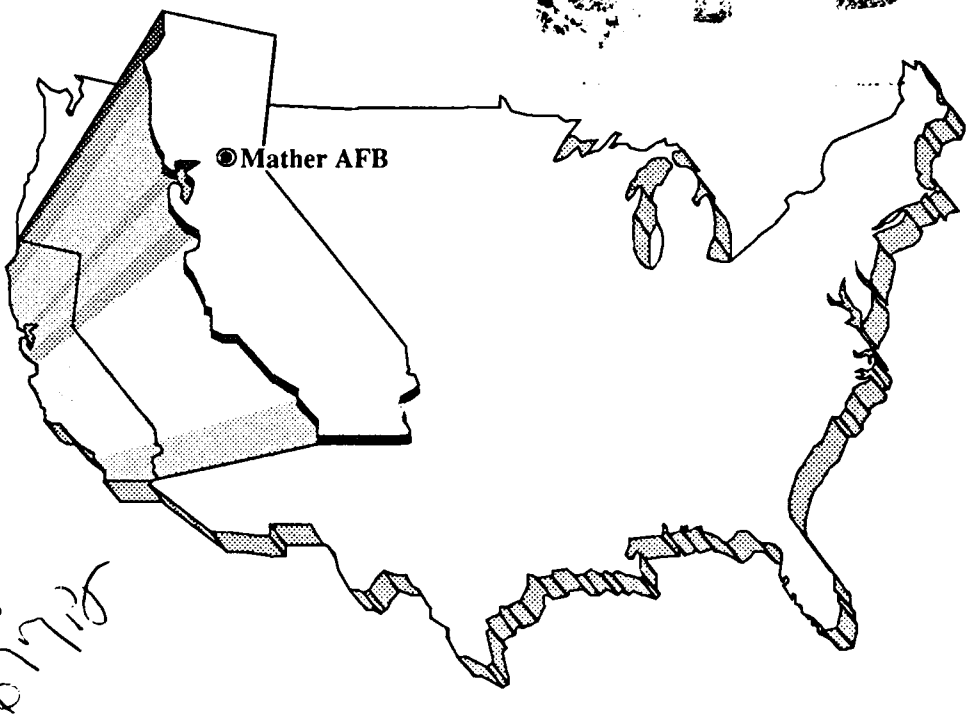
AD-A281 361

FINAL
ENVIRONMENTAL IMPACT STATEMENT
April 1992

DTIC
JUL 0 6 1994



94-20824

DISPOSAL AND REUSE OF
MATHER AIR FORCE BASE, CALIFORNIA

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

DTIC QUALITY INSPECTED 5

94 7 7 043

FINAL

ENVIRONMENTAL IMPACT STATEMENT

DISPOSAL AND REUSE OF MATHER AIR FORCE BASE, CALIFORNIA

April 1992

COVER SHEET

FINAL ENVIRONMENTAL IMPACT STATEMENT
DISPOSAL AND REUSE OF MATHER AIR FORCE BASE, CALIFORNIA

a. Responsible Agency: U.S. Air Force

b. Cooperating Agency: Federal Aviation Administration

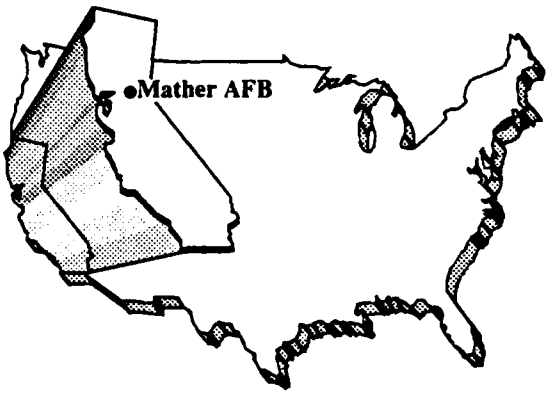
c. Proposed Action: Disposal and Reuse of Mather Air Force Base (AFB), Sacramento County, California

d. Written comments and inquiries on this document should be directed to: Lt. Col. Thomas J. Bartol, Director of Environmental Division, AFRCE-BMS/DEV, Norton Air Force Base, California, 92409-6448, (714) 382-4891.

e. Designation: Final Environmental Impact Statement (FEIS).

f. Abstract: On January 5, 1989, the Secretary of Defense announced the proposed closure of Mather AFB, California, pursuant to the Base Closure and Realignment Act (BCRA) of 1988. For bases scheduled to close under BCRA, the Air Force conducted a separate environmental impact analysis for actions associated with the closure of military operations and another for actions associated with the disposal of the military property. Published in March 1990, the *Final Environmental Impact Statement for the Closure of Mather AFB* addressed the environmental impacts associated with the closure of military operations at Mather AFB. A Record of Decision (ROD) for this action was signed on May 14, 1990. Military operations at Mather AFB are scheduled to close by September 30, 1993. This document, the Disposal and Reuse FEIS, has been prepared in accordance with National Environmental Policy Act (NEPA) to analyze the potential environmental impacts associated with the disposal of Mather AFB property. The Air Force is required by Section 204(b) of BCRA to consult with state and local governments to consider tentative local community plans for potential reuse of the disposal property. Based on information gathered during this consultation and the NEPA scoping process, a range of reasonable alternatives for potential reuses of the disposable property were identified to expedite the Air Force's environmental analysis of the disposal action. In this EIS, potential environmental impacts associated with this range of reasonable alternatives were analyzed. The biophysical areas analyzed include land use and aesthetics, transportation, utilities, hazardous materials/wastes, soils and geology, water resources, air quality, noise, and biological and cultural resources. Potential environmental impacts are associated with aircraft-related noise levels, increased road traffic, reduced wildlife habitat, alteration of topography, alteration of water flow and drainage patterns, and temporary effects of elevated concentrations of particulate matter during construction. Where adverse impacts are anticipated, mitigation measures are recommended which will ameliorate these effects. Traffic mitigations include area roadway improvements. If avoidance of biological resources is not adequate or possible, mitigation in the form of replacement, restoration, or enhancement is recommended. Because the Air Force is disposing of the property and most impacts will occur during reuse by future property owners, most mitigation measures are beyond the control of the Air Force. Remediation of Installation Restoration Program sites is and will continue to be the responsibility of the Air Force.

THIS PAGE INTENTIONALLY LEFT BLANK



SUMMARY

SUMMARY

PURPOSE AND NEED

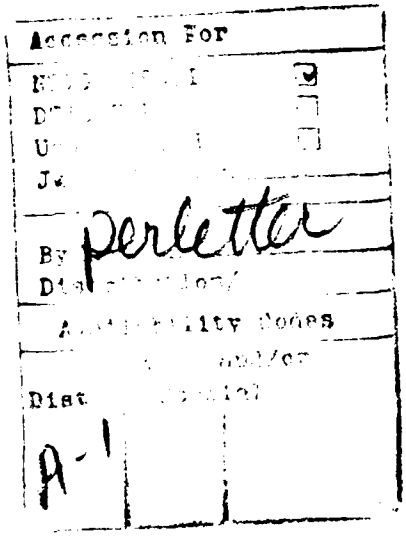
On May 3, 1988, the Secretary of Defense established the Commission on Base Realignment and Closure to examine the issue of military installation realignments and closures. On October 24, 1988, the Congress and the President endorsed the Commission and its charter by passing the Defense Authorization Amendments and Base Closure and Realignment Act (BCRA) (Public Law 100-526).

The Commission submitted its report to the Secretary of Defense on December 29, 1988. Mather Air Force Base (AFB), California, was one of the bases recommended by the Commission for closure. The Secretary of Defense approved the Commission's recommendations on January 5, 1989, and announced that the Department of Defense would implement them.

BCRA also requires the Secretary of Defense to comply with the National Environmental Policy Act (NEPA) in the implementation of the base closures and realignments. The Secretary of Defense, through the Air Force, is preparing the required NEPA documents for the base closures. On March 22, 1990, the Air Force released the *Final Environmental Impact Statement for the Closure of Mather AFB*, which addressed environmental impacts associated with base closure. The *Record of Decision* (ROD) was signed on May 14, 1990.

The Air Force must now make a decision concerning the disposition of the base property. In support of this decision, the EIS contained herein has been prepared to provide information on the potential environmental impacts resulting from several alternatives for reuse of the base property after disposal. After completion and consideration of this EIS, the Air Force will prepare a decision document stating the terms and conditions under which the disposition will be made, including the mitigation measures, if any, that may be taken by the Air Force or be required of the recipients. This decision may affect the environment by influencing the nature of the future use of the property. Further environmental analysis and documentation may be required to address other actions that may be proposed in the future.

For purposes of this EIS the Air Force selected the reuse concept as developed by the county of Sacramento as the **Proposed Action** in order to evaluate possible environmental impacts resulting from the incident reuse of the installation. This reuse concept proposes a general aviation airport with air cargo operations. Associated non-aviation land uses proposed for other portions of the property include industrial, commercial, educational, residential, parks and recreation, and natural habitat.



The following alternatives to the Proposed Action are also considered:

- **Non-Aviation with Mixed-Density Residential Alternative.** As with the Proposed Action, this alternative is a representation of a scenario developed by the county of Sacramento. The major differences between this alternative and the Proposed Action are the absence of aviation activities and the substantially greater acreage that is devoted to residential use in areas previously occupied by the airfield.
- **General Aviation with Aircraft Maintenance Alternative.** The central focus of this reuse plan is the development of an airport with general aviation and aircraft maintenance activities and a mix of light industrial, educational, commercial, residential, parks and recreation, and natural habitat on other portions of the base. This alternative differs from the Proposed Action mostly in terms of the number of aircraft operations. Also, air cargo operations are not included in this alternative.
- **Non-Aviation with Low-Density Residential Alternative.** This alternative has a single type of residential development compared with the multiple residential types contained in the other non-aviation reuse plan.
- Integration of various proposed federal agency property transfers and independent land use concepts with the Proposed Action and alternatives.
- **No-Action Alternative.** This alternative entails the base remaining under federal control and being placed in caretaker status.

SCOPE OF STUDY

The *Notice of Intent* to prepare an EIS for the disposal and reuse of Mather AFB was published in the Federal Register on November 16, 1990. Issues related to the disposal and reuse of Mather AFB were identified in the scoping meeting held on December 5, 1990, at the Sacramento County Office of Education in the community of Rancho Cordova, California. The scoping period for the disposal and reuse of Mather AFB was from November 16, 1990, to December 31, 1990. The comments and concerns expressed at the scoping meeting and received during the public comment period were used to determine the scope and direction of studies and analyses required to accomplish this EIS.

This EIS discusses the potential environmental impacts associated with the implementation of the Proposed Action and its alternatives. To provide the context in which potential environmental impacts may occur, discussions of potential changes to the local communities, including population and employment, land use and aesthetics, transportation, and community and public utility services are included in this EIS. In addition, issues related to the current and future management of hazardous materials and wastes are discussed. Impacts to the physical and natural environment are evaluated for soils and geology, water resources, air quality, noise, biological resources, and cultural resources. These impacts may occur as a direct result of disposal and reuse actions or as an indirect result of changes occurring in conditions in the local communities.

The baseline assumed in this document is the set of conditions projected at base closure. Impacts associated with disposal and/or reuse activities may then

be addressed separately from the impact associated with base closure. General preclosure conditions and impacts of closure were addressed in the closure EIS. A reference to preclosure conditions is provided, where appropriate (e.g., air quality), to provide a comparative analysis over time. This will assist the decision maker and agencies in understanding potential long-term impacts in comparison to conditions when the installation was active.

The Air Force is also preparing a separate non-NEPA *Socioeconomic Impact Analysis Study* on the economic impacts expected in the region as a result of the closure, disposal and reuse of Mather AFB. That document, although not required by NEPA, is intended to provide assistance to local governments and redevelopment agencies.

SUMMARY OF PUBLIC COMMENTS

The Draft EIS (DEIS) for disposal and reuse of Mather AFB was made available for public review and comment from December 1991 through February 1992. A public hearing was held in Rancho Cordova, California, on January 14, 1992, at which the Air Force presented the findings of the DEIS. Comments received both verbally at the public hearing and in writing during the response period have been received and are addressed by the Air Force in Chapter 9 of this EIS. In addition, the text of the EIS itself has been revised, as appropriate, to address the concerns expressed in the public comments. The responses to the comments in Chapter 9 identify sections of the EIS that have been revised.

SUMMARY OF CHANGES FROM THE DEIS TO THE FEIS

Based on more recent studies or comments from the public, the following sections of the EIS have been updated or revised:

- Mather Internal Study Team (MIST) revisions to the Proposed Action included expansion of the airport (aviation support), expansion of aggregate mining (86 acres), and the addition of the California Army National Guard and aircraft maintenance operations. (Sections 2.2, 4.2.1.1, 4.2.2.1, 4.2.3.1, 4.2.4.1, 4.3.1, 4.4.1.1, 4.4.2.1, 4.4.3.1, 4.4.4.1, 4.4.5.1, and 4.4.6.1)
- The Federal Bureau of Prisons withdrew its proposal to site a Federal Correctional Complex at Mather AFB. (Sections 2.3.4, 2.3.4.1, 4.2.1.5, 4.2.2.5, 4.2.3.5, 4.2.4.5, 4.3.5.1, 4.4.2.5, 4.4.3.5, 4.4.4.5, and 4.4.5.1)
- The discussion of wastewater has been revised based on release of the Carollo Engineering Report in final form. (Section 4.2.4)
- Hazardous Materials/Hazardous Waste Management (Sections 3.3 and 4.3) includes expanded discussions on the following:
  - Impacts of the IRP process on reuse development
  - Characterization of IRP sites
  - Evaluation and effects of each IRP site relevant to each alternative's land uses
  - Concept of risk associated with certain types of development and IRP sites.

- Air quality impacts due to aggregate mining have been presented in separate tables (Section 4.4.3) and discussed in the presentation of site-related air quality impacts.
- Air quality preclosure emission inventories for the Sacramento Valley Air Basin (SVAB) and the Sacramento County portion of the SVAB, have been updated to reflect 1989 data rather than 1987.
- Air quality impacts for the Proposed Action have been revised to include California Army National Guard (CANG) and aircraft maintenance flight operations.
- Impacts to wetlands have been revised to include a discussion of impacts by land use category, including aggregate mining (Sections 4.4.5.1 through 4.4.5.4).

SUMMARY OF ENVIRONMENTAL IMPACTS

Influencing factors and potential environmental impacts associated with the Proposed Action and alternatives for reuse of Mather AFB are summarized at 5-, 10-, and 20-year intervals after closure in Tables S-1 through S-6 and briefly described below. Site-related regional population and employment effects for the Proposed Action and all alternatives are illustrated in Figure S-1.

PROPOSED ACTION

Local Community. Redevelopment activities associated with the Proposed Action would result in increases in population and employment in the Region of Influence (ROI) which is composed of Sacramento, El Dorado, Placer, and Yolo counties. Approximately 7,020 direct jobs are projected to result from the Proposed Action by the year 2014, with an additional 5,170 indirect jobs in the ROI. It is estimated that population in the ROI would be 7,830 persons greater, by the year 2014, with the Proposed Action than without the Proposed Action.

Redevelopment land use plans are generally consistent with zoning presently in place. The presence of Installation Restoration Program (IRP) sites may constrain or delay reuse at these sites until the extent of contamination is delineated and risk assessments and remedial designs have been implemented.

Transportation improvements would be required to prevent increased traffic generated by the Proposed Action from decreasing the level of service on Mather Field Drive, Excelsior Road, and Sunrise Boulevard to unacceptable levels. Small increases in air passenger demand and railroad transportation demand associated with the modest increase to regional population are also anticipated.

Regional utility demands would increase over closure baseline projections as a result of the growing population and greater activity levels associated with the Proposed Action. Existing regional infrastructure is adequate to meet the needs of new users.

Table S-1. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 1999*

Page 1 of 2

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
LOCAL COMMUNITY					
• Population	1,813	2,059	3,375	2,630	No increase in long term
• Direct Employment	1,917	2,324	3,522	3,018	No increase in long term (56)
• Indirect Employment	1,683	1,879	2,793	2,462	No increase in long term (17)
• Traffic (annual average daily trips)	35,092	96,072	36,573	114,718	No change
• Flight Operations (annual)	214,191	NA	164,441	NA	No change
• Water Demand (MGD)	0.5	0.5	0.9	0.7	No change
• Wastewater Generation (MGD)	0.3	0.3	0.5	0.4	No change
• Solid Waste Generation (million cubic yards/yr)	0.00	0.00	0.01	0.01	No change
• Electricity Demand (MWH/day)	36	41	67	52	No change
• Natural Gas Demand (1,000 therms/day)	2	2	3	2	No change
• Land Use	Aviation support uses are incompatible with proposed adjacent low-density residences on northeast portion of base. Could create noise, traffic, safety and air quality impacts. Reduction in noise contour under 65 dB could make more land available for residential development. Conversion of open space to developed use would cause potential adverse aesthetic effects.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	Light industrial development and aggregate mining near single-family residences may cause visual impacts.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	No change

* Factors reflect change over closure baseline conditions.

Table S-1. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 1999*

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
HAZARDOUS MATERIALS/WASTE MANAGEMENT					
• Hazardous Materials	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• Hazardous Waste	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Decrease in hazardous waste.
• IRP	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact
• Storage Tanks	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Effective management strategies for maintenance/removal.
• Asbestos	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/ demolition.	Effective management strategies for renovation/demolition.	No impact
• Pesticides and Herbicides	No impact	No impact	No impact	No impact	No impact
• PCBs	No impact	No impact	No impact	No impact	No impact
• Radon	No impact	No impact	No impact	No impact	No impact
• Medical/Biohazardous Waste	No impact	No impact	No impact	No impact	No impact

* Factors reflect change over closure baseline conditions.

