary are general (i.e., residential includes all densities) and have been included only for lands immediately adjacent to Fort Ord

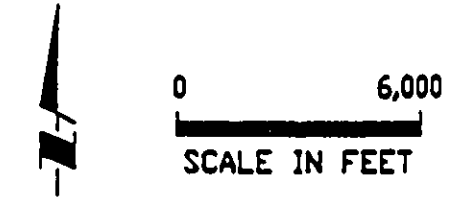
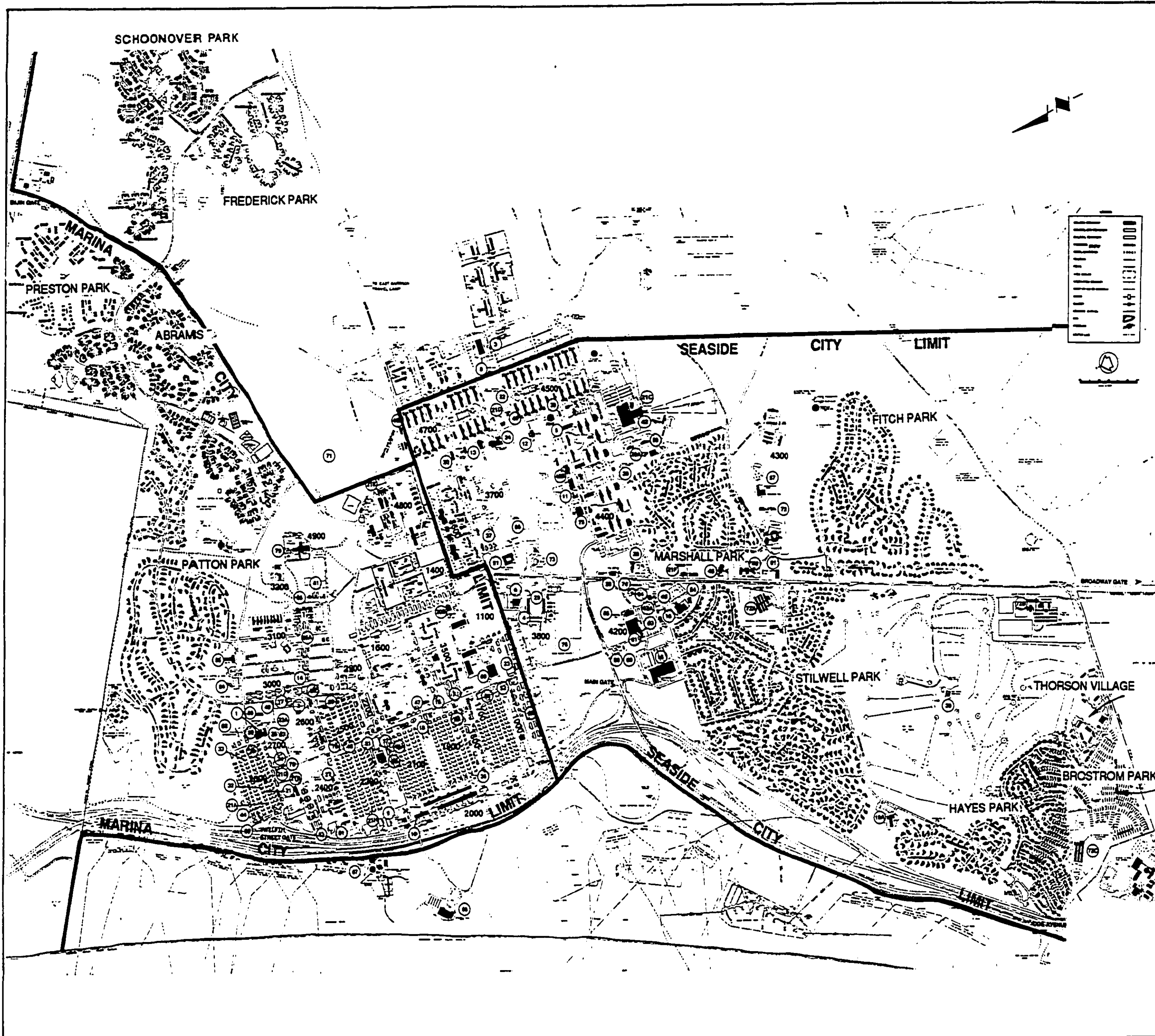


Figure 4.1-2

Main Garrison Map



DESCRIPTION	LOCATION	DESCRIPTION	LOCATION
1 ADJUTANT GENERAL	P-2798	58 OPTICAL CLINIC	P-4385 P-4350
2 AIRLINE TICKET OFFICE (SATO)	T-2988	59 PACKAGE STORE	T-2531 P-4750
3 AUTO CRAFT SHOP	P-4492	60 PHYSICAL FITNESS CENTER	P-3560
4 BANK OF AMERICA	P-3880	61 POST EXCHANGE	P-4235
5 BANK OF AMERICA (ATM)	P-4450	62 POST HEADQUARTERS	T-2859
6 BOWLING ALLEY	P-3895	63 POST LAUNDRY	T-2780
7 BUS DEPOT	T-1817	64 POST OFFICE	P-4226
8 CAR WASH		65 POST VET CLINIC	T-3148
9 CENTRAL ISSUE FACILITY	T-2673	66 PROVOST MARSHAL	T-1826
10 CENTRAL RECEIVING POINT	T-2671	67 RANGE SUPPLY	T-2086
11 CHAPEL (DURHAM ROAD)	P-4483	68 STILWELL MALL	P-2975
12 CHAPEL (BAY VIEW)	P-4426	69 RED CROSS	P-7682
13 CHAPEL (8th AVE)	P-3781	70 REPLACEMENT DET	T-2662
14 CIVILIAN PERSONNEL	T-3067	71 SANITARY FILL	
15 CLOTHING SALES STORE	T-1957	72 SCHOOL (MARSHALL)	P-3788
16 COMMISSARY	P-4248	72A SCHOOL (STILWELL)	P-4290
17 COMMUNITY SERVICES	T-3018	72B SCHOOL (FITCH)	P-5060
18 COURTROOM	T-2117	72C SCHOOL (HAYES)	P-5000
19 CREDIT UNION	P-4242	73 SELF HELP SHOP	T-3883
19A DAY CARE CENTER	P-3078 P-7683	74 SERVICE STATIONS	T-1060 P-4228 P-6180 P-4488
20 DENTAL CLINIC (STONE)	P-3780	75 SHEA GYMNASIUM	
20A DENTAL CLINIC (BUAKE)	P-4299	76 SOUTH PARADE FIELD	
20B DENTAL CLINIC (WEITER)	P-3599	77 SPORTS ARENA	P-2226
21 DR PER AND COMMUNITY ACTIVITIES	T-2785	78 STAFF JUDGE ADVOCATE	T-2781
21A DR PLANS, TRG AND MOB	T-2843	79 STOCKADE / CONFINEMENT FACILITY	P-4953
21B DR OF LOGISTICS	T-2786	80 SWIMMING POOL	T-2237
21C DR HEALTH SVC	P-4385	81 TSC "DNE STOP"	T-2458
21D DR DENTAL SVC	P-4573	82 TAXI STANDS	T-1895
21E DR ENGR AND HOUSING	P-4899	83 TELEGRAPH (WESTERN UNION)	P-4235
21F DR OF INFORMATION MANAGEMENT	P-4251	84 TENNIS COURTS	P-1778 P-3895
21G DR OF RESOURCE MANAGEMENT	T-2788	85 THEATERS	T-1061 P-4230
21H DR OF CONTRACTING	T-2342		
22 DRILL SERGEANT FIELD		85A THRIFT SHOP	P-3782 T-3816
23 EDUCATION CENTER	T-1810	86 TOY STORE	T-1777
23A EMERGENCY OPERATIONS CENTER	P-2786	87 TRANSPORT BILLETING OFFICE	T-2788
24 EM SERVICE CLUB	P-3783	88 VEHICLE REGISTRATION OFFICE	T-4214
25 FAMILY HOUSING OFFICE	T-2788	89 VISITORS INFORMATION CENTER	T-4214
26 FAST FOOD	P-4486	90 WELCOME CENTER / MARTINEZ MALL	P-2780
27 FINANCE	T-2437	91 YOUTH CENTER	P-4283 P-3115
28 FIRE STATION	P-4488		
29 FOOTBALL STADIUM	P-3892		
30 GOLF COURSES	P-4181		
31 G-1	T-2235		
32 G-2	T-2847		
33 G-3	T-2875		
34 G-4	T-2783		
35 G-5	T-2834		
36 HEADQUARTERS (DISCOM)	T-1828		
37 HEADQUARTERS (DRY ARTY)	P-3718		
38 HEADQUARTERS (MGS CMD)	P-4483		
39 HEADQUARTERS (1st BDE)	P-4423		
40 HEADQUARTERS (2nd BDE)	P-4570		
40A HEADQUARTERS (3rd BDE)	P-4818		
40B HEADQUARTERS (4th BDE)	P-4489		
41 HORSE STABLES	T-3142		
42 HOSPITAL	P-4385		
43 ID ISSUE	T-2266		
43A ITT OFFICE	S-4228		
44 INSPECTOR GENERAL	T-2863		
45 LAUNDROMATS	P-4227 T-1434		
46 LIBRARIES	P-4275		
46A LIBRARY (MOS)	T-2233		
47 MAIN CAFETERIA	P-2947		
48 MAIN CHAPEL	P-4288		
49 MAIN PARADE FIELD			
50 MARTINEZ MALL	P-2780		
51 MEDICAL CENTER (TROOP)	P-3723		
52 MILITARY POLICE STATION	T-1848		
53 MUSEUM	T-2988		
54 NCO CLUB	P-4280		
55 NURSERY (DAY CARE CENTER)	P-3078		
56 NURSERY (PLANT)	T-3828		
57 OFFICERS' CLUB	P-4368		