Table S-2. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2004*

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
LOCAL COMMUNITY					
• Population	4,473	3,369	4,929	4,167	No increase in long term
• Direct Employment	4,325	3,593	4,852	4,477	No increase in long term (56)
• Indirect Employment	4,212	2,845	3,886	3,607	No increase in long term (17)
• Traffic (annual average daily trips)	54,203	119,515	55,392	142,897	No change
• Flight Operations (annual)	302,867	NA	192,847	NA	No change
• Water Demand (MGD)	1.2	0.9	1.3	1.1	No change
• Wastewater Generation (MGD)	0.6	0.5	0.7	0.6	No change
• Solid Waste Generation (million cubic yards/yr)	0.01	0.01	0.01	0.01	No change
• Electricity Demand (MWH/day)	91	69	101	85	No change
• Natural Gas Demand (1,000 therms/day)	4	3	4	4	No change
• Land Use	Aviation support uses are incompatible with proposed adjacent low-density residences on northeast portion of base. Could create noise traffic, safety and air quality impacts. Reduction in noise contour under 65 dB could make more land available for residential development. Conversion of open space to developed use would cause potential adverse aesthetic effects.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	Light industrial development and aggregate mining near single-family residences may cause visual impacts.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	No change

* Factors reflect change over closure baseline conditions.

Table S-2. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2004*

Page 2 of 2

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
HAZARDOUS MATERIALS/WASTE MANAGEMENT					
• Hazardous Materials	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• Hazardous Waste	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• IRP	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact
• Storage Tanks	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Effective management strategies for maintenance/removal.
• Asbestos	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/ demolition.	Effective management strategies for renovation/demolition.	No impact
• Pesticides and Herbicides	No impact	No impact	No impact	No impact	No impact
• PCBs	No impact	No impact	No impact	No impact	No impact
• Radon	No impact	No impact	No impact	No impact	No impact
• Medical/Biohazardous Waste	No impact	No impact	No impact	No impact	No impact

* Factors reflect change over closure baseline conditions.

Table S-3. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2014*

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
LOCAL COMMUNITY					
• Population	7,828	7,552	8,478	8,081	No increase in long term
• Direct Employment	7,019	7,098	7,587	7,687	No increase in long term (56)
• Indirect Employment	5,172	5,257	6,125	5,941	No increase in long term (17)
• Traffic (annual average daily trips)	85,849	163,775	93,120	194,045	No change
• Flight Operations (annual)	302,867	NA	232,847	NA	No change
• Water Demand (MGD)	2.1	2.0	2.3	2.2	No change
• Wastewater Generation (MGD)	1.1	1.1	1.2	1.2	No change
• Solid Waste Generation (million cubic yards/yr)	0.01	0.01	0.02	0.02	No change
• Electricity Demand (MWH/day)	171	164	184	176	No change
• Natural Gas Demand (1,000 therms/day)	7	7	8	7	No change
• Land Use	Aviation support uses are, incompatible with proposed adjacent low-density residences on northeast portion of base. Could create noise, traffic, safety, and air quality impacts. Reduction in noise contour under 65 dB could make more land available for residential development. Conversion of open space to developed use would cause potential adverse aesthetic effects.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	Light industrial development and mining near single-family residences may cause visual impacts.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	No change

* Factors reflect change over closure baseline conditions.

Table S-3. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2014*

Page 2 of 2

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
HAZARDOUS MATERIALS/WASTE MANAGEMENT					
• Hazardous Materials	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• Hazardous Waste	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• IRP	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact
• Storage Tanks	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Effective management strategies for maintenance/removal.
• Asbestos	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/ demolition.	Effective management strategies for renovation/demolition.	No impact
• Pesticides and Herbicides	No impact	No impact	No impact	No impact	No impact
• PCBs	No impact	No impact	No impact	No impact	No impact
• Radon	No impact	No impact	No impact	No impact	No impact
• Medical/Biohazardous Waste	No impact	No impact	No impact	No impact	No impact

* Factors reflect change over closure baseline conditions.

Table S-4. Summary of Environmental Impacts of Reuse of Mather AFB in the Year 1999

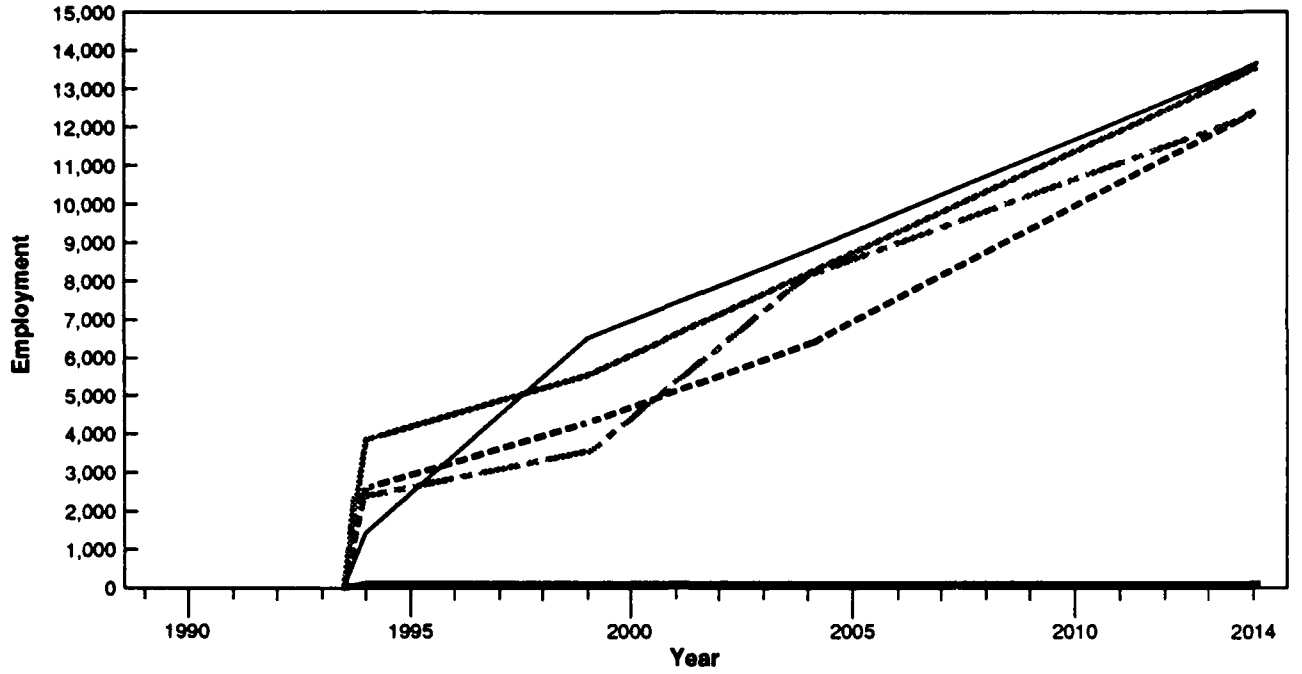
Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
Natural Environment					
• Soils and Geology	Aggregate mining extends regional supply by 5 years. Potential adverse impact, disturbs topography of 250 acres, of which 120 acres will be reclaimed by 1999.	Aggregate mining extends regional supply of aggregate by 8 years. Potential adverse impact, disturbs topography of 250 acres, of which 120 acres will be reclaimed by 1999.	Aggregate mining extends regional supply of aggregate by 8 years. Potential adverse impact, disturbs topography of 250 acres, of which 120 acres will be reclaimed by 1999.	Aggregate mining extends regional supply of aggregate by 13 years. Potential adverse impact, disturbs topography of 250 acres, of which 120 acres will be reclaimed by 1999.	No impact
• Water Resources	Increased total drawdown by 6 ft. Aggregate mining adversely impacts 250 acres of drainage area.	Increased total drawdown by 15 ft. Aggregate mining adversely impacts 250 acres of drainage area.	Increased total drawdown by 5 ft. Aggregate mining adversely impacts 250 acres of drainage area.	Increased total drawdown by 8 ft. Aggregate mining adversely impacts 250 acres of drainage area.	Increased total drawdown by 0.5 ft.
• Air Quality	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	No impact
• Noise	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose no people to 65 DNL or greater.	Traffic noise will expose 459 people to 65 DNL or greater	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose no people to 65 DNL or greater.	Traffic noise will expose 600 people to 65 DNL or greater.	No impact
• Biological Resources	Loss of 799 acres of vegetation, including 18 acres of wetlands.	Loss of 1,000 acres of vegetation, including 25 acres of wetlands.	Loss of 445 acres of vegetation, including 12 acres of wetlands.	Loss of 863 acres of vegetation, including 15 acres of wetlands.	No impact
• Cultural Resources	No impact	No impact	No impact	No impact	No impact
• Paleontological Resources	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	No impact

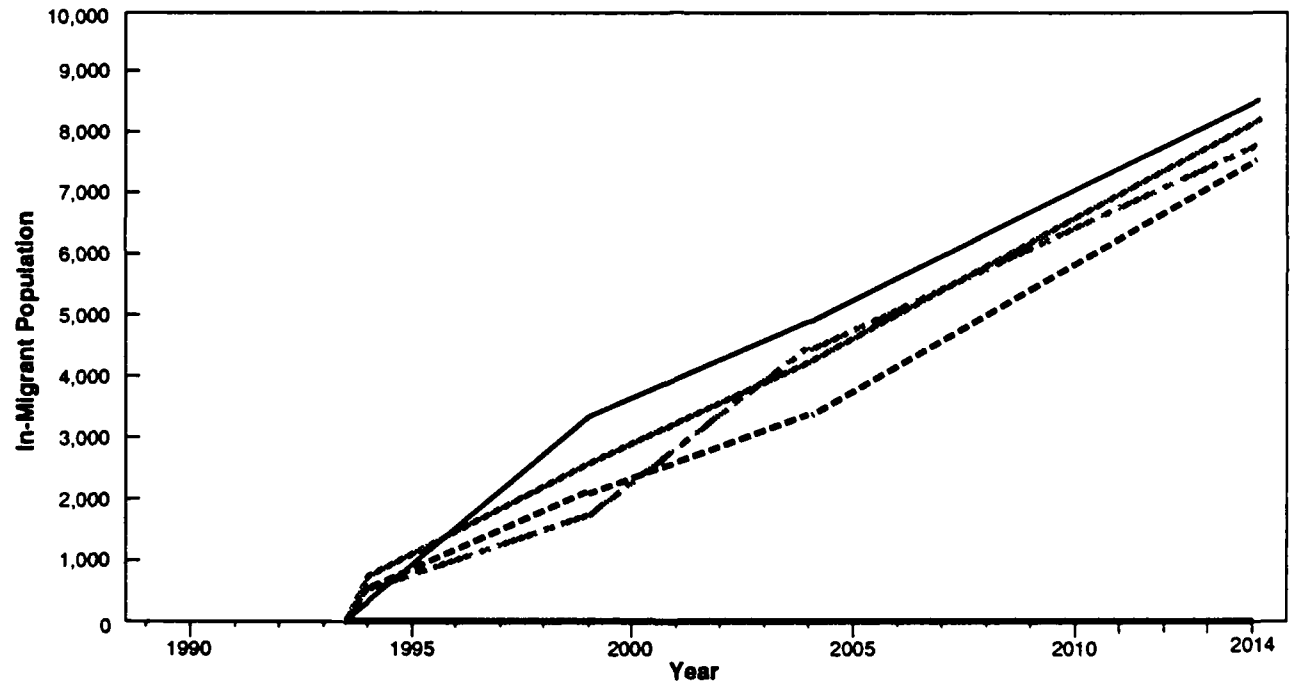
Table S-5. Summary of Environmental Impacts of Reuse of Mather AFB in the Year 2004

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
Natural Environment					
• Soils and Geology	Aggregate mining extends regional supply by 5 years. Potential adverse impact, disturbs topography of approximately 580 acres of which 450 acres will be reclaimed by 2004.	Aggregate mining extends regional supply of aggregate by 8 years. Potentially adverse impact, disturbs topography of 580 acres, of which 450 acres will be reclaimed by 2004.	Aggregate mining extends regional supply by 8 years. Potential adverse impact, disturbs topography of 580 acres, of which 450 acres will be reclaimed by 2004.	Aggregate mining extends regional supply by 13 years. Potential adverse impact, disturbs topography of 580 acres, of which 450 acres will be reclaimed by 2004.	No impact
• Water Resources	Increased total drawdown by 13 ft. Aggregate mining adversely impacts 580 acres of drainage area.	Increased total drawdown by 27 ft. Aggregate mining adversely impacts 580 acres of drainage area.	Increased total drawdown by 9 ft. Aggregate mining adversely impacts 580 acres of drainage area. Mining also adversely impacts up to 1,400 ft of Morrison Creek.	Increased total drawdown by 20 ft. Aggregate mining adversely impacts 580 acres of drainage area. Mining also adversely impacts up to 7,500 ft of the East Ditch Channel.	Increased total drawdown by 1 ft.
• Air Quality	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	No impact
• Noise	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose 5 people to 65 DNL or greater.	Traffic noise will expose 635 people to 65 DNL or greater.	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise would expose 5 people to 65 DNL or greater.	Traffic noise would expose 875 people to 65 DNL or greater.	No impact
• Biological Resources	Additional loss of 571 acres of vegetation, including 33 acres of wetlands.	Additional loss of 653 acres of vegetation, including 26 acres of wetlands.	Additional loss of 533 acres of vegetation, including 6 acres of wetlands.	Additional loss of 682 acres of vegetation, including 8 acres of wetlands.	No impact
• Cultural Resources	No impact	No impact	No impact	No impact	No impact
• Paleontological Resources	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	No impact

Table S-6. Summary of Environmental Impacts of Reuse of Mather AFB in the Year 2014

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
Natural Environment					
• Soils and Geology	Aggregate mining extends regional supply by 5 years. Potential adverse impact, disturbs topography of approximately 1,203 acres, all of which will be reclaimed by total buildout.	Aggregate mining extends regional supply of aggregate by 8 years. Potential adverse impact, disturbs topography of 1,113 acres, all of which will be reclaimed by total buildout.	Aggregate mining extends regional supply by 8 years. Potential adverse impact, disturbs topography of 1,172 acres, all of which will be reclaimed by total buildout.	Aggregate mining extends regional supply by 13 years. Potential adverse impact, disturbs topography of 1,350 acres, of which 1,190 acres will be reclaimed by buildout.	No impact
• Water Resources	Increased total drawdown by 26 ft. Aggregate mining adversely impacts 1,203 acres of drainage area.	Increased total drawdown by 45 ft. Aggregate mining adversely impacts 1,113 acres of drainage area.	Increased total drawdown by 16 ft. Aggregate mining adversely impacts 1,172 acres of drainage area.	Increased total drawdown by 40 ft. Aggregate mining adversely impacts 1,350 acres of drainage area.	Increased total drawdown by 2 ft.
• Air Quality	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	No impact
• Noise	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose 127 people to 65 DNL or greater.	Traffic noise will expose 1,042 people to 65 DNL or greater.	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose 140 people to 65 DNL or greater.	Traffic noise will expose 1,331 people to 65 DNL or greater.	No impact
• Biological Resources	Total loss of 1,931 acres of vegetation, including 63 acres of wetlands.	Total loss of 2,562 acres of vegetation, including 83 acres of wetlands.	Total loss of 1,668 acres of vegetation, including 28 acres of wetlands.	Total loss of 2,501 acres of vegetation, including 37 acres of wetlands.	No impact
• Cultural Resources	No impact	No impact	No impact	No impact	No impact
• Paleontological Resources	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	No impact





EXPLANATION

- Proposed Action
- Non-Aviation with Mixed-Density Residential
- General Aviation with Aircraft Maintenance
- Non-Aviation with Low-Density Residential
- No Action/Post Closure

Comparison of Alternatives- Increases in Regional Population and Employment Opportunities Due to Site Reuse

Figure S-1

On-site increases in the demand for water, electricity, and natural gas and generation of wastewater and solid waste will require upgrades to infrastructure on the base.

Hazardous Materials/Hazardous Waste. Types and quantities of hazardous materials and hazardous waste generated by the Proposed Action are expected to increase from closure conditions. The shift of responsibility for managing hazardous materials and waste from a single user to multiple, smaller, independent users may result in a potential reduction in service because there may no longer be one on-site organization capable of responding to hazardous materials and hazardous waste spills. Reuse activities are not expected to adversely affect the remediation of IRP sites. On-going remediation activities may, however, restrict or delay some proposed reuses. Existing underground storage tanks (USTs) would either be reused or removed prior to closure in accordance with all federal, state, and local regulations. Management practices relative to the use and handling of pesticides and herbicides would conform to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and state regulations. Demolition and renovation of structures with asbestos-containing materials would be managed in accordance with the National Emissions Standards for Hazardous Air Pollutants (NESHAP) and other applicable regulations.

Natural Environment. Potential impacts to soils and geology would occur as a consequence of aggregate (sand and gravel) mining activities of 1,203 acres. If care is taken in stockpiling and restoring the soil, surface soils can be replaced in their original locations. Soil stratification can also be restored. Hardpan layers will, however, be destroyed. Topographic changes will result from aggregate extraction, especially with regard to the small depressions in which vernal pools accumulate.

The aggregate mining activities would result in changing the surface topography and would alter the drainage patterns over 20 percent of the base and would disturb 300 acres of vernal pool terrain.

Increased employment and population levels on the base property will increase the demand for potable water. This will result in an accelerated rate of water withdrawal from groundwater resources with attendant reductions in the water table level. It is estimated that implementation of the Proposed Action will result in an average annual rate of decline of 1.3 feet of local water supply aquifers over the current rate of decline of 1.4 feet per year.

Increased emissions could interfere with the achievement and maintenance of air quality attainment levels for nitrogen oxides (NO_x), reactive organic gases (ROG), carbon monoxide (CO), and PM_{10} (particulate matter less than 10 microns in diameter).

Noise levels associated with aircraft activities would decrease under the Proposed Action. Projected aircraft noise contours indicate that approximately

3,295 acres would be exposed to day-night noise levels (DNL) of 65 decibels (dB) or greater by the year 2014; however, it is estimated that 60-70 people (based on current population distribution) are located within areas exposed to DNL of 65 dB or greater. Surface traffic noise would expose 127 people to a DNL of 65 dB or greater.

Potential impacts to biological resources could include a maximum loss of vegetation/habitat of 1,931 acres, including 63 acres of wetlands. Paleontological resources may exist beneath the surface at Mather AFB and could be disturbed by aggregate mining operations. No adverse effect on other cultural resources is expected for on-base property.