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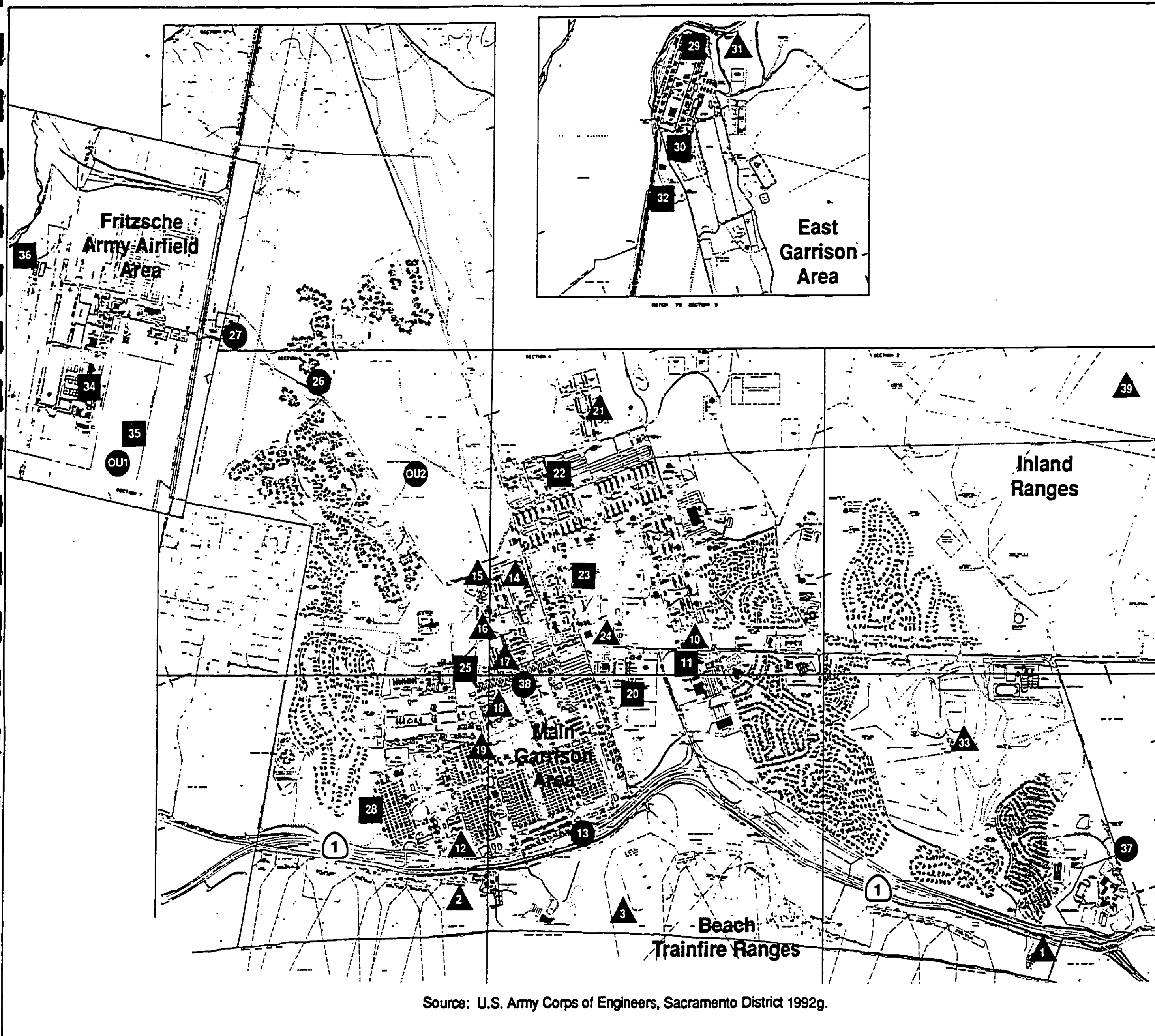
Page # 189 (1 PG.)

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Figure 4.10-3

Site Map for Remedial Investigation/
Feasibility Study



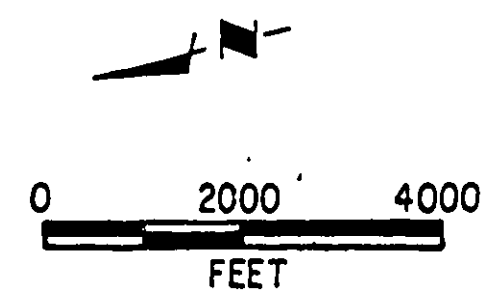
Source: U.S. Army Corps of Engineers, Sacramento District 1992g.

LEGEND

- ▲ 2 Additional Investigation/
Site Characterization/
Remedial Investigation/
Feasibility Study Proposed
Note: Sites 5, 7, and 9 not shown
in the figure.
- 5 No Action Proposed
- 2 Ongoing or Proposed Site
Elimination Action
Note: Sites 6, and 8 not shown
in this figure.
- OU1 Operable Unit

See Table 4.10-1 for site descriptions.

If this image is not as
legible as this overlay, it's
due to the poor quality of
the original document



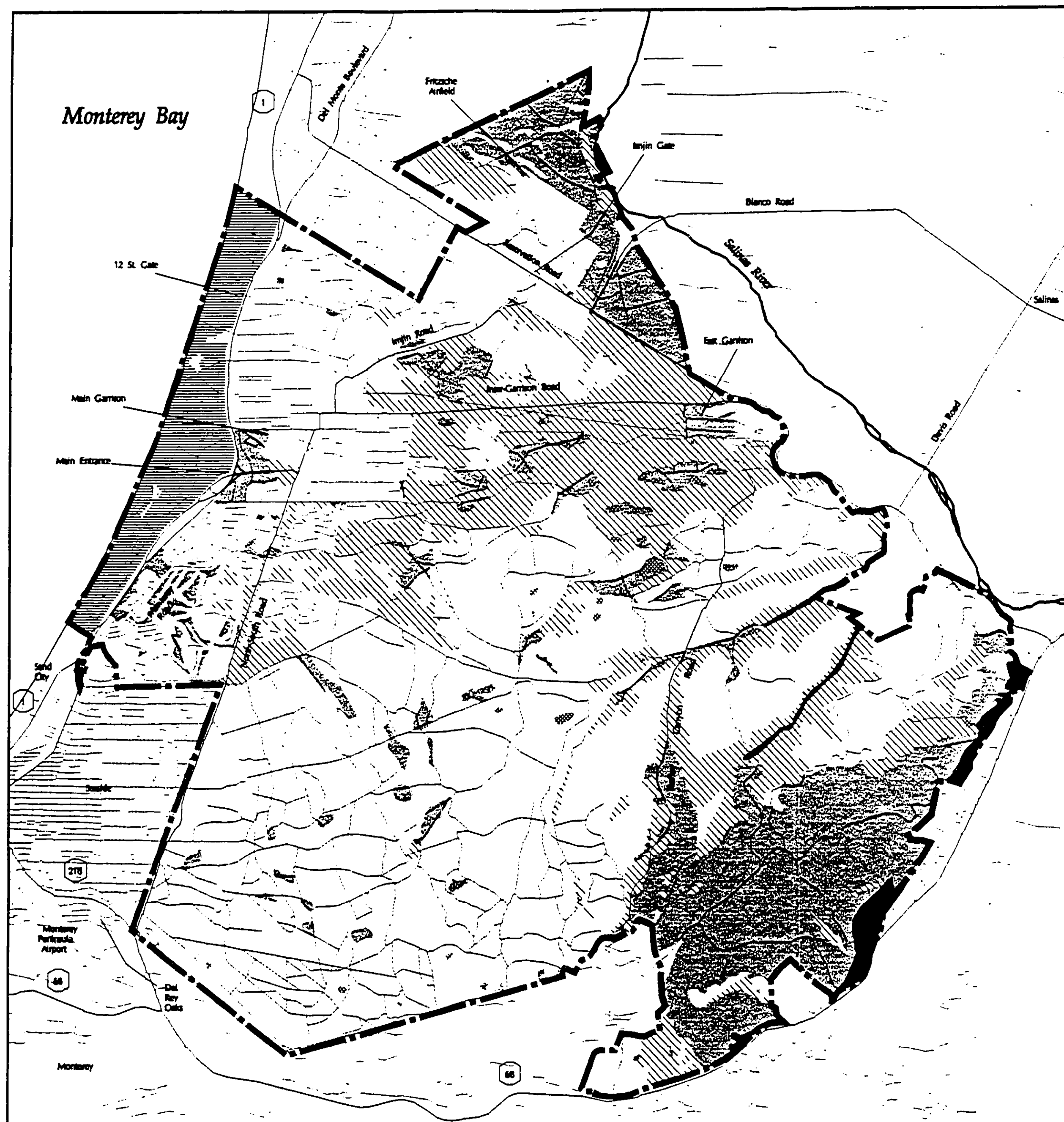
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


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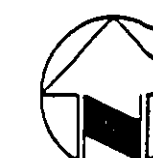
Document # BW-1348

Figure 4.11-1

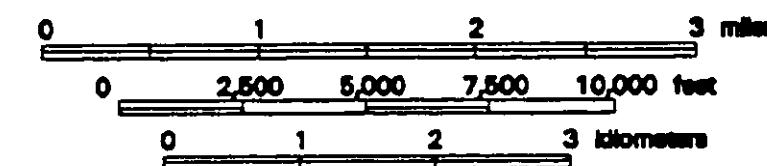
Biological Communities at Fort Ord



-  Coastal Strand and Dune
-  Chaparral and Coastal Scrub
-  Coast Live Oak Woodland and Savanna
-  Grasslands
-  Riparian
-  Wetland and Open Water
-  Developed - Nonhabitat