NON-AVIATION WITH MIXED-DENSITY RESIDENTIAL ALTERNATIVE

Local Community. Redevelopment activities associated with this alternative would result in larger increases in population and employment in the ROI than those projected for the Proposed Action. Approximately 7,100 direct jobs are projected by the year 2014, with an additional 5,260 indirect jobs in the ROI. It is estimated that population in the ROI would contain 7,550 more persons, by 2014, with the Non-Aviation with Mixed-Density Residential Alternative than under conditions of no reuse.

Redevelopment land use plans of on-base areas would generally be compatible with two exceptions, residential development would be adjacent to both commercial and industrial uses proposed in the main base area. The presence of IRP sites may constrain or delay reuse of these sites until the extent of contamination is delineated, risk assessments accomplished, and remedial designs implemented.

Transportation improvements would be required to prevent increased traffic generated by this alternative from decreasing the level of service on Mather Field Drive, International Drive, Kiefer Boulevard, and Routiers Road to unacceptable levels by 2014. Air passenger and railroad transportation demand would increase in proportion to the proposed increase in regional population.

Regional utility demands would increase over closure baseline projections as a result of the growing population and greater activity levels associated with this alternative. The existing regional infrastructure would not have to be modified to meet the needs of new users. However, on-site increases in employment and population would necessitate infrastructural improvements in existing wastewater collection and in water, electricity, and natural gas distribution systems.

Hazardous Materials/Hazardous Waste. Types and quantities of hazardous materials and hazardous waste associated with the Non-Aviation with Mixed-Density Residential Alternative are expected to be less than those projected for the Proposed Action. Ongoing remediation activities may, however, restrict or delay some proposed reuses. The proposed increase in

population levels on base would likely result in increases in pesticide and herbicide runoff.

Natural Environment. Potential impacts to soils and geology would occur under this alternative due to the extraction of approximately 18 million cubic yards of overburden across an area of 1,113 acres. If the overburden is carefully removed and stockpiled, the surface soils can be successfully replaced. Hardpan layers underlying the surface will be destroyed.

The aggregate mining activities would result in changing the surface topography and would alter the surface drainage patterns over 19 percent of the base and disturb 295 acres of vernal pool terrain.

The projected increases in population and employment resulting from implementation of the Non-Aviation with Mixed-Density Residential Alternative would increase demand for water in the ROI by approximately 33 percent over post-closure levels. Localized overdraft conditions of groundwater resources in 2014 would be impacted by average annual declines of 2.25 ft per year over the current 1.4 ft of decline per year. A substantial increase in emissions could interfere with the achievement and maintenance of air quality attainment levels for NO_x, ROG, CO, and PM_{10}. Noise levels under this alternative would be limited to those generated by surface traffic and industrial activities. Surface traffic noise would expose 1,042 people to a DNL of 65 dB or greater.

Potential impacts to biological resources could include a maximum loss of vegetation/habitat of 2,562 acres, including 83 acres of wetlands.

Paleontological resources may exist beneath the surface at Mather AFB and could be disturbed by aggregate mining operations. No adverse effect on other cultural resources is expected for on-base property.

GENERAL AVIATION WITH AIRCRAFT MAINTENANCE ALTERNATIVE

Local Community. Redevelopment activities associated with the General Aviation with Aircraft Maintenance Alternative would result in the largest increases in population and employment in the ROI of those projected for either the Proposed Action or other alternatives. Approximately 7,590 direct jobs due solely to base reuse are projected by the year 2014, with an additional 6,130 indirect jobs projected in the ROI. It is estimated that population in the ROI would be 8,480 persons greater, by 2014, in the ROI with the implementation of this alternative than under conditions of no reuse.

Redevelopment land use plans are generally consistent with local zoning ordinances. Incompatibilities between residential and proposed industrial land uses at the northeastern portion of the base have been identified and may produce incompatibilities due to noise, traffic, safety, and air quality. The presence of IRP sites may constrain or delay reuse at these sites until the extent

of contamination is delineated and risk assessments and remedial designs have been implemented.

Transportation improvements would be required to prevent increased traffic generated by the General Aviation with Aircraft Maintenance Alternative from decreasing the level of service on Old Placerville Road, Zinfandel Drive, Douglas Road, and Routiers Road to unacceptable levels by 2014. Proposed aircraft activities, including California Air National Guard Operations, would not have any adverse effects on air traffic or airspace use in the region. The change in air and railroad passenger demand would be the same as under the Proposed Action.

Utility demands would increase over closure baseline projections as a result of the growing population and greater activity levels associated with the General Aviation with Aircraft Maintenance Alternative. Existing on-site infrastructure for all utilities would have to be modified to meet the needs of new users. Regional utility systems would also experience increases in demand, necessitating infrastructural improvements for the off-base water supply, wastewater collection and treatment, and electrical and natural gas distribution systems.

Hazardous Materials/Hazardous Waste. Types and quantities of hazardous materials and hazardous waste associated with the General Aviation with Aircraft Maintenance Alternative are expected to be greater than those used for the Proposed Action. The effects would likely be similar to those of the Proposed Action.

Natural Environment. Potential impacts to soils and geology would occur under this alternative as a consequence of mining 1,172 acres for aggregate resources. Approximately 19 million cubic yards of overburden would be removed, stockpiled, and replaced after extraction is complete. This process would alter the surface topography and drainage patterns of 20 percent of the base including 5 percent (40 acres) of the vernal pool terrain. Subsurface hardpan layers would be irrevocably destroyed. By 2014 the projected water demands in the ROI due to the increases in employment and population would be approximately 21 percent greater than post-closure conditions. The average rate of decline of on-base groundwater levels due to on-base pumping through 2014 would be 0.8 feet per year. This decline would be in addition to the average annual decline of 1.4 feet per year currently in effect.

Air quality and noise impacts would be the same as those under the Proposed Action, except that a total of 140 people would be subject to a DNL of 65 dB or greater from surface traffic by 2014.

Potential impacts to biological resources could include a maximum loss of vegetation/habitat of 1,668 acres, including 28 acres of wetlands.

Paleontological resources may exist beneath the surface at Mather AFB and could be disturbed by aggregate mining operations. No adverse effect on other cultural resources is expected under this alternative.

NON-AVIATION WITH LOW-DENSITY RESIDENTIAL

Local Community. Redevelopment activities associated with the Non-Aviation with Low-Density Residential Alternative would result in reuse-related increases in population and employment in the ROI approximately double those projected for the Proposed Action. Approximately 7,690 direct jobs are projected by the year 2014, with an additional 5,940 indirect jobs in the four ROI. It is estimated that population in the region would be 8,080 persons greater, by 2014, with this alternative than under conditions of no reuse.

Redevelopment land use plans may result in minor conflicts with local zoning ordinances. Incompatibilities between proposed residential uses and both industrial and commercial uses in the main base area have been identified. The presence of IRP sites may constrain or delay reuse at these sites until the extent of contamination is delineated and risk assessments and remedial designs have been implemented.

Transportation improvements would be required to prevent increased traffic generated by this alternative from decreasing the level of service on Mather Field Drive, Routiers Road, Excelsior Road, Kiefer Boulevard, and Zinfandel Drive to unacceptable levels. Railroad transportation demand is projected to increase in proportion to population growth.

Utility demands would increase over closure baseline projections as a result of the growing population and greater activity levels associated with the Non-Aviation with Low-Density Residential Alternative. Existing on base infrastructure would have to be modified to meet the projected demand for water, wastewater, electrical, and natural gas. Off-site improvements would also be required to accommodate increases in levels of water treatment and solid waste disposal.

Hazardous Materials/Hazardous Waste. Types and quantities of hazardous materials and hazardous waste associated with the Non-Aviation with Low-Density Residential Alternative appear to be less than those used for the Proposed Action, but sufficient potential exists for the increase in industrial uses of hazardous materials and the generation of hazardous waste to cause concern with respect to monitoring multiple users/generators.

Natural Environment. Potential impacts to soils and geology would occur under this alternative as a result of mining 1,617 acres for aggregate resources. Approximately 44 million cubic yards of overburden would be removed, stockpiled, and replaced. The removal of interburden would alter the surface topography and drainage patterns of up to 28 percent of the base, including the East Ditch Channel. Minimal vernal pool terrain would be disturbed.

The disturbances to the regional groundwater table would be greater under this alternative than under the Proposed Action. By 2014, the average rate of decline of on-base groundwater levels due to increased pumping would be 2.0 feet per year in addition to the current rate of 1.4 feet per year.

An increase in emissions could interfere with the achievement and maintenance of air quality attainment levels for NO_x, ROG, CO, and PM_{10}. Surface traffic noise would expose 1,331 people to a DNL of 65 dB or greater.

Potential impacts to biological resources could include a maximum loss of vegetation/habitat of 2,501 acres, including 37 acres of wetlands.

Paleontological resources may exist beneath the surface at Mather AFB and could be disturbed by aggregate mining operations. No adverse effect on other cultural resources is expected from implementation of this alternative.

OTHER LAND USE CONCEPTS

Federal transfers and independent land use concepts are analyzed in terms of their effects on the Proposed Action and other alternatives. Influencing factors and potential environmental impacts associated with these actions in conjunction with the Proposed Action and alternatives are summarized in Tables S-7 and S-8.

NO-ACTION ALTERNATIVE

Local Community. The only activities associated with the No-Action Alternative would be disposal management activities, creating approximately 70 direct and indirect jobs. This alternative would not result in increases in employment or population compared to closure levels.

No adverse land use effects are anticipated. The on-base structures would be left in place and maintained in a caretaker status. No effects on road, air, or railroad transportation are expected.

Hazardous Materials/Hazardous Waste. Small quantities of various types of hazardous materials, hazardous waste, and pesticides/herbicides would be used under this alternative and managed by the disposal management team in accordance with all applicable regulations. Security of IRP sites would be enhanced under this alternative. All USTs would have to be removed and/or provisions made for sufficient maintenance of all tanks.

Natural Environment. Minimal effects on geological resources, soils, water resources, air quality, noise, biological resources, and cultural resources are expected as a result of the lack of reuse development and operations.

Table S-7. Summary of Influencing Factors Associated with Other Land Use Concepts

Resource Category	Caltrans R&D Center	Theme Park
LOCAL COMMUNITY		
• Population		
• Direct Employment	4,000	3,500
• Indirect Employment		
• Traffic (annual average daily trips)	Decrease of 0.9% to increase of 20.6%.	Decrease of 11.3% to increase of 45.9%.
• Flight Operations (annual)	No impact to flight operations.	No impact to flight operations.
• Utilities Demand	Increase of 0.2% to 11% for all utilities.	Increase of 8.6% to decrease of 16%.
• Land Use	Potentially creates safety, noise, traffic, and visual impacts on existing and proposed residential land uses.	Potentially creates traffic and noise impacts for existing housing (east placement) and on adjacent proposed residential and industrial development.
HAZARDOUS MATERIAL/WASTE MANAGEMENT		
• Hazardous Materials	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.
• Hazardous Waste	Slight increase in types and quantities. Effective management to be implemented.	Slight increase in types and quantities. Effective management to be implemented.
• IRP	No impact, remediation may delay redevelopment.	No impact, remediation may delay redevelopment.
• Storage Tanks	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.
• Asbestos	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/demolition.
• Pesticides and Herbicides	No impact	No impact
• PCBs	No impact	No impact
• Radon	No impact	No impact
• Medical/Biohazardous Waste	No impact	No impact

Table S-8. Summary of Environmental Impacts Associated with Other Land Use Concepts

Resource Category	Caltrans R&D Center	Theme Park
NATURAL ENVIRONMENT		
• Soils and Geology	No additional impacts identified.	No additional impacts identified.
• Water Resources	Range of 100 year average rates of net water level decline 0.5-1 ft/yr.	Range of 100 year average rates of net water level decline 0.9-1.2 ft/yr.
• Air Quality	Emissions of NO_X, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NO_X, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.
• Noise	No additional impacts identified.	No additional impacts identified.
• Biological Resources	Range and displaced habitats: 0-84 acres natural habitat 2-8 acres wetlands 0.3-6 acres vernal pools 3-32 acres parks 0-350 acres of recreation.	Range and displaced habitats: 0-676 acres of natural habitat 4-25 acres vernal pools 7-16 acres of wetlands 11-647 acres of recreation 0-635 acres of grassland.
• Cultural Resources	No additional impacts created.	No additional impacts created.
• Paleontological Resources	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.

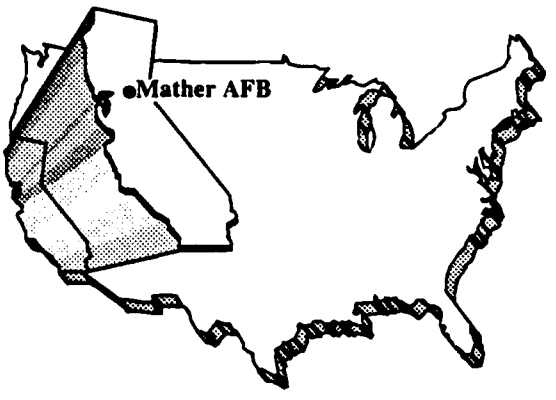


TABLE OF CONTENTS

TABLE OF CONTENTS

		Page
1.0	PURPOSE AND NEED FOR ACTION	1-1
	1.1 PURPOSE AND NEED	1-1
	1.2 ENVIRONMENTAL IMPACT ANALYSIS PROCESS	1-2
	1.3 SCOPING PROCESS	1-5
	1.3.1 Summary of Scoping Issues and Concerns	1-5
	1.3.2 Issues Beyond the Scope of the EIS	1-6
	1.4 PUBLIC COMMENT PROCESS	1-7
	1.5 CHANGES TO THE DEIS	1-7
	1.6 RELATED ENVIRONMENTAL DOCUMENTS	1-9
	1.7 RELEVANT FEDERAL, STATE, AND LOCAL STATUTES, REGULATIONS, AND GUIDELINES	1-9
2.0	ALTERNATIVES INCLUDING THE PROPOSED ACTION	2-1
	2.1 INTRODUCTION	2-1
	2.2 DESCRIPTION OF PROPOSED ACTION	2-4
	2.2.1 Airfield	2-8
	2.2.2 Aviation Support	2-10
	2.2.3 Institutional	2-13
	2.2.4 Commercial	2-13
	2.2.5 Residential	2-13
	2.2.6 Parks, Recreation, and Natural Habitat	2-14
	2.2.7 Pre-Development Aggregate Mining Activities	2-14
	2.2.8 Population and Employment	2-15
	2.2.9 Transportation	2-17
	2.2.10 Utilities	2-17
	2.3 DESCRIPTIONS OF ALTERNATIVES	2-18
	2.3.1 Non-Aviation with Mixed-Density Residential Alternative	2-18
	2.3.1.1 Light Industrial	2-21
	2.3.1.2 Institutional	2-21
	2.3.1.3 Commercial	2-21
	2.3.1.4 Residential	2-21
	2.3.1.5 Parks, Recreation, and Natural Habitat	2-22
	2.3.1.6 Pre-Development Aggregate Mining Activities	2-23
	2.3.1.7 Population and Employment	2-23
	2.3.1.8 Transportation	2-24
	2.3.1.9 Utilities	2-25
	2.3.2 General Aviation with Aircraft Maintenance Alternative	2-25
	2.3.2.1 Airfield	2-26
	2.3.2.2 Aviation Support	2-28
	2.3.2.3 Light Industrial	2-28
	2.3.2.4 Institutional	2-28
	2.3.2.5 Commercial	2-31
	2.3.2.6 Residential	2-31
	2.3.2.7 Parks, Recreation, and Natural Habitat	2-31
	2.3.2.8 Pre-Development Aggregate Mining Activities	2-31
	2.3.2.9 Population and Employment	2-32
	2.3.2.10 Transportation	2-33
	2.3.2.11 Utilities	2-33
	2.3.3 Non-Aviation with Low-Density Residential Alternative	2-34
	2.3.3.1 Light Industrial	2-36
	2.3.3.2 Institutional	2-36

TABLE OF CONTENTS
(CONT'D)

		Page
2.3.3.3	Commercial	2-36
2.3.3.4	Residential	2-36
2.3.3.5	Parks, Recreation, and Natural Habitat	2-37
2.3.3.6	Pre-Development Aggregate Mining Activities	2-37
2.3.3.7	Population and Employment	2-37
2.3.3.8	Transportation	2-38
2.3.3.9	Utilities	2-39
2.3.4	Other Land Use Concepts	2-39
2.3.4.1	Caltrans Research and Development Center	2-40
2.3.4.2	Theme Park	2-46
2.3.4.3	Other Federal Transfers and State/Local Conveyances	2-47
2.3.5	No-Action Alternative	2-52
2.4	ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION	2-52
2.5	OTHER FUTURE ACTIONS IN THE REGION	2-53
2.6	COMPARISON OF ENVIRONMENTAL IMPACTS	2-53
3.0	AFFECTED ENVIRONMENT	3-1
3.1	INTRODUCTION	3-1
3.2	LOCAL COMMUNITY	3-2
3.2.1	Community Setting	3-2
3.2.2	Installation Background	3-7
3.2.3	Land Use and Aesthetics	3-8
3.2.3.1	Land Use	3-8
3.2.3.2	Aesthetics	3-17
3.2.4	Transportation	3-19
3.2.4.1	Roadways	3-19
3.2.4.2	Airspace	3-29
3.2.4.3	Air Transportation	3-35
3.2.4.4	Rail	3-36
3.2.5	Utilities	3-38
3.2.5.1	Water Supply	3-38
3.2.5.2	Wastewater	3-40
3.2.5.3	Solid Waste	3-43
3.2.5.4	Energy	3-44
3.3	HAZARDOUS MATERIALS/HAZARDOUS WASTE MANAGEMENT	3-46
3.3.1	Hazardous Materials Management	3-47
3.3.2	Hazardous Waste Management	3-48
3.3.3	Installation Restoration Program (IRP)	3-49
3.3.4	Storage Tanks	3-59
3.3.5	Asbestos	3-61
3.3.6	Pesticides and Herbicides	3-64
3.3.7	Polychlorinated Biphenyls	3-65
3.3.8	Radon	3-66
3.3.9	Medical/Biohazardous Waste	3-67
3.4	NATURAL ENVIRONMENT	3-68
3.4.1	Soils and Geology	3-68
3.4.1.1	Soils	3-68
3.4.1.2	Physiography and Geology	3-69
3.4.2	Water Resources	3-72
3.4.2.1	Surface Water	3-72