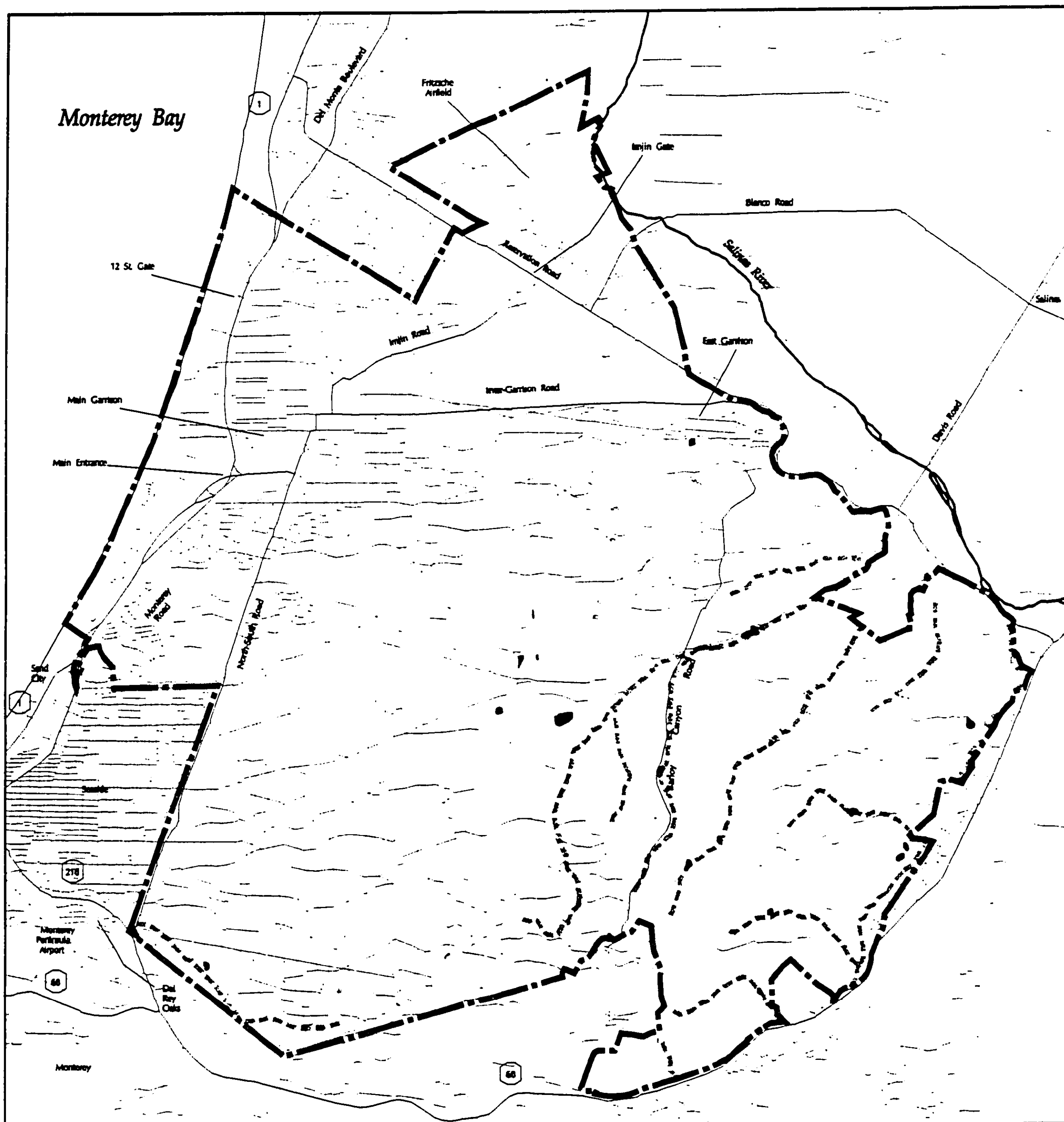
Scale 1:60,000






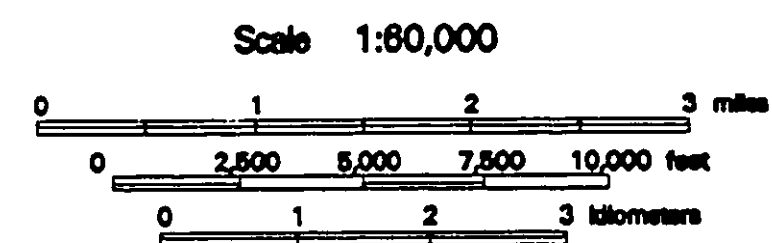
If this image is not as legible as this overlay, it's due to the poor quality of the original document

Figure 4.11-2

Potential Jurisdictional Wetlands and Other Waters of the U.S. at Fort Ord



-  Vernal Pools
-  Ponds and Freshwater Marsh
-  Steam Courses



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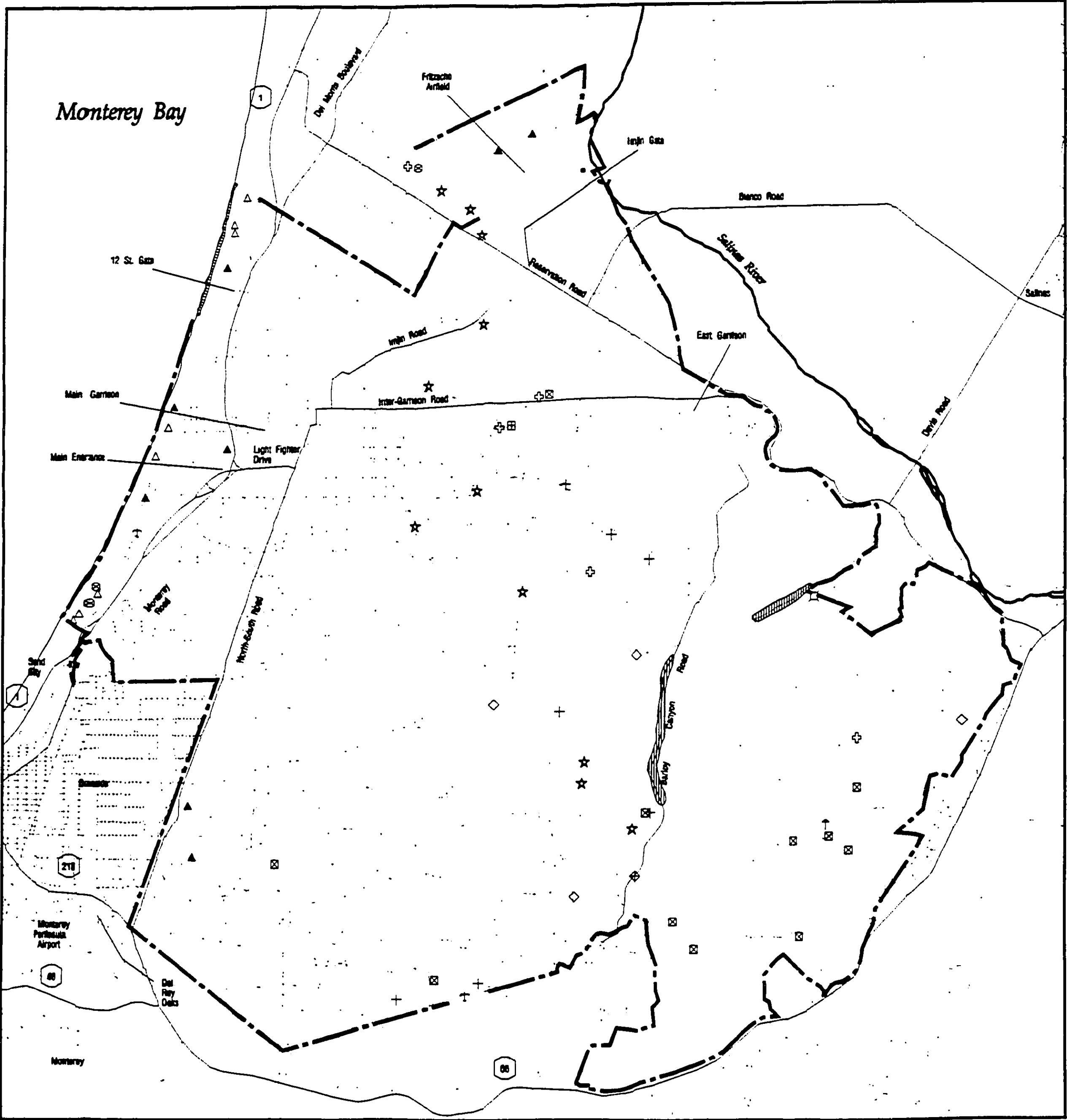
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Document # BW-1348

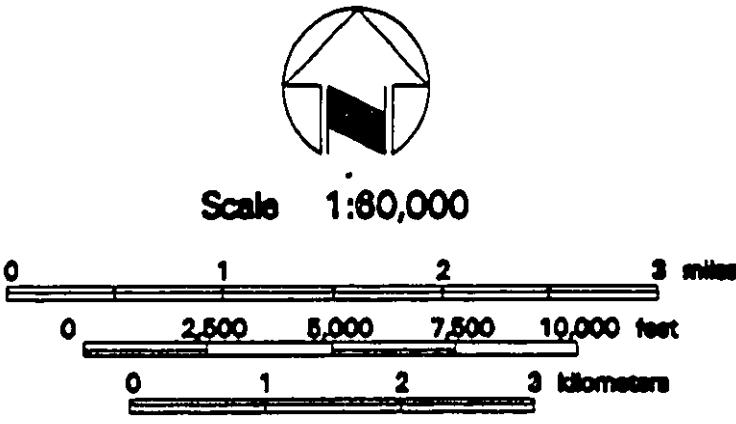
Figure 4.11-11

Known Locations of Special-Status
Wildlife Species at Fort Ord



-  *California linderella*
-  *California tiger salamander*
-  *Salinas harvest mouse*
-  *Monterey dusky footed woodrat*
-  *Black legless lizard*
-  *American badger*
-  *Yellow warbler*
-  *Smith's blue butterfly*
-  *Tricolored blackbird*
-  *Coast horned lizard*
-  *Loggerhead shrike*
-  *Golden eagle*
-  *Western snowy plover*
-  *Cooper's hawk*

Note: Refer to Table 4.11-4 for sources.



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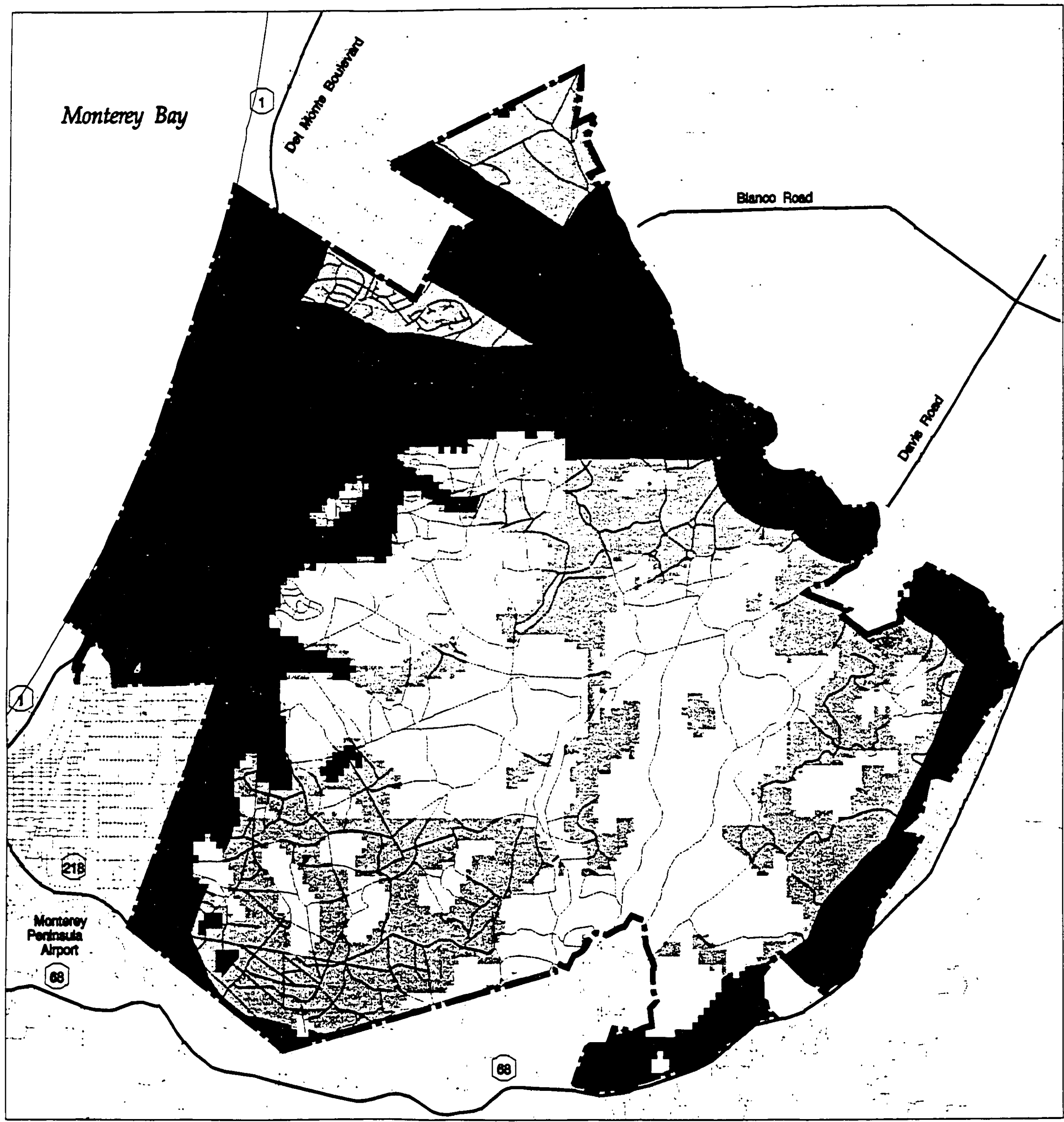
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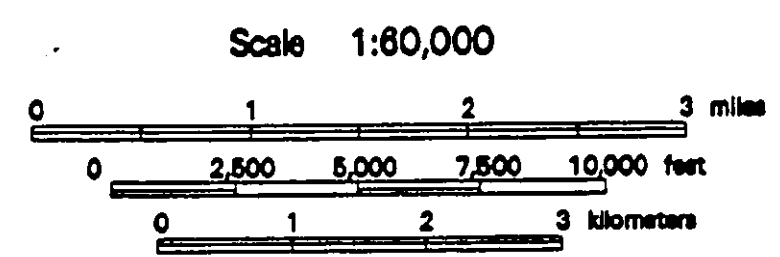
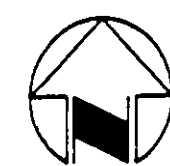
Document # BW-1348

Figure 4.12-1

Visual Distance Zones



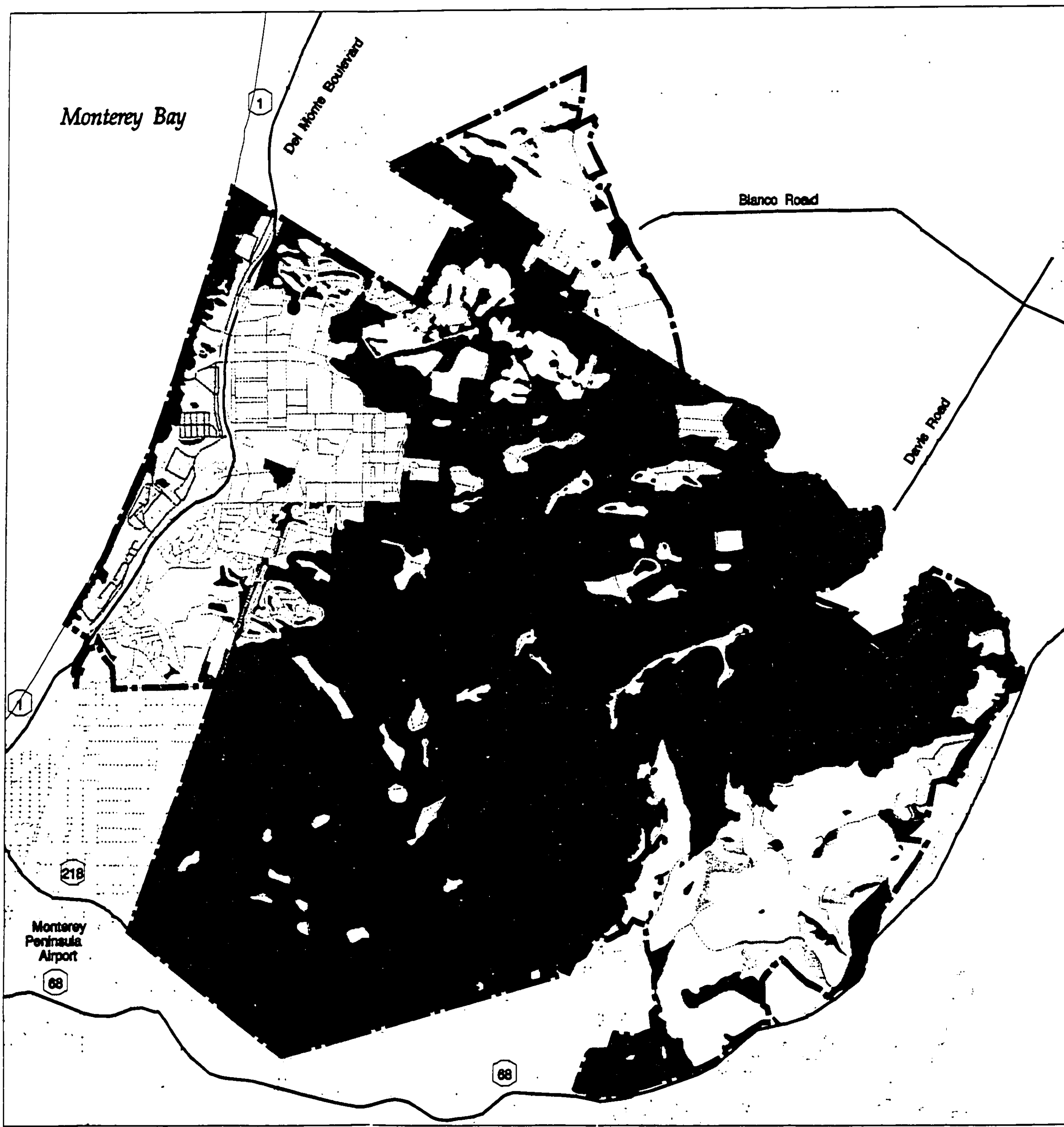
-  FOREGROUND VIEWS
-  MIDDLEGROUND VIEWS
-  BACKGROUND VIEWS



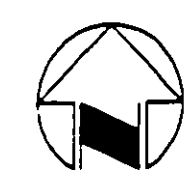
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Figure 4.12-2