TABLE OF CONTENTS
(CONT'D)

		Page
3.4.2.2	Groundwater Resources	3-73
3.4.3	Air Quality	3-76
3.4.3.1	Regional Air Quality	3-78
3.4.3.2	Air Pollutant Emission Sources	3-81
3.4.4	Noise	3-82
3.4.4.1	Existing Noise Levels	3-84
3.4.4.2	Noise-Sensitive Areas	3-87
3.4.5	Biological Resources	3-87
3.4.5.1	Vegetation	3-88
3.4.5.2	Wildlife Resources	3-90
3.4.5.3	Threatened and Endangered Species	3-92
3.4.5.4	Sensitive Habitats	3-93
3.4.6	Cultural Resources	3-93
3.4.6.1	Archaeological Resources	3-94
3.4.6.2	Historic Structures and Resources	3-94
3.4.6.3	Native American Resources	3-95
3.4.6.4	Paleontological Resources	3-95
4.0	ENVIRONMENTAL IMPACTS	4-1
4.1	INTRODUCTION	4-1
4.2	LOCAL COMMUNITY	4-2
4.2.1	Community Setting	4-2
4.2.1.1	Proposed Action	4-2
4.2.1.2	Non-Aviation with Mixed-Density Residential Alternative	4-4
4.2.1.3	General Aviation with Aircraft Maintenance Alternative	4-4
4.2.1.4	Non-Aviation with Low-Density Residential Alternative	4-4
4.2.1.5	Other Land Use Concepts	4-4
4.2.1.6	No-Action Alternative	4-5
4.2.2	Land Use and Aesthetics	4-5
4.2.2.1	Proposed Action	4-6
4.2.2.2	Non-Aviation with Mixed-Density Residential Alternative	4-10
4.2.2.3	General Aviation with Aircraft Maintenance Alternative	4-12
4.2.2.4	Non-Aviation with Low-Density Residential Alternative	4-15
4.2.2.5	Other Land Use Concepts	4-17
4.2.2.6	No-Action Alternative	4-19
4.2.3	Transportation	4-20
4.2.3.1	Proposed Action	4-22
4.2.3.2	Non-Aviation with Mixed-Density Residential Alternative	4-30
4.2.3.3	General Aviation with Aircraft Maintenance Alternative	4-35
4.2.3.4	Non-Aviation with Low-Density Residential Alternative	4-42
4.2.3.5	Other Land Use Concepts	4-47
4.2.3.6	No-Action Alternative	4-48
4.2.4	Utilities	4-49
4.2.4.1	Proposed Action	4-51
4.2.4.2	Non-Aviation with Mixed-Density Residential Alternative	4-58
4.2.4.3	General Aviation with Aircraft Maintenance Alternative	4-64
4.2.4.4	Non-Aviation with Low-Density Residential Alternative	4-69
4.2.4.5	Other Land Use Concepts	4-75
4.2.4.6	No-Action Alternative	4-76

TABLE OF CONTENTS
(CONT'D)

		Page
4.3	HAZARDOUS MATERIALS/HAZARDOUS WASTE	4-77
4.3.1	Proposed Action	4-77
4.3.1.1	Hazardous Materials Management	4-77
4.3.1.2	Hazardous Waste Management	4-79
4.3.1.3	Installation Restoration Program Sites	4-79
4.3.1.4	Underground/Aboveground Storage Tanks	4-82
4.3.1.5	Asbestos	4-83
4.3.1.6	Pesticides and Herbicides	4-83
4.3.1.7	PCBs	4-83
4.3.1.8	Radon	4-83
4.3.1.9	Medical/Biohazardous Waste	4-83
4.3.1.10	Cumulative Impacts	4-83
4.3.1.11	Mitigation Measures	4-84
4.3.2	Non-Aviation with Mixed-Density Residential Alternative	4-84
4.3.2.1	Hazardous Materials Management	4-84
4.3.2.2	Hazardous Waste Management	4-84
4.3.2.3	Installation Restoration Program Sites	4-85
4.3.2.4	Underground/Aboveground Storage Tanks	4-85
4.3.2.5	Asbestos	4-85
4.3.2.6	Pesticides and Herbicides	4-87
4.3.2.7	PCBs	4-87
4.3.2.8	Radon	4-87
4.3.2.9	Medical/Biohazardous Waste	4-87
4.3.2.10	Cumulative Impacts	4-88
4.3.2.11	Mitigation Measures	4-88
4.3.3	General Aviation with Aircraft Maintenance Alternative	4-88
4.3.3.1	Hazardous Materials Management	4-88
4.3.3.2	Hazardous Waste Management	4-88
4.3.3.3	Installation Restoration Program Sites	4-88
4.3.3.4	Underground/Aboveground Storage Tanks	4-88
4.3.3.5	Asbestos	4-88
4.3.3.6	Pesticides and Herbicides	4-90
4.3.3.7	PCBs	4-90
4.3.3.8	Radon	4-90
4.3.3.9	Medical/Biohazardous Waste	4-90
4.3.3.10	Cumulative Impacts	4-90
4.3.3.11	Mitigation Measures	4-90
4.3.4	Non-Aviation with Low-Density Residential Alternative	4-91
4.3.5	Other Land Use Concepts	4-91
4.3.6	No-Action Alternative	4-95
4.4	NATURAL ENVIRONMENT	4-96
4.4.1	Soils and Geology	4-96
4.4.1.1	Proposed Action	4-97
4.4.1.2	Non-Aviation with Mixed-Density Residential Alternative	4-100
4.4.1.3	General Aviation with Aircraft Maintenance Alternative	4-100
4.4.1.4	Non-Aviation with Low-Density Residential Alternative	4-103
4.4.1.5	Other Land Use Concepts	4-105

TABLE OF CONTENTS
(CONT'D)

Page

4.4.1.6 No-Action Alternative 4-105
4.4.2 Water Resources 4-105
4.4.2.1 Proposed Action 4-107
4.4.2.2 Non-Aviation with Mixed-Density Residential Alternative 4-110
4.4.2.3 General Aviation with Aircraft Maintenance Alternative 4-111
4.4.2.4 Non-Aviation with Low-Density Residential Alternative 4-113
4.4.2.5 Other Land Use Concepts 4-115
4.4.2.6 No-Action Alternative 4-116
4.4.3 Air Quality 4-117
4.4.3.1 Proposed Action 4-118
4.4.3.2 Non-Aviation with Mixed-Density Residential Alternative 4-129
4.4.3.3 General Aviation with Aircraft Maintenance Alternative 4-131
4.4.3.4 Non-Aviation with Low-Density Residential Alternative 4-134
4.4.3.5 Other Land Use Concepts 4-135
4.4.3.6 No-Action Alternative 4-137
4.4.4 Noise 4-137
4.4.4.1 Proposed Action 4-142
4.4.4.2 Non-Aviation with Mixed-Density Residential Alternative 4-153
4.4.4.3 General Aviation with Aircraft Maintenance Alternative 4-155
4.4.4.4 Non-Aviation with Low-Density Residential Alternative 4-161
4.4.4.5 Other Land Use Concepts 4-161
4.4.4.6 No-Action Alternative 4-166
4.4.5 Biological Resources 4-168
4.4.5.1 Proposed Action 4-168
4.4.5.2 Non-Aviation with Mixed-Density Residential Alternative 4-176
4.4.5.3 General Aviation with Aircraft Maintenance Alternative 4-178
4.4.5.4 Non-Aviation with Low-Density Residential Alternative 4-180
4.4.5.5 Other Land Use Concepts 4-181
4.4.5.6 No-Action Alternative 4-183
4.4.6 Cultural Resources 4-183
4.4.6.1 Proposed Action 4-184
4.4.6.2 Non-Aviation with Mixed-Density Residential Alternative 4-185
4.4.6.3 General Aviation with Aircraft Maintenance Alternative 4-185
4.4.6.4 Non-Aviation with Low-Density Residential Alternative 4-185
4.4.6.5 Other Land Use Concepts 4-185
4.4.6.6 No-Action Alternative 4-186
4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES 4-186
4.6 RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY OF THE ENVIRONMENT 4-186

5.0 CONSULTATION AND COORDINATION 5-1

6.0 LIST OF PREPARERS AND CONTRIBUTORS 6-1

7.0 REFERENCES 7-1

8.0 INDEX 8-1

9.0 PUBLIC COMMENTS AND RESPONSES 9-1

APPENDICES

A - Glossary of Terms and Acronyms/Abbreviations
B - Mather AFB Closure Record of Decision
C - Notice of Intent
D - Final Environmental Impact Statement Mailing List
E - IRP Bibliography
F - Methods of Analysis
G - Community Plans
H - Existing Mather AFB Aircraft Traffic Patterns and Instrument Approach and Departure Procedures
I - Mather AFB Permits
J - Asbestos Survey Summary
K - Air Force Policy - Management of Asbestos at Closing Bases
L - Noise
M - Agency Letters and Certifications
N - Threatened, Endangered, and Other Species of Concern on or near Mather AFB
O - Estimating Groundwater Potentiometric Changes due to Reuse of Mather AFB
P - Air Quality Model Pollutant Sources

LIST OF TABLES

Table		Page
1.7-1	Relevant Federal, State, and Local Statutes, Regulations, and Guidelines	1-10
1.7-2	Federal Permits, Licenses, and Entitlements Potentially Required for Reusers or Developers of Disposed Base Property	1-14
2.2-1	Land Use Acreage - Proposed Action	2-6
2.2-2	Projected Annual Flight Operations - Proposed Action	2-11
2.2-3	Temporal Distribution of Operations - Proposed Action	2-12
2.2-4	Employment and Population Effects - Proposed Action	2-16
2.3-1	Land Use Acreage - Non-Aviation with Mixed-Density Residential Alternative	2-19
2.3-2	Employment and Population Effects - Non Aviation with Mixed-Density Residential Alternative	2-24
2.3-3	Land Use Acreage - General Aviation with Aircraft Maintenance Alternative	2-26
2.3-4	Projected Annual Flight Operations - General Aviation with Aircraft Maintenance Alternative	2-29
2.3-5	Temporal Distribution of Operations - General Aviation with Aircraft Maintenance Alternative	2-30
2.3-6	Employment and Population Effects - General Aviation with Aircraft Maintenance Alternative	2-32
2.3-7	Land Use Acreage - Non-Aviation with Low-Density Residential Alternative	2-34
2.3-8	Employment and Population Effects - Non-Aviation with Low-Density Residential Alternative	2-38
2.3-9	Other Land Use Concepts: Adjusted Land Use Acreage	2-41
2.6-1	Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 1999	2-55
2.6-2	Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2004	2-57
2.6-3	Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2014	2-59
2.6-4	Summary of Environmental Impacts of Reuse of Mather AFB in the Year 1999	2-61
2.6-5	Summary of Environmental Impacts of Reuse of Mather AFB in the Year 2004	2-62
2.6-6	Summary of Environmental Impacts of Reuse of Mather AFB in the Year 2014	2-63
2.6-7	Summary of Influencing Factors Associated with Federal Transfers and Independent Land Use Concepts	2-64
2.6-8	Summary of Environmental Impacts Associated with Federal Transfers and Independent Land Use Concepts	2-65
3.2-1	Existing On-Base Land Use	3-9
3.2-2	Road Transportation Levels of Service	3-20
3.2-3	Mather AFB Aircraft Operations, CY 1990	3-34
3.2-4	Airports Underlying Mather AFB Traffic Pattern Airspace	3-34

LIST OF TABLES (CONT'D)

Table		Page
3.2-5	Existing and Projected Closure Baseline Annual Aircraft Operations for Civilian Airports in the Vicinity of Mather AFB	3-35
3.2-6	Estimated Preclosure and Baseline Utility Demand in the ROI	3-40
3.3-1	Hazardous Waste Central Storage Facility	3-48
3.3-2	Hazardous Waste Accumulation Points	3-48
3.3-3	IRP Sites at Mather Air Force Base	3-56
3.3-4	Mather AFB FFA Schedule	3-60
3.3-5	Underground Storage Tanks to be Removed in Fiscal Year (FY) 92	3-62
3.3-6	Active USTs at Mather Air Force Base	3-63
3.3-7	Pesticide/Fertilizer Storage Locations at Mather Air Force Base	3-65
3.3-8	Recommended Radon Surveys and Mitigations	3-67
3.3-9	Silver Recovery Locations at Mather Air Force Base	3-68
3.4-1	Current Surface Water Entitlements Available in the ROI versus Historical Surface Water Usage	3-73
3.4-2	Groundwater Withdrawals in the Base Vicinity without Reuse of Mather AFB	3-75
3.4-3	National and California Ambient Air Quality Standards	3-77
3.4-4	Existing Air Quality in Area of Mather AFB	3-80
3.4-5	Preclosure Emission Inventory	3-81
3.4-6	Closure Emission Inventory	3-82
3.4-7	Typical Sound Levels	3-83
3.4-8	Land Use Compatibility Guidelines in Aircraft Noise Exposure Areas	3-85
3.4-9	Distance to DNL from Roadway Centerline for the Preclosure Reference and Closure Baseline	3-87
4.2-1	Residential Noise Exposure for the Mather AFB Aviation Reuse Plans	4-6
4.2-2	Daily Trips Generated by the Proposed Action and Alternatives, Including Construction Workers	4-21
4.2-3	Daily Trips Generated by Each Proposed Land Use and Construction Workers - Proposed Action	4-22
4.2-4	AADT on Key Community Roadways - Proposed Action	4-23
4.2-5	Proposed Action - Aircraft Operations versus Annual Service Volume	4-29
4.2-6	Daily Trips Generated by Each Proposed Land Use and Construction Workers - Non-Aviation with Mixed-Density Residential Alternative	4-31
4.2-7	AADT on Key Community Roadways - Non-Aviation with Mixed-Density Residential Alternative	4-31
4.2-8	Daily Trips Generated by Each Proposed Land Use and Construction Workers - General Aviation with Aircraft Maintenance Alternative	4-36
4.2-9	AADT on Key Community Roadways - General Aviation with Aircraft Maintenance Alternative	4-36
4.2-10	General Aviation with Aircraft Maintenance Alternative Projected Aircraft Operations versus Annual Service Volume	4-41
4.2-11	Daily Trips Generated by Each Proposed Land Use and Construction Workers - Non-Aviation with Low-Density Residential Alternative	4-42

LIST OF TABLES
(CONT'D)

Table		Page
4.2-12	AADT on Key Community Roadways - Non-Aviation with Low-Density Residential Alternative	4-43
4.2-13	Peak-Hour Traffic on Key Community Roads - No-Action Alternative	4-48
4.2-14	On-Site Utility Demands for the Proposed Action and Alternatives	4-50
4.2-15	Utility Demand Changes in the Sacramento Region - Proposed Action	4-52
4.2-16	Utility Demand Changes in the Sacramento Region - Non-Aviation with Mixed-Density Residential Alternative	4-59
4.2-17	Utility Demand Changes in the Sacramento Region - General Aviation with Aircraft Maintenance Alternative	4-64
4.2-18	Utility Demand Changes in the Sacramento Region - Non-Aviation with Low-Density Residential Alternative	4-70
4.3-1	Proposed Action Hazardous Material Usage	4-78
4.3-2	IRP Sites within Land Use Areas: Proposed Action	4-82
4.3-3	IRP Sites within Land Use Areas: Non-Aviation with Mixed-Density Residential Alternative	4-87
4.3-4	IRP Sites within Land Use Areas: General Aviation with Aircraft Maintenance Alternative	4-90
4.3-5	IRP Sites within Land Use Areas: Non-Aviation with Low-Density Residential Alternative	4-93
4.4-1	Acreages Disturbed and Reclaimed at 5, 10, and 20 Years after Closure	4-97
4.4-2	Projected Water Demand - Proposed Action	4-107
4.4-3	Projected Drawdown Values (feet) at Mather AFB for the Proposed Action and Alternatives	4-108
4.4-4	Projected Water Demand - Non-Aviation with Mixed-Density Residential Alternative	4-110
4.4-5	Projected Water Demand - General Aviation with Aircraft Maintenance Alternative	4-112
4.4-6	Projected Water Demand - Non-Aviation with Low-Density Residential Alternative	4-114
4.4-7	Projected Water Demand for Other Land Use Concepts	4-115
4.4-8	Pollutant Emissions from Aggregate Mining	4-118
4.4-9	Pollutant Emissions Associated with the Proposed Action (tons/day)	4-119
4.4-10	Air Quality Modeling Analysis of Airport Activity for the Proposed Action ($\mu g/m^3$)	4-124
4.4-11	Pollutant Emissions Associated with the Non-Aviation with Mixed-Density Residential Alternative (tons per day)	4-130
4.4-12	Pollutant Emissions Associated with the General Aviation with Aircraft Maintenance Alternative (tons/day)	4-132
4.4-13	Air Quality Modeling Analysis of Airport Activity for the General Aviation with Aircraft Maintenance Alternative ($\mu g/m^3$)	4-133
4.4-14	Pollutant Emissions Associated with the Non-Aviation with Low-Density Residential Alternative (tons/day)	4-135
4.4-15	Percentage of Population Highly Annoyed by Noise Exposure	4-138
4.4-16	Noise Exposure Greater than 65 DNL for the Mather AFB Alternative Development Plans	4-150
4.4-17	Approximate SEL (dB) Levels for Selected Locations (Noisiest and Most Common Aircraft)	4-151

LIST OF TABLES (CONT'D)

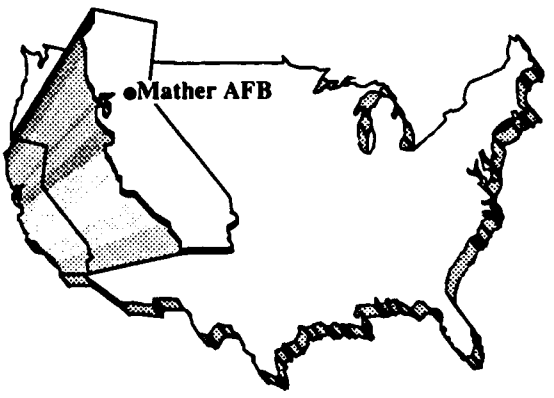
Table		Page
4.4-18	Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the Proposed Action	4-152
4.4-19	Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the Non-Aviation with Mixed-Density Residential Alternative	4-154
4.4-20	Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the General Aviation with Aircraft Maintenance Alternative	4-160
4.4-21	Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the Non-Aviation with Low-Density Residential Alternative	4-162
4.4-22	Changes in Distance to DNL from Roadway Centerline due to Other Land Use Concepts (percent)	4-163
4.4-23	Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the No-Action Alternative	4-167
4.4-24	Direct Impacts of the Proposed Action on Vegetation (acres)	4-169
4.4-25	Direct Impacts of the Non-Aviation with Mixed-Density Residential Alternative on Vegetation (acres)	4-176
4.4-26	Direct Impacts of the General Aviation with Aircraft Maintenance Alternative on Vegetation (acres)	4-179
4.4-27	Direct Impacts of the Non-Aviation with Low-Density Residential Alternative on Vegetation (acres)	4-180