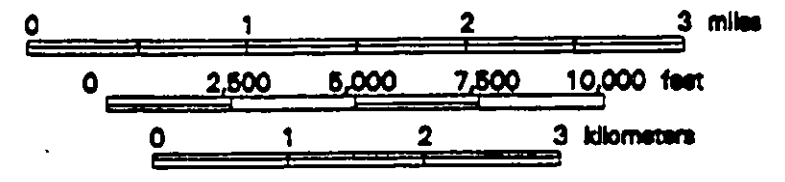
Visual Quality



- HIGH
- ▒ MEDIUM
- LOW



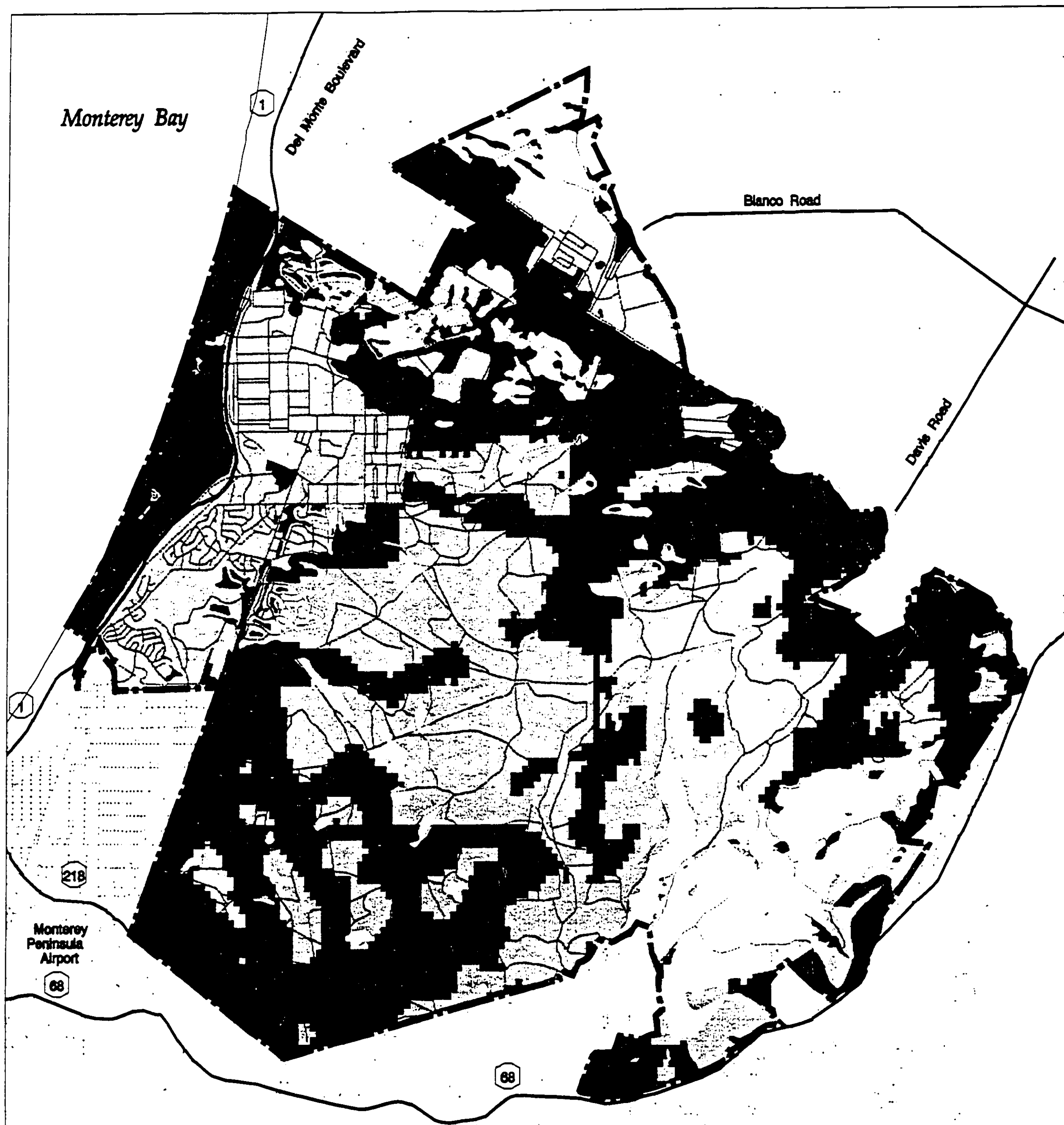
Scale 1:60,000






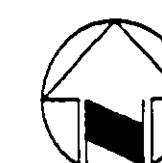
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Figure 4.12-3

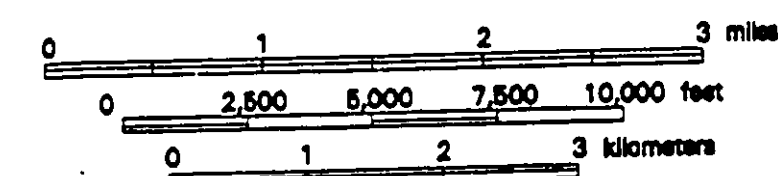
Visual Impact Sensitivity



-  HIGH
-  MEDIUM
-  LOW



Scale 1:60,000



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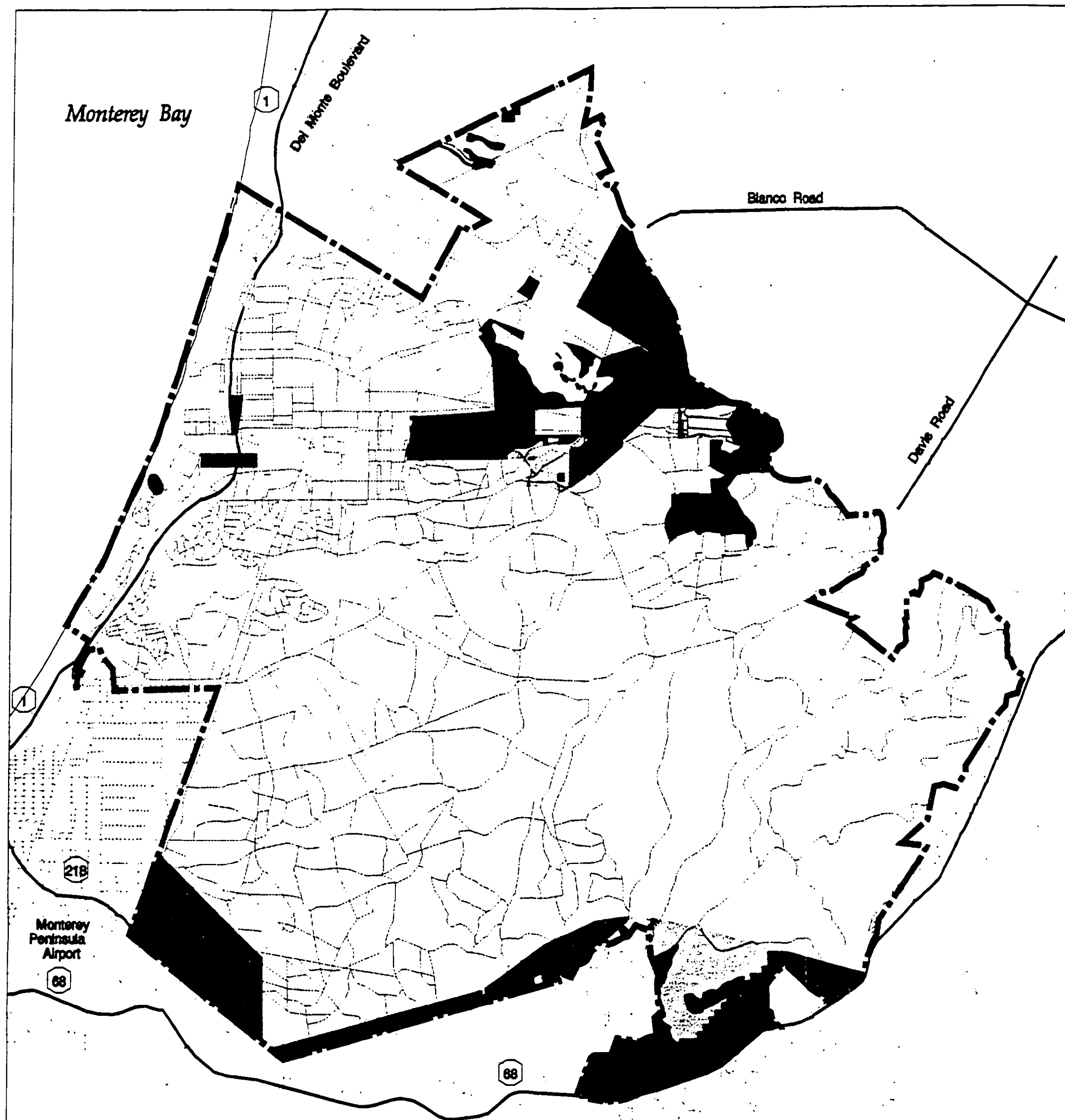
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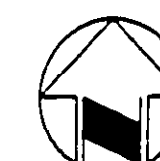
Figure 6.12-1

Visual Impact Potential of Revised
Alternative 6

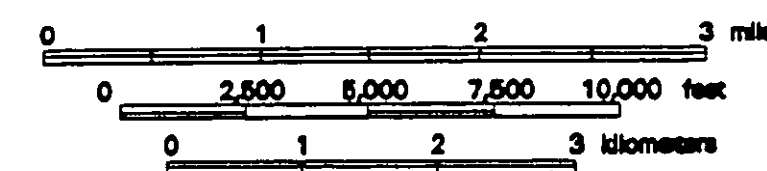


Visual Impact Potential

- HIGH
- ▨ MEDIUM
- LOW



Scale 1:80,000



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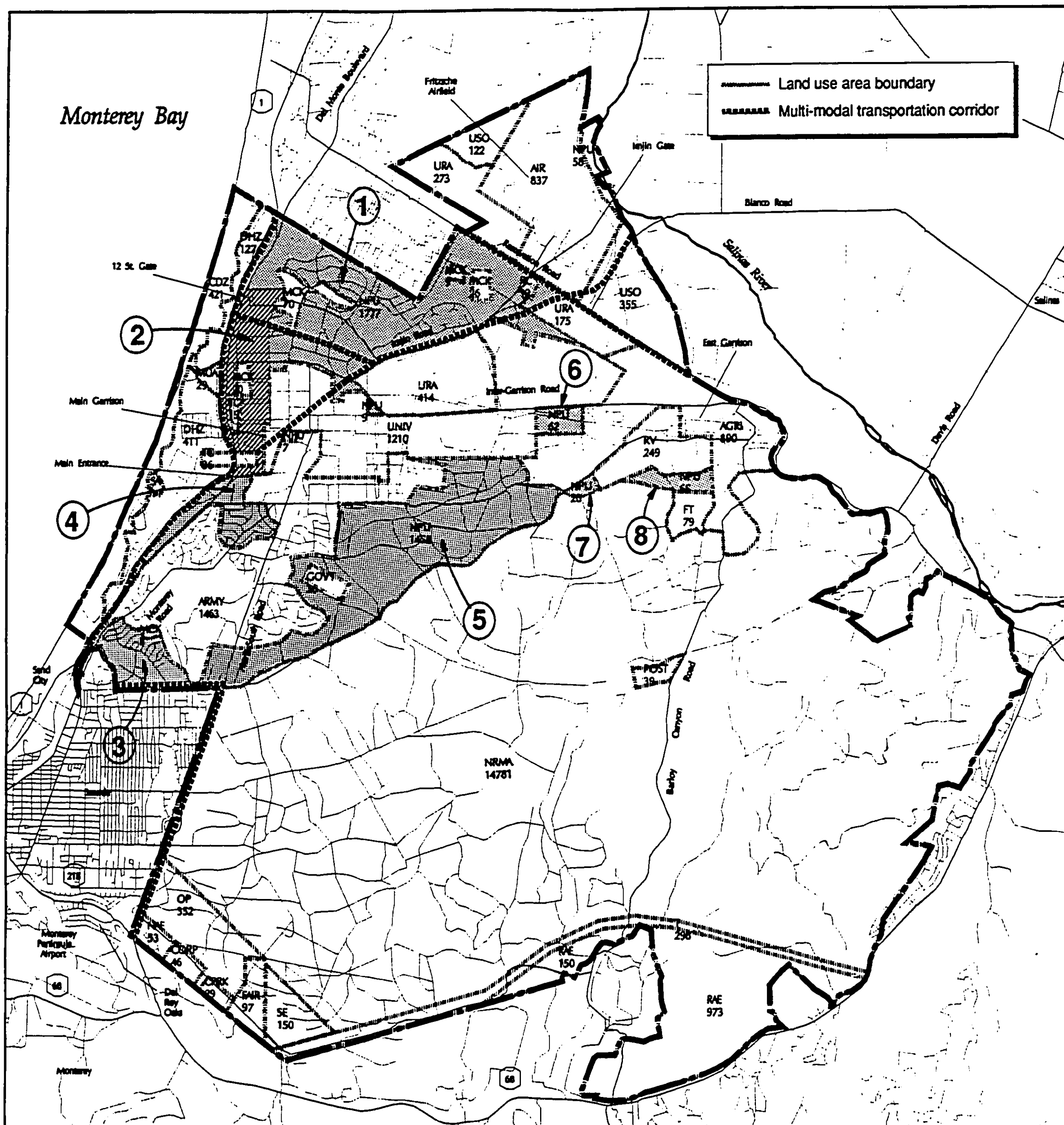
Page # 539 (1 pg.)