LIST OF FIGURES

Figure		Page
2.2-1	Proposed Action (General Aviation with Air Cargo)	2-5
2.2-2	Transit Oriented Development (TOD) Concept in Sacramento County Reuse Plans	2-7
2.2-3	Preliminary Airport Layout Plan	2-9
2.3-1	Non-Aviation with Mixed-Density Residential Alternative	2-20
2.3-2	General Aviation with Aircraft Maintenance Alternative	2-27
2.3-3	Non-Aviation with Low-Density Residential Alternative	2-35
2.3-4	Caltrans R&D Center with Airfield	2-42
2.3-5	Caltrans R&D Center without Airfield	2-43
2.3-6	Theme Park with Airfield	2-44
2.3-7	Theme Park without Airfield	2-45
2.3-8	Proposed Federal Transfers	2-48
2.3.9	Proposed Conveyances	2-49
3.2-1	Regional Map	3-3
3.2-2	Vicinity Topographic Map	3-4
3.2-3	City Boundaries and Unincorporated Areas	3-6
3.2-4	Existing On-Base Land Use	3-10
3.2-5	Existing Off-Base Land Use	3-13
3.2-6	Regional Transportation Map	3-21
3.2-7	Vicinity: Major Roads	3-23
3.2-8	Mather AFB Street Network	3-24
3.2-9	Peak-Hour Traffic Volumes on Key Community Roads	3-27
3.2-10	Mather AFB Street Network	3-28
3.2-11	Airport Area Region of Influence	3-31
3.2-12	Arriving Aircraft Flight Paths	3-32
3.2-13	Departing Aircraft Flight Paths	3-33
3.2-14	Sacramento Area Light Rail System	3-37
3.3-1	Pictorial Presentation of IRP Process	3-51
3.3-2	Installation Restoration Program Sites	3-54
3.4-1	Surface Geology	3-70
3.4-2	Preclosure Noise Contours	3-86
3.4-3	Vegetation and Wetlands/Vernal Pools	3-89
4.2-1	Comparison of Alternatives - Increases in Regional Population and Employment Opportunities Due to Site Reuse	4-3
4.2-2	Land Use Conflicts - Proposed Action (2014)	4-7
4.2-3	Land Use Conflicts - Non-Aviation with Mixed-Density Residential Alternative (2014)	4-11
4.2-4	Land Use Conflicts - General Aviation with Aircraft Maintenance Alternative (2014)	4-13
4.2-5	Land Use Conflicts - Non-Aviation with Low-Density Residential Alternative (2014)	4-16
4.2-6	Peak-Hour Traffic Volume - Proposed Action	4-24
4.2-7	Peak-Hour Traffic Volume - Non-Aviation with Mixed-Density Residential Alternative	4-33
4.2-8	Peak-Hour Traffic Volume - General Aviation with Aircraft Maintenance Alternative	4-38

LIST OF FIGURES (CONT'D)

Figure		Page
4.2-9	Peak-Hour Traffic Volume - Non-Aviation with Low-Density Residential Alternative	4-44
4.3-1	IRP Sites - Proposed Action	4-80
4.3-2	IRP Sites - Non-Aviation with Mixed-Density Residential Alternative	4-86
4.3-3	IRP Sites - General Aviation with Aircraft Maintenance Alternative	4-89
4.3.4	IRP Sites - Non-Aviation with Low-Density Residential Alternative	4-92
4.4-1	Areas of Aggregate Mining Impacts - Proposed Action (2014)	4-98
4.4-2	Areas of Aggregate Mining Impacts - Non-Aviation with Mixed-Density Residential Alternative (2014)	4-101
4.4-3	Areas of Aggregate Mining Impacts - General Aviation with Aircraft Maintenance Alternative (2014)	4-102
4.4-4	Areas of Aggregate Mining Impacts - Non-Aviation with Low-Density Residential Alternative (2014)	4-104
4.4-5	Sleep Disruption (Awakening)	4-140
4.4-6	Arrival Flight Tracks	4-143
4.4-7	Departure Flight Tracks	4-144
4.4-8	Touch and Go Flight Tracks	4-145
4.4-9	DNL Noise Contours - Proposed Action (1994)	4-146
4.4-10	DNL Noise Contours - Proposed Action (1999)	4-147
4.4-11	DNL Noise Contours - Proposed Action (2004)	4-148
4.4-12	DNL Noise Contours - Proposed Action (2014)	4-149
4.4-13	DNL Noise Contours - General Aviation with Aircraft Maintenance Alternative (1994)	4-156
4.4-14	DNL Noise Contours - General Aviation with Aircraft Maintenance Alternative (1999)	4-157
4.4-15	DNL Noise Contours - General Aviation with Aircraft Maintenance Alternative (2004)	4-158
4.4-16	DNL Noise Contours - General Aviation with Aircraft Maintenance Alternative (2014)	4-159



CHAPTER 1

1.0 PURPOSE AND NEED FOR ACTION

This environmental impact statement (EIS) examines the potential impacts to the environment as a result of the disposal and reuse of Mather Air Force Base (AFB), California. This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality (CEQ) regulations implementing NEPA. Appendix A presents a glossary of terms, acronyms, and abbreviations used in this document.

This chapter describes the purpose and need for the disposal and reuse of Mather AFB as well as the regulatory framework that will guide the Air Force's decisions. Chapter 2 describes the proposed reuse activities, several alternative concepts for reuse and a No-Action Alternative. Chapter 3 contains an environmental description of Mather AFB and vicinity as conditions are expected to be at the date of base closure. In Chapter 4, impacts on the post-closure environment of enacting the Proposed Action and alternatives are assessed. Agencies that were consulted while preparing this EIS are identified in Chapter 5. Names of EIS authors and contributors, and complete reference citations are in Chapters 6 and 7, respectively. Chapter 8 contains a topic index to this EIS, Chapter 9 contains the public comments and responses, and appendices provide a variety of back-up data and documents.

1.1 PURPOSE AND NEED

The Proposed Action addressed in this EIS would dispose of Mather AFB, in whole or part, to other federal agencies, public entities, and/or private parties. The disposal of Mather AFB is authorized by the Defense Authorization Amendments and the Base Closure and Realignment Act (BCRA) (Public Law [P.L.] 100-526). The Secretary of Defense established the Defense Base Realignment and Closure Commission on May 3, 1988, to recommend military installations for realignment and closure, focusing on the military value of the installation as the primary criterion in identifying candidate bases. The United States Congress and the President endorsed the Commission and its charter by implementing the Defense Authorization Amendments and BCRA on October 24, 1988.

The Commission submitted its report to the Secretary of Defense on December 29, 1988, recommending realignments and closures affecting 145 military installations. Of these installations, 86 are to be closed, including Mather AFB. The Secretary of Defense approved the Commission's recommendations on January 5, 1989, and announced that the Department of Defense (DOD) would implement the realignment and closures of the selected installations. Under the provisions of BCRA, the Secretary of Defense must

initiate the recommended closures and realignments by September 30, 1991, and complete them before September 30, 1995.

The realignment of the 940th Air Refueling Group (AREFG) (Air Force Reserve) to McClellan AFB and the retaining of the 323rd Flying Training Wing Hospital as an annex of McClellan AFB were authorized by the provisions of the Defense Base Closure and Realignment Act of 1990 (P.L. 101-510) and the recommendations of the Secretary of Defense and the Defense Base Closure and Realignment Commission (DBRAC).

The Mather AFB property will be disposed of in compliance with the Defense Authorization Amendments, BCRA, the Federal Property and Administrative Services Act of 1949, and the Surplus Property Act of 1944. The base is scheduled to close on September 30, 1993.

Air Force decisions regarding Mather AFB property include the following:

- If, how, and when the property will be divided into parcels for disposal (parcelization)
- What disposal method will be used for each parcel, such as:
  - transfer to another federal agency
  - public benefit conveyance to an eligible entity
  - negotiated sale to a public body
  - sealed bid or auction to the general public
- What mitigation measures are needed for Air Force actions that cause adverse environmental impacts.

The Air Force goal is to dispose of Mather AFB property through transfer and/or conveyance to other government agencies or private parties. The Proposed Action evaluates the local reuse committee's specific goal of base reuse, which is to create a civilian airport (general and military aviation and air cargo) along with industrial, recreation/park, commercial, and residential uses.

1.2 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

BCRA also requires compliance with NEPA (with some exceptions) in the implementation of the base closures and realignments. The issues that were excluded from NEPA compliance are:

- The establishment of the Commission on Base Realignment and Closure
- The selection of installations for closure or realignment
- The Secretary of Defense's acceptance of the Commission's recommendations.

The Secretary of Defense, through the Air Force, is preparing the required NEPA documentation at each stage of the base closure process. The Air Force released the *Final EIS for the Closure of Mather AFB* on March 22, 1990, and

published the Record of Decision (ROD) on May 14, 1990. That document addressed the environmental impacts associated with closure; the ROD is presented in Appendix B of this EIS.

The Air Force has prepared this EIS to provide information on the range of potential environmental impacts of federal decisions regarding the disposal and incident reuse of Mather AFB. Following the completion and consideration of this EIS, the Air Force will make a series of interrelated decisions regarding transfer and parcelization of the property to be disposed. The federal decision documents, such as the ROD, will state the terms and conditions of the conveyances, including the mitigation measures, if any, that will be completed by the Air Force or base property recipients. These decisions will affect the environment by determining or influencing the nature of the future use of the property.

To help evaluate potential environmental impacts resulting from Air Force disposal of the affected property, this EIS addresses a reasonable range of post-disposal reuse alternatives. An analysis of these alternatives and associated environmental impacts will help to better inform the disposal decision maker of the potential impacts of future reuses. The Air Force will use the redevelopment plan developed by the local community to derive the Proposed Action for the purpose of conducting the required environmental analysis. In addition, the Air Force will analyze the environmental impacts associated with other reasonable reuse alternatives to ensure that all potential environmental impacts have been identified. The recipients of the property will subsequently determine the reuse of the property. Four redevelopment plans and a No-Action Alternative have been identified. The redevelopment plans include the Proposed Action, a second Aviation Alternative, and two Non-Aviation Alternatives.

The Air Force has prepared this EIS in cooperation with the Western-Pacific Region of the Federal Aviation Administration (FAA). The FAA would have regulatory jurisdiction over the area designated for aviation and support, should it be reused as a civilian airport. The FAA also has special expertise and a responsibility to make recommendations to the Air Force for the disposal of surplus property for airport use.

Certain activities inherent in the development or expansion of an airport constitute federal actions that fall under the statutory and regulatory authority of the FAA. The FAA generally reviews these activities through the processing and approval of an Airport Layout Plan (ALP). Goals of the ALP review system are to: (1) determine the ALP's effectiveness in achieving safe and efficient utilization of airspace, (2) assess factors affecting the control of air traffic, and (3) establish conformance with FAA design criteria and federal government agreements (ref. Federal Aviation Regulation [FAR] Parts 77, 139, 150, 157, and 169). The FAA approval action may also include other specific elements such

as preparation of the Airport Certification Manual (Part 139); the Airport Security Plan (Part 107); and the location, construction, or modification of an air traffic control (ATC) tower, terminal radar approach control (TRACON) facility, or other navigational aids or facilities.

In view of its possible direct involvement with the disposal of Mather AFB, the FAA is serving as a cooperating agency in the preparation of the EIS. If surplus property is conveyed to a local agency for airport purposes, the FAA will be the federal agency that would enforce deed covenants requiring the property to be used for airport purposes. Additionally, the FAA may later provide airport improvement program grants to the airport sponsor (local agency taking title). The FAA also has special expertise and the legal responsibility to make recommendations to the Air Force for the disposal of surplus property for airport purposes. The Surplus Property Act of 1944 (50 U.S.C. Appendix 1622(g)), authorized disposal of surplus real and related personal property for airport purposes and requires that the FAA certify that the property is necessary, suitable, and desirable for an airport.

The potential environmental impacts of airport development must be assessed prior to commitment of federal funding, in accordance with NEPA and FAA Orders 1050.1D, *Policies and Procedures for Considering Environmental Impacts*, and 5050.4A, *Airport Environmental Handbook*. Environmental impacts must be assessed prior to authorization of plans of local agencies for the development of the entire area in which the airport is located. Projects that involve adverse impacts will not be implemented unless no prudent or feasible alternative exists and until all measures to mitigate adverse effects have been addressed.

This EIS also provides environmental assessment information to aid FAA decisions on funding requests for airport development projects, establishment of approach procedures, and installation and operation of ATC, navigational, and visual aid facilities. If reuse proponents have developed only conceptual plans for the airport area, the environmental impacts of those concept plans are analyzed. The FAA may then use this document to complete its NEPA requirements when the ALP is submitted. This EIS also provides environmental assessment information to aid FAA decisions on funding requests for airport development projects. The new owners would be required to prepare a final ALP and submit it to the FAA, as appropriate, for approval.

The socioeconomic impacts of disposal and reuse of Mather AFB property are analyzed only to the extent that those impacts affect the natural or physical environment. A detailed, concurrent study, presented in the *Socioeconomic Impact Analysis Study*, analyzes the socioeconomic impacts of the base closure and disposal and reuse of the base property, and has been made available to state and local officials. It describes the effects on the local communities and the transition of activities on the base from conditions prior to closure through

redevelopment. Concerns of state and local agencies and the general public regarding those issues are addressed in that study.

1.3 SCOPING PROCESS

The scoping process identifies the environmental issues relevant to the proposal and provides an opportunity for public involvement in the development of the EIS. Various issues related to the disposal and reuse of the base were identified during the Mather AFB Closure EIS scoping period (February 8 to April 8, 1989) and at the Closure Scoping meeting held on February 27, 1989, in Rancho Cordova, California. The Notice of Intent (NOI) (Appendix C) to prepare an EIS for disposal and reuse of Mather AFB was published in the Federal Register on November 16, 1990. Local notification of the public scoping meeting was achieved through the media.

The scoping period for the disposal and reuse of Mather AFB was from November 16 to December 31, 1990. A public meeting was held on December 5, 1990, at the County Office of Education in Sacramento, California, to solicit comments and concerns from the general public on the disposal and reuse of Mather AFB.

Approximately 50 people attended the meeting. Representatives of the Air Force presented an overview of the meeting's objectives, agenda, and procedures, and described the process and purpose for the development of a disposal and reuse EIS. In addition to verbal comments, several written comments were received during the scoping process. These comments, as well as information from previous Air Force scoping meetings, experience with similar programs, and NEPA requirements, were used to determine the scope and direction of studies/analysis to accomplish this EIS. Copies of the Draft EIS were sent to all interested parties; Appendix D contains the distribution list.

1.3.1 Summary of Scoping Issues and Concerns

Issues and concerns raised during the scoping process, for consideration in this EIS, are summarized below.

Hazardous Materials and Wastes

- The previous use of hazardous materials and generation of hazardous wastes, associated mainly with aviation activities at the base, have resulted in uncontrolled releases and groundwater contamination as documented in existing Installation Restoration Program (IRP) studies. Proposed reuse plans also include aviation-related activities and the continued use of hazardous materials. The use of such materials needs to be controlled through adherence to the appropriate federal, state, and local regulations.
- A number of facilities constructed in the 1940-50s contain friable asbestos. Such conditions raise concerns about the method of their disposal and eventual reuse.

- Concern was raised regarding the possibility that as-yet undetected sources of soil and groundwater contamination may be discovered after disposal of the base.

Biological Resources

- The base contains extensive areas of wetlands/vernal pools and the preservation and enhancement of this habitat is of concern. Potential conflicts exist between certain proposed reuse activities and the continued viability of this habitat.
- The long-term effectiveness of restoration and reclamation methods applied to lands disturbed by aggregate mining activities should be addressed.
- The preservation and enhancement of Mather Lake and adjacent buffer lands and Morrison Creek should be assessed.

Air Quality

- Mather AFB is located in a federal and state non-attainment area for ozone, and carbon monoxide, and in a state non-attainment area for particulate matter less than 10 microns in diameter (PM_{10}). The major development proposals call for continued aircraft operations (though not of the same composition or intensity); therefore, emissions will need to be monitored.

Noise

- Two of the major proposed reuse development plans call for continued aircraft operations. Concerns have been expressed regarding the noise footprint associated with these operations and compatibility with local land use plans and policies. Suggestions regarding the specific types of aircraft utilizing the proposed aviation facilities and the hours of flight operations have been offered by the public.

Geological Resources

- Mather AFB is known to be underlain by substantial deposits of aggregate materials (possibly containing placer gold) having considerable commercial value. Based on the dwindling availability of such resources in the region, it has been suggested that the impacts of not exploiting these resources at Mather AFB should be considered.
- Potential aggregate mining and gold extraction represent a profitable interim or short-term utilization of base lands prior to final reuse.
- Visual and aesthetic impacts could result if aggregate mining is a component of proposed reuse activities, especially during the excavation phase and prior to completion of the reclamation process.

1.3.2 Issues Beyond the Scope of the EIS

Concerns and issues that are beyond the scope of this EIS were also expressed during the scoping process. These issues, and the reasons they are not included in this EIS, are identified below. In general, issues were determined to

be beyond the scope of this EIS if they have been or are being addressed by other surveys and studies, are incorporated by reference as appropriate to the content of this document, or if their impacts were not directly pertinent.

Installation Restoration Program. The Air Force is currently conducting an IRP that defines and implements the procedures necessary for the remediation of hazardous material releases at Mather AFB. The IRP is a separate process being conducted concurrently with the analysis of the disposal and reuse EIS; final assessments and findings of the IRP are not yet completed. The steps in this process are shown in the pictorial presentation of the IRP in Section 3.3.3. Consideration of IRP management and analysis procedures are beyond the scope of this EIS; however, IRP issues are discussed herein to provide a baseline for the affected environment.

Socioeconomics. Effects upon the physical or natural environment as a result of potential changes in certain socioeconomic factors that are associated with or caused by the disposal or reuse of the base are addressed within this EIS. Other socioeconomic issues, such as the region's employment base, school budgets, municipal/state tax revenues, medical care for military retirees and dependents, local governments and services, and economic effects on utility systems are beyond the scope of NEPA and CEQ requirements. Analysis of impacts associated with these issues is provided in the *Socioeconomic Impact Analysis Study*; a document that will also support the base reuse decision-making process.

1.4 PUBLIC COMMENT PROCESS

The Air Force has complied with the NEPA mandate of public participation in the environmental impact analysis process primarily in two ways:

- The subject DEIS was made available for public review and comment in December 1991 through February 1992.
- At a public hearing held on January 14, 1992, the Air Force presented the findings of the DEIS and invited public comments.

All comments were reviewed and addressed, when applicable, and have been included in Chapter 9 of this document. Responses to comments offering new, or changes to, data and questions about the presentation of data are also included. Comments simply stating facts or opinions, although appreciated, did not require specific responses. The Public Comment and Response chapter more thoroughly describes the comment and response process.

1.5 CHANGES TO THE DEIS

The text of this EIS has been revised, when appropriate, to reflect concerns expressed in public comments. These changes range from typographical corrections to amendments of reuse plans. The responses to the comments in

Chapter 9 indicate the relevant sections of the EIS that have been revised. The major comments received on the Draft EIS were:

- The treatment of cumulative impacts and mitigations was considered to be inadequate.
- The discussion of contamination, hazardous materials, hazardous waste and cleanup was considered deficient.
- The discussion of impacts to wetlands was considered inadequate.
- Presentation of aggregate mining impacts to air quality was considered inadequate.

Based on more recent studies or comments from the public, the following sections of the EIS have been updated or revised:

- Mather Internal Study Team (MIST) revisions to the Proposed Action included expansion of the airport (aviation support), expansion of aggregate mining (86 acres), and the addition of the California Army National Guard and aircraft maintenance operations. (Sections 2.2, 4.2.1.1, 4.2.2.1, 4.2.3.1, 4.2.4.1, 4.3.1, 4.4.1.1, 4.4.2.1, 4.4.3.1, 4.4.4.1, 4.4.5.1, and 4.4.6.1)
- The federal Bureau of Prisons withdrew its proposal to site a Federal Correctional Complex at Mather AFB. (Sections 2.3.4, 2.3.4.1, 4.2.1.5, 4.2.2.5, 4.2.3.5, 4.2.4.5, 4.3.5.1, 4.4.2.5, 4.4.3.5, 4.4.4.5, and 4.4.5.1)
- The discussion of wastewater has been revised based on release of the Carollo Engineering Report in final form. (Section 4.2.4)
- Hazardous Materials/Hazardous Waste Management (Sections 3.3 and 4.3) includes expanded discussions on the following:
  - Impacts of the IRP process on reuse development
  - Characterization of IRP sites
  - Evaluation and effects of each IRP site relevant to each alternative's land uses
  - Concept of risk associated with certain types of development and IRP sites.
- Air quality impacts due to aggregate mining have been presented in separate tables (Section 4.4.3) and discussed in the presentation of site-related air quality impacts.
- Air quality preclosure emission inventories for the Sacramento Valley Air Basin (SVAB) and the Sacramento County portion of the SVAB, have been updated to reflect 1989 data rather than 1987.
- Air quality impacts for the Proposed Action have been revised to include California Army National Guard (CANG) and aircraft maintenance flight operations.
- Impacts to wetlands have been revised to include a discussion of impacts by land use category, including aggregate mining. (Sections 4.4.5.1 through 4.4.5.4)

1.6 RELATED ENVIRONMENTAL DOCUMENTS

The environmental documents listed below have been prepared separately and address environmental issues at Mather AFB. These documents provided supporting information for the environmental analysis.

- Final Environmental Impact Statement for the closure of Mather Air Force Base
- IRP Bibliography (Appendix E).

1.7 RELEVANT FEDERAL, STATE, AND LOCAL STATUTES, REGULATIONS, AND GUIDELINES

Federal, state, and local statutes, regulations, and guidelines with which the recipients of Mather AFB property and cooperating agencies must comply, as related to this disposal and reuse EIS, are presented in Table 1.7-1. Federal permits, licenses, and entitlements which may be required by reusers or developers are presented in Table 1.7-2.

Table 1.7-1. Relevant Federal, State, and Local Statutes, Regulations, and Guidelines

Resource	Project Activity	Authority/Guideline	Agency
Air Quality	Changes in vehicle traffic levels or aircraft operations; changes in emissions from construction activity or the establishment or removal of any stationary source of emissions.	The Clean Air Act, 42 USC §§ 7401 et seq.; 40 CFR Parts 50-87; California Clean Air Act; California Health and Safety Code Chapter 156 B; Sacramento Metropolitan Air Quality Management District Rules and Regulations.	U.S. Environmental Protection Agency; California Environmental Protection Agency; California Air Resources Board; Sacramento Metropolitan Air Quality Management District.
	Analysis of environmental impact of development or improvement of a public airport.	Federal Aviation Administration Order 5050.4A.	U.S. Department of Transportation - Federal Aviation Administration.
	Improvement of a federally funded highway project.	23 USC § 109 (Standards for Federal Aid Highways); The Clean Air Act, 42 USC § 7506; Air Quality Conformity and Priority Procedures for use in Federal-Aid Highway and Federally Funded Transit Programs, 23 CFR Part 770.	U.S. Department of Transportation - Federal Highway Administration.
Airspace Use	Activities that may affect airspace use and air traffic procedures.	Federal Aviation Administration Handbooks 7400.2C and 8260.3; Federal Aviation Act of 1958, as amended (P.L. 85-726); Airport and Airway Improvement Act of 1982 (P.L. 97-248); Federal Aviation Regulation Part 77.	U.S. Department of Transportation-Federal Aviation Administration.
Biological Resources	Consultation regarding federal or federally permitted projects to impound, divert, or control surface waters with a total surface area greater than 10 acres.	Fish and Wildlife Coordination Act, 16 USC §§ 1661 et seq.; 111 Rev. Stat. Ch. 97 1/2., Natural Resources Act.	Department of Interior - U.S. Fish and Wildlife Service.
	Dredge and fill activities in jurisdictional wetlands.	Clean Water Act, 33 USC §§ 1251 et seq.; Executive Order 11990 (Protection of Wetlands).	Department of Interior - U.S. Fish and Wildlife Service; U.S. Environmental Protection Agency; Department of Defense - Army Corps of Engineers; California Environmental Protection Agency.
	Activities that may affect habitat of migratory birds.	Migratory Bird Treaty Act 16 USC §§ 701 et seq.; 50 CFR Part 21.	Department of Interior - U.S. Fish and Wildlife Service.
	Reservoir development and stream modification projects including specific fish and wildlife habitat improvements.	Watershed Protection and Flood Prevention Act, 16 USC §§ 1001 et seq., 33 USC § 701-1.	U.S. Department of Agriculture - Soil Conservation Service.

Table 1.7-1. Relevant Federal, State, and Local Statutes, Regulations, and Guidelines

Resource	Project Activity	Authority/Guideline	Agency
Biological Resources (Continued)	Project activities that could affect stream beds.	California Fish and Game Code, Sections 1601 and 1603.	California Department of Fish and Game.
	Project activities that may affect federally and state-listed endangered or threatened species.	Endangered Species Act of 1973, 16 USC Sec. 1531-1544; California Endangered Species Act, California Fish and Game Code, Chapter 1.5, Sec. 2050 et seq.	Department of Interior - U.S. Fish and Wildlife Service; California Department of Fish and Game.
	Transportation programs or projects that may require the use of any park, recreation area or wildlife or waterfowl refuge of national, state, or local significance.	Department of Transportation Act of 1966, 49 USC § 303 (C) (formerly 49 USC § 1653 (F) (1982).	U.S. Department of Transportation.
	Ensuring that necessary actions are taken for the prevention, control, and abatement of environmental pollution from federal facilities and activities under the control of the agency.	Executive Order 12088 (Federal Compliance with Pollution Control Standards).	Department of Defense - U.S. Air Force.
Cultural Resources	Project activities that may affect properties with archaeological, historic, architectural, or cultural value that are listed or are eligible for listing in the National Register of Historic Places. Project activities that may affect traditional Native American resources. Project activities that may affect paleontological resources.	Antiquities Act of 1906; III, Rev. Stat. Ch. 127; Historic Sites Act, 16 USC §§ 461 et seq.; National Historic Preservation Act, 16 USC §§ 470 et seq.; Protection of Historic and Cultural Properties, 36 CFR Part 800; National Register of Historic Places, 36 CFR Part 60; Determinations of Eligibility for Inclusion in the NRHP, 36 CFR Part 63; The Secretary of the Interior's Standards for Historic Preservation Projects, 36 CFR Part 68. American Indian Religious Freedom Act, 42 USC §§ 1886.	Department of Interior - National Park Service; Advisory Council on Historic Preservation, State Office of Historic Preservation.
	Transportation programs or projects that will require the use of or have impacts on land of an historic site of national, state, or local significance.	Department of Transportation Act of 1966 (Public Law 89-670) 49 USC 303, Section 4 (F), Section 15(a) of the Federal-Aid Highway Act; 23 USC § 138.	U.S. Department of Transportation.
Land Use	Disposal of dwellings.	Stewart B. McKinney Homeless Assistance Act, 42 USC § 11411.	Department of Housing and Urban Development - Department of Health and Human Services.

Table 1.7-1. Relevant Federal, State, and Local Statutes, Regulations, and Guidelines

Resource	Project Activity	Authority/Guideline	Agency
Land Use (Continued)	Transfer of federal properties comprising Mather Air Force Base.	Federal Property Administrative Services Act, 40 USC § 471 et seq.; Base Closure and Realignment Act of 1988, P. L. 100-526; Surface Transportation Act of 1991.	General Services Administration; Department of Defense - U.S. Air Force.
	Control of height of structures.	Federal Aviation Regulation Part 77.	U.S. Department of Transportation - Federal Aviation Administration.
Noise	Aviation.	Federal Aviation Regulation Part 150 (14 CFR 150); Housing and Urban Development and U.S. Environmental Protection Agency guidelines; Federal Aviation Regulation Part 36.	U.S. Department of Transportation - Federal Aviation Administration.
		California Noise Standards, Title 21, Subchapter 6.	California Department of Transportation, Department of Aeronautics.
	Project related traffic, aviation, and mining.	Noise Element Zoning Code of Sacramento County, Chapter 35, Article 4, Sacramento County General Plan.	Sacramento County.
Soils and Geology	Aggregate mining and post-mining reclamation.	California Public Resources Code, Chapter 9, § 2710 to 2795, "Surface Mining and Reclamation Act of 1975".	California Division of Mines and Geology.
	Conversion of prime and unique farm land	7 CFR Ch. VI, Part 658, Farmland Protection Policy Act.	U.S. Department of Agriculture - Soil Conservation Service.
Waste Management	Remediation of past discharges of hazardous substances.	Comprehensive Environmental Response, Compensation and Liability Act, 42 USC §§ 9601 et seq.	U.S. Environmental Protection Agency; California Environmental Protection Agency.
	Generation and temporary storage of hazardous substances.	Resource Conservation and Recovery Act, 42 USC §§ 6901 et seq	U.S. Environmental Protection Agency; California Environmental Protection Agency.
	Identification of asbestos-containing materials.	National Emission Standards for Hazardous Air Pollutants 40 CFR 61; Occupational Safety and Health Act 29 USC §§ 669 et seq.	U.S. Environmental Protection Agency; OSHA; California Department of Health Services.
	Disposal of pesticides and pesticide containers.	Federal Insecticide, Fungicide and Rodenticide Act 7 USC §§ 136 et seq.	U.S. Environmental Protection Agency

Table 1.7-1. Relevant Federal, State, and Local Statutes, Regulations, and Guidelines

Page 4 of 4

Resource	Project Activity	Authority/Guideline	Agency
Waste Management (Continued)	Closure of underground storage tanks.	Resource Conservation and Recovery Act, 42 USC §§ 6991-69911, California Administrative Code, Title 23, Subchapter 16.	U.S. Environmental Protection Agency; Sacramento County Environmental Management Division; Sacramento County Fire Department.
	Removal and Storage of PCBs.	Toxic Substance Control Act P.L. 100-368, CCR Title 22, Chapter 30, California Health and Safety Code, Chapter 6.5.	U.S. Environmental Protection Agency; California Environmental Protection Agency.
Water	Establishment of safe water regulations and maximum contaminant levels applicable with minor exceptions to public systems.	Safe Drinking Water Act (Public Law 95-523), as amended, Subchapter XII, Safety of Public Water Systems, Part B.	U.S. Environmental Protection Agency.
	Discharge of wastewater.	Clean Water Act, 33 USC §§ 1251 et seq.; The National Pollution Discharge Elimination System, 40 CFR Part 122.	U.S. Environmental Protection Agency; California Environmental Protection Agency.
	Discharge of dredge or fill material into waters of the United States.	Clean Water Act, 33 USC §§ 1251 et seq.; 40 CFR Part 230.	Department of Defense - Army Corps of Engineers.

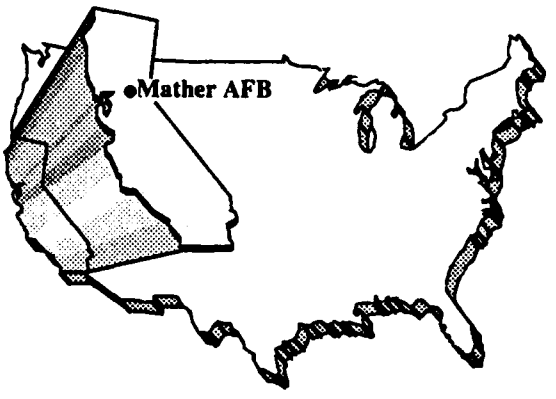
Table 1.7-2. Federal Permits, Licenses, and Entitlements Potentially Required for Reusers or Developers of Disposed Base Property
Page 1 of 2

Federal Permit, License, or Entitlement	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit, License, or Entitlement	Regulatory Agency	Authority
Title V permit under the Clean Air Act (CAA), as amended by the 1990 Clean Air Act Amendments	Any major source (source that emits more than 100 tons/year of criteria pollutant in nonattainment area for that pollutant or is otherwise defined in Title I of CAA as a major source); affected sources as defined in Title IV of CAA; sources subject to Section 111 regarding New Source Performance Standards; sources of air toxics regulated under Section 112 of CAA; sources required to have new source or modification permits under Parts C or D of Title I of CAA; and any other source designated by EPA regulations	U.S. Environmental Protection Agency (EPA); applicable state Air Pollution Control District if state has EPA-approved air quality control program	Title V of CAA
National Pollutant Discharge Elimination System (NPDES) permit	Discharge of pollutant from any point source into waters of the United States	U.S. EPA; State Water Quality Control Board	Section 402 of Federal Water Pollution Act, 33 USC § 1342; California Water Code § 13376
Section 404 (Dredge and Fill) Permit	Any project activities resulting in the discharge of dredged or fill material into bodies of water, including wetlands, within the United States.	U.S. Army Corps of Engineers, in consultation with U.S. EPA	Section 404 of Federal Water Pollution Act, 33 USC § 1344
Underground Injection Control (UIC) Permit	Owners or operators of certain types of underground injection wells	U.S. EPA; California EPA	Safe Drinking Water Act, 42 USC § 300h(b); 40 CFR Part 144; California Water Code §§ 13382, 13382.5
Hazardous waste treatment, storage, or disposal (TSD) facility permit	Owners or operators of a new or existing hazardous waste TSD facility	U.S. EPA: California EPA	Resource Conservation and Recovery Act (RCRA) as amended, 42 USC § 3005; 40 CFR Part 270; California Health & Safety Code § 25201

Table 1.7-2. Federal Permits, Licenses, and Entitlements Potentially Required for Reusers or Developers of Disposed Base Property
Page 2 of 2

Federal Permit, License, or Entitlement	Typical Activity, Facility, or Category of Persons Required to Obtain the Federal Permit, License, or Entitlement	Regulatory Agency	Authority
EPA, *manifest identification* number	Generators or transporters (off-site transport) of hazardous waste	U.S. EPA	40 CFR § 262.10 (generators); 40 CFR Part 263, Subpart B (transporters)
Antiquities permit	Excavation and/or removal of archaeological resources from public lands or Indian lands and carrying out activities associated with such excavation and/or removal	U.S. Department of the Interior, National Park Service	Archaeological Resource Protection Act of 1979, 16 USC § 470cc
Endangered Species Act § 10 permit	Taking endangered or threatened wildlife species; engaging in certain commercial trade of endangered or threatened plants or removing such plants on property subject to federal jurisdiction	U.S. Department of the Interior, Fish and Wildlife Service	Section 10 of Endangered Species Act, 16 USC § 1539; 50 CFR Part 17, Subparts C,D,F, & G
Airport Operating Certificate	Operating a land airport serving any scheduled or unscheduled passenger operation of air carrier aircraft designed for more than 30 passenger seats	U.S. Department of Transportation, Federal Aviation Administration	Federal Aviation Act of 1958, 49 USC App. § 1432

THIS PAGE INTENTIONALLY LEFT BLANK



CHAPTER 2

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This section describes the Proposed Action, reasonable alternatives to the Proposed Action, and the No-Action Alternative. Potential federal transfers of Mather AFB property and facilities from the DOD to other federal agencies are also described. Additionally, potential conveyances to non-federal public agencies as well as independent land use concepts that are not a part of a complete reuse development plan are addressed. The potential environmental impacts of the Proposed Action and alternatives are summarized.