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Document # BW-1348

Figure 6.17-1

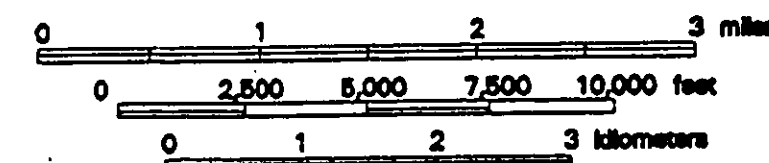
Assumed Uses for
No Proposed Use Areas in
Revised Alternative 6



- 1 Remains Residential
- 2 Range of Uses, from Commercial to Light Industrial
- 3 Remains Residential
- 4 Range of Uses, from Residential to Commercial
- 5 Mixed Use - Residential/Commercial/Light Industrial
- 6 Range of Uses, from Residential to Commercial
- 7 Mixed Use - Residential/Commercial/Light Industrial
- 8 Open Space Use Similar to RV Park/Campground



Scale 1:80,000



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List of Acronyms

6R	Alternative 6	EBST	Environmental Baseline Study for Transfer	MPUSD	Monterey Peninsula Unified School District	TCM	transportation control measure
7th IDL	7th Infantry Division (Light)	EDC	Economic Development Corporation	MRWPCA	Monterey Regional Water Pollution Control Agency	TEC	Test and Experimentation Command Center
AAFES	Army-Air Force exchange service	EIFS	Economic Impact Forecast System	MWR	Morale, welfare, recreation facilities	tpd	tons per day
ACHP	Advisory Council on Historic Preservation	EIS	environmental impact statement	NAD	North American Datum	TRADOC	U.S. Army Training and Doctrine Command
af	acre-feet	EMFACSCF	California Air Resources Board emission model	NAE	natural area expansion	UC	University of California
af/yr	acre-feet per year	EPA	U.S. Environmental Protection Agency	NAF	nonappropriated fund	UCSC	University of California, Santa Cruz
AMBAG	Association of Monterey Bay Area Governments	EPNA	enhanced preliminary assessment	NCUSD	North County Unified School District	UNIV	university land use designation
AGRI	agri-center land use designation	ERC	emission reduction credit	NDDB	Natural Diversity Data Base	URA	university research area
AIR	airport land use designation	FAA	Federal Aviation Administration	NEPA	National Environmental Policy Act	USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
AQMP	air quality management plan	FAIR	fairgrounds land use designation	NHL	National Historic Landmark	USDA	U.S. Department of Agriculture
ARB	California Air Resources Board	FBI	U.S. Department of Justice, Federal Bureau of Investigation	NHPA	National Historic Preservation Act	USFWS	U.S. Fish and Wildlife Service
Army	U.S. Department of the Army	FEMA	Federal Emergency Management Agency	NPDES	National Pollutant Discharge Elimination System	USGS	U.S. Geological Survey
BAQ/VHA	Basic allowance for quarter/variable housing allowance	FHWA	Federal Highway Administration	NPL	National Priorities List	USO	university science office
BLM	U.S. Department of Interior, Bureau of Land Management	FFA	federal facilities agreement	NOAA	National Oceanic and Atmospheric Administration	UST	underground storage tank
BMP	best management practices	FOEDA	Fort Ord Economic Development Authority	NOI	notice of intent	USTF	uniformed services treatment facility
BRAC	Base Realignment and Closure	FOFPPD	Fort Ord Fire Prevention and Protection Division	NO _x	nitrogen oxides	V/C	volume-to-capacity ratio
CAD	computer-aided design	FONSI	Finding of No Significant Impact	NOP	notice of preparation	WKA	Williams Kuebelbeck & Associates
Cal-Am	California American Water Company	FOPD	Fort Ord Police Department	NPU	no proposed use		
CalEPA	California Environmental Protection Agency	FORG	Fort Ord Reuse Group	NRHP	National Register of Historic Places		
Caltrans	California Department of Transportation	FORSCOM	U.S. Department of the Army, Headquarters, Forces Command	NRMA	natural resources management area		
CCA	California Coastal Act of 1976	FOST	Finding of Suitability for Transfer	OEA	Office of Economic Adjustment		
CCR	California Code of Regulations	FSI	Forecast Significance of Impacts	OP	office park land use designation		
CCRQCB	Central Coast Regional Water Quality Control Board	FT	fire training land use designation	PA	Programmatic Agreement		
CDF	California Department of Forestry and Fire Protection	FY	fiscal year	PCB	polychlorinated biphenyls		
CDZ	coastal dunes zone	GIS	geographic information system	PG&E	Pacific Gas and Electric Company		
CEQ	Council on Environmental Quality	GMPAP	Greater Monterey Peninsula Area Plan	PIC	Private Industry Council		
CEQA	California Environmental Quality Act	GOVT	government center land use designation	PL	public law		
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	HCP	habitat conservation plan	PM ₁₀	particulate matter less than or equal to 10 microns in diameter		
CERFA	Community Environmental Response Facilitation Act of 1992	HMP	habitat management plan	POM annex	Presidio of Monterey annex		
CERL	U.S. Army Corps of Engineers Construction, Engineering, and Research Laboratory	HUD	U.S. Department of Housing and Urban Development	POST	Peace Officer Standards and Training		
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services	IMPLAN	Impact Analysis for Planning	PTAM	Peninsula Transportation Analysis Model		
CMC	Carmel Marina Corporation	IWR	Army Institute of Water Resources	RAE	recreation area expansion		
CMP	coastal management plans	JPA	Joint Powers Agreement	RI/FS	remedial investigation/feasibility study		
CNEL	community noise equivalent level	JTPA	Job Training Partnership Act	RKG	RKG Associates		
CNPS	California Native Plant Society	kV	kilovolt	RMC	regional medical center land use category		
CO	carbon monoxide	kW	kilowatt	ROI	region of influence		
Commission	Defense Base Closure and Realignment Commission	LAFCO	Monterey County Local Agency Commission	ROD	record of decision		
CORP	corporation yard land use designation	LCP	local coastal program	ROG	reactive organic gases		
CPRK	community park land use designation	L _{dn}	day-night average sound level	ROP	Mission Trails Regional Occupation Program		
CRMP	Coordinated Resource Management Plan	L _{eq}	equivalent noise levels	RV	RV park/campground land use designation		
CRP	community relations plan	LOS	level of service	SA	service areas		
CSU	California State University	MAST	Military Assistance to Safety and Traffic	sanctuary	Monterey Bay National Marine Sanctuary		
CZMA	Federal Coastal Zone Management Act of 1972	MBUAPCD	Monterey Bay Unified Air Pollution Control District	SCS	U.S. Soil Conservation Service		
dB	decibel	MCFH	million cubic feet per hour	SE	school expansion		
dBA	A-weighted decibel scale	MCGMP	Monterey County Growth Management Policy	SECDEF	Secretary of Defense		
DERAAP	Draft Environmental Restoration Acceleration Action Plan	MCK	McKinney Act Housing land use designation	sf	square feet		
DFG	California Department of Fish and Game	MCLCP	Monterey County Local Coastal Program	SHPO	California State Historic Preservation Officer		
DHZ	disturbed habitat zone	MCWRA	Monterey County Water Resources Agency	SIP	State Implementation Plan		
DLI	Defense Language Institute	MEDIVAC	Medical evacuation	SNA	significant natural area		
DOD	U.S. Department of Defense	MUA	multi-use area	SOI	sphere of influence		
DOHS	California Department of Health Services	MW	megawatt	SO _x	sulfur oxides		
DTSC	California Environmental Protection Agency, Department of Substances Control	MGE	MicroStation GIS Environment	SPRR	Southern Pacific Railroad		
EAC	economic adjustment committee	mgd	million gallons per day	SR	state route		
EBS	environmental baseline study	MOA	Memorandum of Agreement	SRRFPD	Salinas Rural Fire Protection District		
		MPPSA	Marine Protection, Research, and Sanctuaries Act	SWRCB	California State Water Resources Control Board		
		MPWMD	Monterey Peninsula Water Management District	T	transportation corridor land use designation		
				TAMC	Transportation Agency for Monterey County		
				TAZ	traffic analysis zone		

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