2.1 INTRODUCTION

BCRA legislates the delegation of federal authority and consultative requirements of the Administrator of General Services to the Secretary of Defense with respect to the excess and surplus real property and facilities located at a military installation closed or realigned under this act. Federal property management regulations (FPMR) address disposal methods associated with base closure. Disposal methods include transfer to another federal agency, public benefit conveyance, negotiated sale to state or local government, and public sale by auction or sealed bid. Because these disposal methods are valid in the disposal and reuse of Mather AFB either in its entirety or in some form of parcelization, it is possible that different methods of disposal will be assigned to different parcels on Mather AFB.

Many proposals relative to the future use of land and buildings have been received by the County of Sacramento and it is the intention of the MIST to select proposals to be recommended to the Sacramento County Board of Supervisors which would forward them to DOD. Once the selection process is accomplished, the endorsement and official sponsorship of the appropriate federal agency will be sought by the county. With this official sponsorship in hand, Sacramento County will then approach DOD with an integrated package of proposals regarding the transfer or conveyance of land and structures.

Provision of BCRA and FPMR require that the Air Force first notify other DOD departments that Mather AFB is scheduled for disposal. Proposals from other DOD departments for the reuse of Mather AFB property will be given priority consideration, if that department is willing to purchase the property. Currently, no formal endorsements have been made by DOD regarding the transfer or conveyance of property to other federal, state, and local agencies.

Under the provisions of the FPMR which implement the Stewart B. McKinney Homeless Assistance Act (P.L. 100-77), the Department of Housing and Urban Development (HUD) is required to determine the suitability of underutilized, unutilized, and/or excess buildings and land for use by homeless assistance providers.

The Air Force has reported Mather AFB to HUD as "to be excess on or about December 1992." HUD then reported the potential availability of facilities at Mather AFB in the June 21, 1991, Federal Register. After publication, homeless assistance providers had 60 days to make expressions of interest on suitable property to the Department of Health and Human Services (HHS) and to receive a lease application to be completed in 90 days. HHS is required to determine, within 25 days, the suitability of the homeless assistance provider. Homeless Assistance Providers determined to be suitable by HHS may be able to lease available property prior to closure of the base. The minimum term of a lease is one year. If the Air Force determines a building or a parcel of land to be surplus, the homeless assistance providers will be provided an application to acquire the property by deed.

Prior to either leasing or deeding the property, the Air Force may consider other Federal uses and other important national needs. However in deciding the disposition of surplus property, a priority of consideration will be given to uses which assist the homeless. Subsequently, the property will be made available to federal, state, and local agencies and to the public.

MIST (and its predecessor, the Sacramento Area Commission on Mather Conversion, SACOMC) is composed of the heads of numerous Sacramento County public agencies and departments and reports directly to the Sacramento County Board of Supervisors. The final report of SACOMC, presented to the Sacramento County Board of Supervisors in January 1991, outlined a series of recommendations concerning the future use of Mather AFB. A central assumption of SACOMC's preliminary plan was that the facility would remain an aviation facility. The Rancho Cordova Chamber of Commerce simultaneously developed a Mather AFB reuse plan which focused on a civilian airfield and residential growth. Each plan was presented to the Air Force during the Scoping Meeting.

Subsequently, the Sacramento County Department of Planning at the direction of the Sacramento County Board of Supervisors, developed two land use plans, one of which integrates the essential land use development aspects of both the SACOMC and Rancho Cordova plans, including an aviation component. A second land use plan presents a conceptual plan that does not include an aviation component. Additionally, the Sacramento County Department of Airports developed an aviation forecast representing the anticipated level and type of operations associated with a future airport at Mather AFB. The Rancho Cordova Chamber of Commerce concurred with the plans and the aviation forecast, and MIST recommended them to the Sacramento County Board of Supervisors for adoption.

The Proposed Action analyzed in this document calls for the conversion of Mather AFB to a civilian airport accompanied by reuse of existing facilities and the construction of new facilities for industrial, commercial, and residential

activities in currently undeveloped portions of the base. The California Army National Guard remains as a tenant at the airfield. For the purposes of analysis, the Proposed Action described here represents an elaboration on the land use plans with an aviation component presented by Sacramento County. Further details regarding the Proposed Action are presented in Section 2.2.

There are four alternatives to the Proposed Action:

- Non-Aviation with Mixed-Density Residential
- General Aviation with Aircraft Maintenance
- Non-Aviation with Low-Density Residential
- No-Action.

The Non-Aviation with Mixed-Density Residential Alternative was derived from the land use plan presented by the Sacramento County Board of Supervisors as an alternative to the Proposed Action. The major differences between this alternative and the Proposed Action are the absence of an aviation component and the substantially greater acreage that is devoted to residential development in the area previously occupied by the airfield.

The General Aviation with Aircraft Maintenance Alternative focuses on the development of an airport with general aviation and maintenance activities in addition to a mix of light industrial, educational, commercial, residential, park/recreation and natural habitat land uses. This alternative differs from the Proposed Action mainly in terms of the number and type of aircraft operations. Under this reuse scenario, as in the Proposed Action, the California Army National Guard remains as a tenant at the airfield.

The Non-Aviation with Low-Density Residential Alternative utilizes a single type of residential development as compared with the multiple residential types presented in the other Non-Aviation Reuse Plan.

It is anticipated that aggregate (sand and gravel) extraction will take place on the Mather property under the Proposed Action and all alternatives except the No-Action. However, the area that will be made available for this activity varies among the reuse plans.

The Proposed Action and alternatives referenced above all propose redevelopment of the entire base area. Additionally, two independent concepts are evaluated which use only a portion of the base. These proposals are:

- A California Department of Transportation (Caltrans) research and development center
- A theme park.

Since the entire base acreage is not required for the implementation of these two proposals, they will be assessed as overlays on the Proposed Action and each reuse alternative.

Should the selected reuse development plan include an aviation component, it will be without the 940th AREFG (Air Force Reserve) which is required by the provisions of P.L. 101-510 and DBRAC to relocate to McClellan AFB.

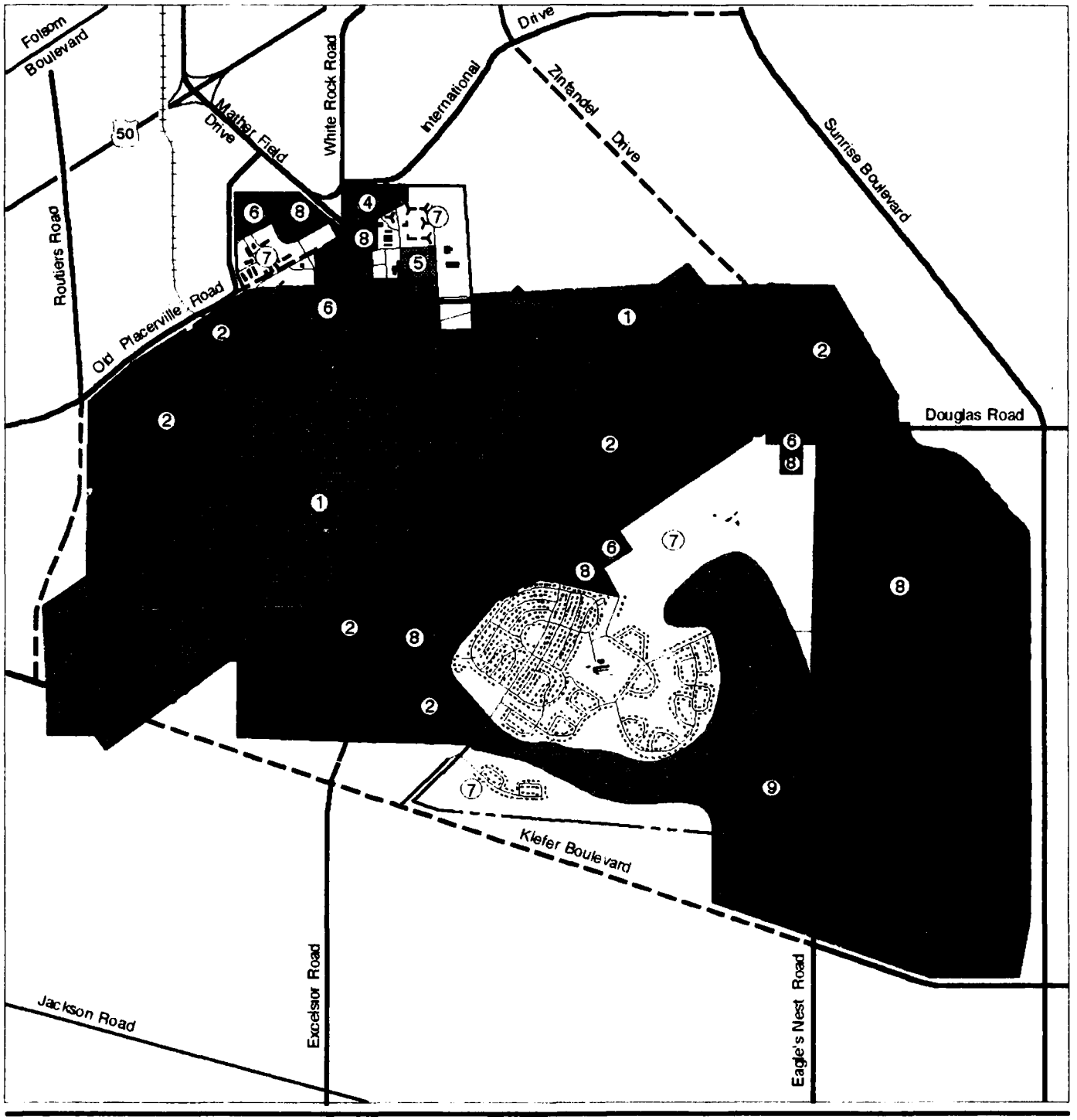
For the purpose of this analysis, 1994 is chosen as the year representative of closure. Although redevelopment activities (both construction and operation) commence in 1994, their levels in the first months remain low. Conditions at this time will include the presence of a disposal management team (DMT) contractor (50 persons). The DMT may be comprised of Air Force personnel, or a caretaker contractor chosen by the Air Force.

Since the reuse plans for the Proposed Action and alternatives are conceptual, a set of general assumptions was made in order to accomplish the impact analysis. These assumptions include employment and population changes arising from implementation of each reuse plan, consistent land use designations for similar reuse options, proportion of ground disturbance anticipated for each land use type, transportation and utility effects of each proposal as a function of increased population growth due to redevelopment, and anticipated phasing of the various elements of each reuse plan (as measured at the closure baseline, and at the baseline plus 5, 10, and 20 years). Details regarding the generation of these assumptions are found in Appendix F, Methods of Analysis. Specific assumptions developed for individual reuse plans are identified in the discussion of each proposal in Sections 2.2 and 2.3, and are compiled in Appendix G, Community Plans.

2.2 DESCRIPTION OF PROPOSED ACTION

The Proposed Action is an integrated land use development plan (and associated forecast of aviation activity) derived from the land use plan and aviation forecast presented by Sacramento County. The focus of the Proposed Action is the creation of a civilian airport (general aviation, aircraft maintenance, and air cargo) along with industrial, recreational/park, commercial, and residential uses as depicted in Figure 2.2-1. The California Army National Guard would remain as a tenant on the airfield.

The reuse plan, represented by the Proposed Action incorporates concepts from the Land Use Element of the Sacramento County General Plan in which areas of mixed land use are linked to the regional transit system. The general approach is to develop a number of commercial activity centers, each of which provides a range of services for the surrounding residential areas. The activity centers are referred to as transit oriented developments (TODs); they vary in size and density and can be incorporated into new growth areas or comprise elements in reuse or revitalization projects. Each center is characterized by a



EXPLANATION

- 1 Airfield
- 2 Aviation Support
- 3 Light Industrial *
- 4 Institutional (Medical)
- 5 Institutional (Education)
- 6 Commercial
- 7 Residential
- 8 Parks/Recreation
- 9 Natural Habitat
- Military
- Pre-development Aggregate Mining
- Airfield Pavement
- Base Boundary
- Proposed Light Rail Line
- Proposed Road

0 800 1600 3200 Feet

* Not Applicable

Proposed Action (General Aviation with Air Cargo)

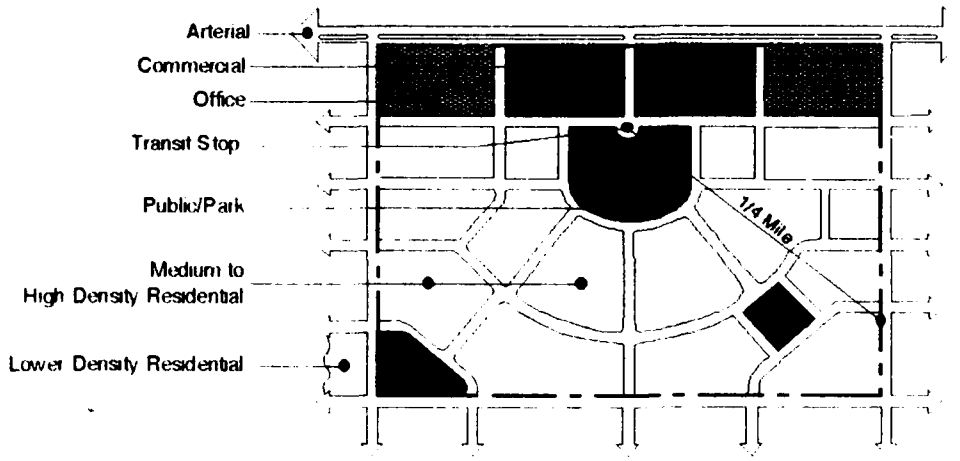
Figure 2.2-1

mixture of residential, commercial, and office land uses oriented around a central open space which provides a pedestrian-scale community with efficient linkages to the regional transit systems. These areas are depicted as commercial and park with adjoining residential on the land use plans.

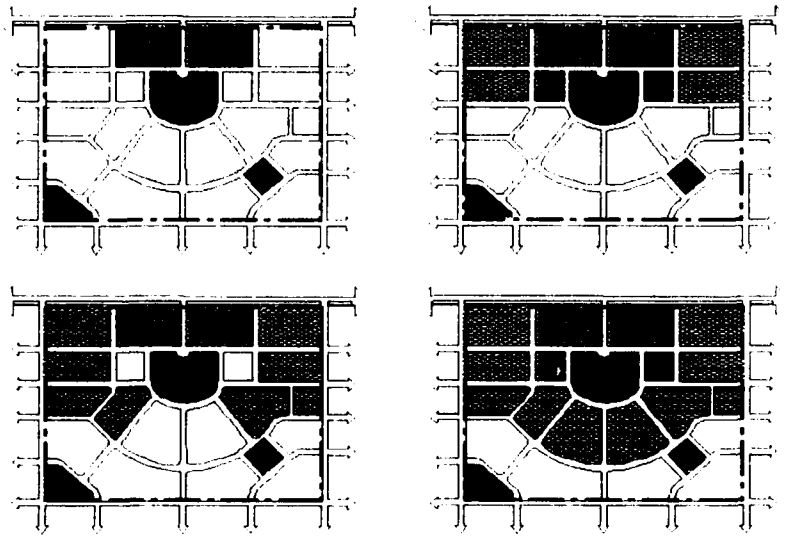
The Proposed Action employs two types of TOD (Figure 2.2-2). An urban TOD is proposed for the main base area, which would have a residential density of 15 dwelling units per acre (garden apartments) with correspondingly higher intensities of service, recreation, and employment opportunities. To the south of the airfield several neighborhood centers are proposed, each with a density of 12 dwellings per acre (townhouses) and associated service, recreation, and commercial land uses. Residential areas surrounding the TODs would be developed as more traditional low-density single family areas with 6 dwellings per acre and are referred to as "secondary areas". They would be within 1 mile of a neighborhood center such that the residents could take advantage of the regional transit links as well as the services available at the activity centers by using alternative modes of transport including walking or cycling. These low-density residential areas would, in turn, serve the neighborhood centers through the provision of public schools. Beyond the areas occupied by the commercial centers and secondary areas of residences are areas devoted to single land uses including airfield, industrial, commercial, institutional, recreational, and natural habitat. The acreage devoted to each of the land use categories for the Proposed Action is shown in Table 2.2-1.

Table 2.2-1. Land Use Acreage - Proposed Action

Land Use Category	Acres
Airfield	1,369
Aviation Support	1,141
Light Industrial	0
Institutional	
Hospital (Military)	23
Education Complex	13
Commercial	
Commercial	112
Office	82
Residential	
Single Family	659
Townhouses	45
Garden Apartments	147
Apartments	0
Suburban Commercial	12
Schools	80
Parks And Recreation	1,260
Natural Habitat	773
Base Total	5,716
Pre-Development Aggregate Mining Area	1,203



Land Uses in Transit Oriented Development (TOD)



Examples of Neighborhood TODs

Examples of Urban TODs

Source: Derived from Calthorpe Assoc., 1990

EXPLANATION

- Commercial
- Office
- Park
- Residential

Transit Oriented Development (TOD) Concept in Sacramento County Reuse Plans

Figure 2.2-2

2.2.1 Airfield

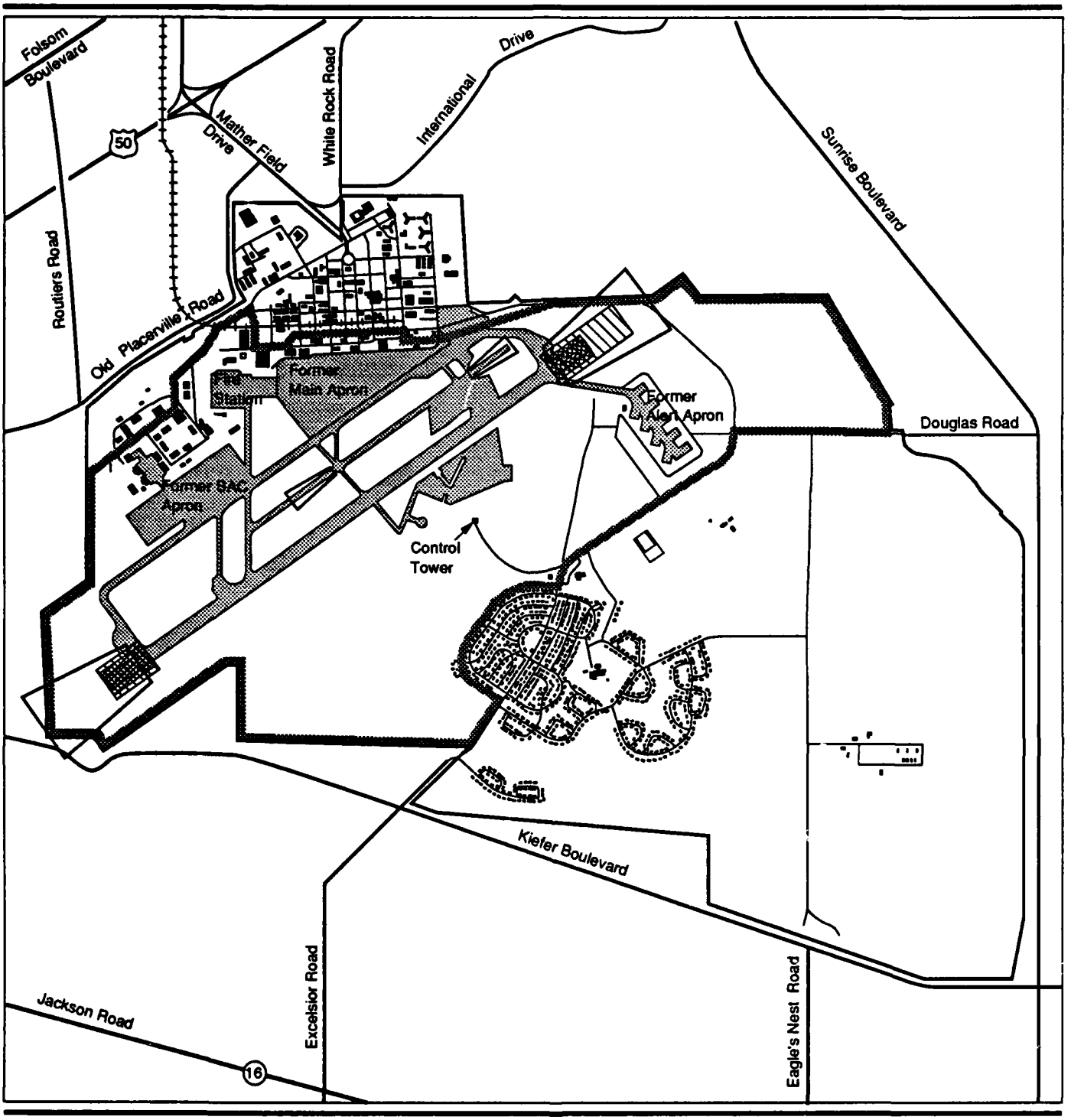
The airfield includes the area devoted to the two parallel runways, taxiways, ramps, aprons, and adjacent areas and comprises 1,369 acres. The airfield and appurtenant facilities would be conveyed to Sacramento County. Military aviation activities would be performed by the California Army National Guard and transient military aircraft.

The airport land use category (airfield and aviation support) includes 2,510 acres on base. It includes the Mather aviation reuse concept depicted in the Preliminary Airport Plan (Figure 2.2-3) prepared by Hodges and Shutt and is included as part of the Sacramento County Public Benefit Conveyance Request approved by the Board of Supervisors and submitted to the FAA. The aviation reuse concept includes: runways, taxiways, runway protection zones, control tower, fire station, building and ground areas associated with the operation and support of the airport. The airfield would be used by civilian, government, and military aircraft. The airport building and ground area would support general aviation commercial activities, air cargo operations, heavy aircraft maintenance, and support activities associated with government aviation activities such as those of the California Department of Forestry. The only form of aviation that would not be accommodated at Mather would be scheduled airline service. Sacramento Metro Airport will continue to fulfill the regional needs for scheduled airline service.

The conceptual plan for the civilian use of the aviation facilities at Mather AFB was developed and provided in the Mather AFB aviation feasibility study. The conceptual plan used FAA Advisory Circular 150/5300-13 in developing the layout of the characteristics of airfield elements to allow current operation of all aircraft. The following features of the airfield are included in the preliminary airport layout plan concept.

- The existing runways are retained at their current length and width although they will be reconfigured (length and width) at the end of their current service life.
- Some unused pavements will be abandoned or removed.
- Runway Protection Zones located at either end of each runway will be kept free of structural development except for required navigational aids.
- Flexibility exists within the layout to add a crosswind runway for light aircraft.

The existing buildings and grounds area north of the airfield will be developed to accommodate a mixture of general aviation, air cargo, and aircraft maintenance/refurbishment and government aviation activities. The undeveloped land area south of the airfield, in the general vicinity of the air



EXPLANATION

- Airport Boundary
- Airfield Pavement
- New Airfield Pavement
- Runway Safety Area
- Runway Object Free Area
- Runway Protection Zone

0 800 1600 3200 Feet

Preliminary Airport Plan

Figure 2.2-3

traffic control tower, will provide the ability to accommodate future aviation-related industrial development.

The existing facilities at Mather within the airport boundary will be reused to the maximum extent possible, especially for aviation-related functions. However, some buildings would have to be removed or modified.

The following airport improvements are proposed as part of the aviation reuse concept and would be developed in accordance with FAA Advisory Circulars, standards, and recommendations.

- Reconstruct and recommission Runway 4L-22R, 3,700 feet by 75 feet
- Rehabilitate and recommission Runway 4R-22L, 11,300 feet by 150 feet and install high intensity runway lighting (HIRL)
- Maintain and strengthen the existing taxiway and apron system and construct additional lighted taxiways
- Retain existing precision instrument landing systems (ILS)
- Retain an air traffic control tower (ATCT)
- Retain airport rescue and fire fighting (ARFF) facilities
- Runway Protection Zones would be established to meet FAA criteria
- Construct taxiways, buildings, and hangars for general aviation operations
- Improve and construct on-airport roads to accommodate aviation development and facilities
- Rehabilitate and upgrade the existing airport utility distribution system.

The number of annual operations projected for the Proposed Action is expected to reach approximately 302,867 by the year 2014. Operations forecasts derived from the MIST Plan assume that Executive Airport will be closed and part of the current usage will transfer to a Mather-site airport. Of the total operations forecast at complete buildout, approximately 79 percent are attributable to general aviation activities, 8 percent to California Army National Guard and transient military, and the remaining 13 percent to forest service and civilian transport as depicted in Table 2.2-2. The day-night distribution of aircraft operations is described in Table 2.2-3, with 84 percent occurring in the daytime hours. The projections at buildout were provided by the Sacramento County Department of Aviation.

2.2.2 Aviation Support

The area devoted to aviation-support uses would encompass 1,141 acres. These areas would accommodate aviation components of the California Department of Forestry, the U.S. Forest Service, the California State Department of Justice, the California Army National Guard and other general aviation and

Table 2.2-2. Projected Annual Flight Operations - Proposed Action*

Year	Operation	Fleet Mix		Annual Operations
1994	Military	50%	KC-135E	5,840
		3%	C-5A/B	365
		3%	C17	365
		3%	C-141	365
		6%	C-130	730
		13%	Jet Trainer (T-38)	1,460
		22%	P-3	2,600
	California National Guard	40%	UH-1	3,650
		60%	BECC58P	5,475
			Total	20,850
1999	Military	50%	KC-135E	5,840
		3%	C-5A/B	365
		3%	C-17	365
		3%	C-141	365
		6%	C-130	730
		13%	Jet Trainer (T-38)	1,460
		22%	P-3	2,600
	California National Guard	26%	UH-1	3,650
		39%	BEC 58P	5,475
		14%	HC-130P	2,000
		21%	MH-60	2,800
	Civil Government	100%	Aerial Tanker (DC-6)	3,650
	Civil Transport	78%	B-757-200	3,422
		18%	B-767-200	782
		2%	B-747-200	98
		2%	MD-83	98
	General Aviation	60%	Single Engine Prop	108,055
		30%	Twin Engine Prop	53,891
		5%	Business Jet	9,027
		5%	MD-500	9,027
	Aircraft Maintenance	20%	B-757-200	98
		20%	B-767-200	98
		20%	B-747-200	98
		40%	MD-83	197
			Total	214,191
2004	Military	50%	KC-135E	5,840
		3%	C-5A/B	365
		3%	C-17	365
		3%	C-141	365
		6%	C-130	730
		13%	Jet Trainer (T-38)	1,460
		22%	P-3	2,600
	California National Guard	26%	UH-1	3,650
		39%	BEC-58P	5,475
		14%	HC-130P	2,000
		21%	MH-60	2,800
	Civil Government	100%	Aerial Tanker (DC-6)	3,650
	Civil Transport	78%	B-757-200	7,778
		18%	B-767-200	1,778
		2%	B-747-200	222
		2%	MD-83	222
	General Aviation	60%	Single Engine Prop	124,862
		30%	Twin Engine Prop	62,274
		5%	Business Jet	10,432
		5%	MD-500	10,432
	Aircraft Maintenance	30%	B-757-200	164
		30%	B-767-200	164
		30%	B-747-200	164
		10%	MD-83	55
			Total	247,847

* Based on the assumption that Sacramento Executive Airport will close.

Table 2.2-2. Projected Annual Flight Operations - Proposed Action* (Continued)

Year	Operation	Fleet Mix		Annual Operations
2014	Military	50%	KC-135E	5,840
		3%	C-5A/B	365
		3%	C-17	365
		3%	C-141	365
		6%	C-130	730
		13%	Jet Trainer (T-38)	1,460
		22%	P-3	2,600
	California National Guard	26%	UH-1	3,650
		39%	BEC-58P	5,475
		14%	HC-130P	2,000
		21%	MH-60	2,800
	Civil Government	100%	Aerial Tanker (DC-6)	3,650
	Civil Transport	78%	B-757-200	25,550
		18%	B-767-200	5,840
		2%	B-747-200	730
		2%	MD-83	730
	General Aviation	60%	Single Engine Prop	144,175
		30%	Twin Engine Prop	71,905
		5%	Business Jet	12,045
		5%	MD-500	12,045
	Aircraft Maintenance	30%	B-757-200	164
		30%	B-767-200	164
		30%	B-747-200	164
		10%	MD-83	55
			Total	302,867

Table 2.2-3. Temporal Distribution of Operations - Proposed Action

Operation	Day %	Evening %	Night %
Military	90	5	5
Civil Government	90	5	5
Cargo	75	20	5
Maintenance	100	0	0
General Aviation	80	15	5

commercial air cargo operations, and aviation maintenance/refurbishing and ground schools.

The phase-in of aviation support development and associated facilities would begin in 1995 and proceed at an annual rate varying between 1 and 2 percent per year through 2003, then increasing with an annual growth rate of 10 percent in 2004. From 2005-2014 no further buildout is anticipated. At these rates, 21 percent of total buildout will have been achieved by the year 2014.

2.2.3 Institutional

Medical. Mather Hospital would be maintained as an annex to McClellan AFB providing 105 beds on the 23-acre site.

Education. The educational facilities located east of Gilbert Avenue in the Main Base include a simulator building, classroom building complete with auditorium and storage facilities, and a third major building. They would be converted into a 13-acre education complex. Public school development within the residential areas, comprising 80 acres designated for primary and secondary schools, will commence in 1995 and proceed at a rate reflecting the residential development, attaining 59 percent of total buildout by 2014.

2.2.4 Commercial

Commercial. A total of 124 acres (including 12 acres of suburban commercial use) would be devoted to commercial uses. These areas are located both within the neighborhood commercial centers and within the main base commercial center. Commercial development will commence in 1995 and proceed at an annual rate varying between 2 and 4 percent through 2014, attaining a total buildout of 59 percent in 2014.

Office. A total of 82 acres would be devoted to office space and would also be located within the neighborhood and urban commercial centers. Office development will commence in 1995 and proceed at an annual rate of 2 percent through 2001. From 2002 through 2010 development will occur at an annual rate of 9 percent, and will culminate in 2011 with 7 percent attaining 100 percent buildout.

2.2.5 Residential

The existing residential units would be made available at a constant rate of 47 percent in 1995. The remaining 53 percent would be built out at varying annual rates until achieving 100 percent buildout in 2004. The construction of additional residences would begin in 1997 and continue through 2014 at an annual rate of 4 to 6 percent through 2014 attaining 91 percent of total buildout by 2014. It is anticipated that different types of housing would be constructed over the 20-year period. Each is discussed immediately below.

Single Family. The majority of residential land would be occupied by low-density, single-family housing. The existing family housing units (Capehart and Wherry) occupy 375 acres and would be retained. There would be an additional 284 acres of single-family housing constructed, culminating in a total of 659 acres.

Townhouses. There are three planned neighborhood centers, each of which has a residential component associated with it which has an average density of

12 dwellings per acre. The total area devoted to this housing type would be 45 acres, or approximately 540 dwelling units.

Garden Apartments. In the main base area there would be land totaling 147 acres of existing and proposed new moderate density development (15 dwellings per acre). Some of the existing apartments and student dormitories are contained within this land use category. Together they would contribute 2,205 dwelling units to the total housing stock.

2.2.6 Parks, Recreation, and Natural Habitat

Land designated for recreational use would be phased in over a 3-year period: 40 percent in 2000, 30 percent in 2001, and 30 percent in 2002. Full buildout would be reached in 2002.

Parks. There would be 264 acres of parks consisting principally of areas reclaimed after aggregate mining operations. Also included are a small park within the main base area and public park areas in each of the neighborhood commercial centers.

Recreation. The areas proposed for recreational use would total 996 acres. A major portion of this land is located in the eastern part of the base adjacent to Sunrise Boulevard and includes Mather Lake. The golf course, which covers 130 acres, would be maintained as a public access facility. In addition, the 20-acre Mather Sports Complex, adjacent to the Main Gate on Mather Field Drive, is proposed for public use.

Natural Habitat. This area of 773 acres would preserve the majority of the vernal pools and riparian habitat in the southern part of the base around Eagle's Nest Road.

2.2.7 Pre-Development Aggregate Mining Activities

Surface mining of aggregate (sand and gravel) deposits is proposed over an area of 1,203 acres. The aggregate will be transported via conveyor belt to an off-base screening site. Mining will occur in areas between the existing housing area and the airfield, running approximately parallel to it, and in the clear zone at the northeastern end of the runway. After the mining activities are completed, the area would be 35 feet below its original grade and would be reclaimed for a mixture of aviation support uses, residential areas, and parks.

Aggregate would be mined prior to long-term utilization of the site. Mined land would be reclaimed at the same rate as it is mined. However, it would take approximately 17 years to mine the available resource. Reclamation will generally be complete 2 years after mining. In spite of this long delay before other development can occur, mining would help to extend the regional supply of this already dwindling commodity. Additionally, these deposits are likely to

contain placer gold, which is recovered as an additional benefit of aggregate mining.

2.2.8 Employment and Population

Purpose and Explanation. Employment and population estimates have been projected at two geographic levels. The first level involves people on site, including persons employed directly by reuse activities at Mather AFB and persons expected to reside in housing proposed for the base. The second level of geographic detail is the region of influence (ROI) to which people would in-migrate in response to both the direct and indirect job opportunities afforded by reuse activities.

On-site employment and resident population estimates are derived from the land use assumptions and an estimated schedule of market demand for these land uses. Construction jobs are related to the value of construction, which in turn is estimated from the scope of new facilities to be built, the scope of renovation likely to be required for reuse of existing facilities, and the cost per square foot for construction of specified facility types based on industry standards. Operations employment at full buildout is estimated for each land use by ratios of jobs to acreages of specific land uses, floor areas of facilities, and other characteristics. The numbers of jobs are then "phased in" over time according to a judgemental buildout or absorption schedule that reflects the rate at which the market can absorb each of these land uses. Resident population is estimated in accordance with the types and numbers of dwellings expected to be occupied over the time period analyzed, and is assumed to include varying numbers of students.

Regional employment and population impacts consider these on-site effects as well as the multiplier effects associated with the response of the regional economy to construction and operations expenditures and payrolls. Assumptions regarding local hires and worker relocation determine the extent of worker in-migration due to economic activities on the site and elsewhere in the region. Dependents of these in-migrating workers are estimated based on demographic factors regarding family size, and natural increase of the in-migrating population is estimated from recent demographic trends for the region. Total population impacts are distributed among communities within the study region based on current residential distributions of base civilian personnel and related factors.

Two aspects of the results deserve further explanation. First, regional employment impacts are expected to be greater than regional population impacts. This outcome is consistent with the fact that a large and diverse labor force resides within the ROI, and project-related jobs would draw on a portion of this readily available supply of local labor. Second, the regional population impacts generally are smaller than the numbers of people expected to reside in proposed housing on the site. This result stems from the market demand for

housing in the base area, which is the motivation for housing construction there. While some of this demand would come from project-related in-migrants, most of it would be from existing regional residents as well as new residents associated with normal growth not related to jobs created on the site.

Employment. Construction employment associated with the Proposed Action would begin with more than 1,000 jobs at closure, and would continue at varying levels until full buildout. With the addition of operations jobs beginning in 1995, total on-site employment would increase steadily from more than 1,900 in 1999 to more than 4,300 in 2004. By the year 2014, there would be greater than 7,000 jobs on the site, approximately 53 percent of the total employment anticipated there at full buildout.

Total project-related employment in the region, including direct and indirect jobs, would be 3,600 by 1999. This employment would increase steadily to more than 8,500 in 2004 and to nearly 12,200 by 2014. Although most of these jobs would accrue to the region's existing and projected baseline labor force, it is assumed that more than 2,300 of the jobs in 2014 would be filled by in-migrating workers.

Population. Population in residence on the base would exceed 4,300 by 1999, climb steadily to almost 7,300 in 2004, and be more than 13,700 by the year 2014 (Table 2.2-4). This 2014 result is approximately 93 percent of the total residents anticipated on the site at full buildout.

Table 2.2-4. Employment and Population Effects - Proposed Action

	Closure	1999	2004	2014
On-Site Employment and Population				
Total Persons On-site	1,017	6,222	11,597	20,750
Direct Employment[a]	1,017	1,917	4,325	7,019
Resident Population[b]	0	4,305	7,272	13,731
Regional Economic and Population Impacts				
Direct and Indirect Employment	2,429	3,600	8,537	12,191
Workforce Impacts[c]	172	600	1,425	2,321
Population Impacts[d]	503	1,813	4,473	7,828

(a) Excludes an estimated 12 persons employed in aggregate mining activities on the site.
(b) Includes students.
(c) Based on the following assumptions: 10 percent of the construction workforce, 30 percent of the operations workforce, and 5 percent of the indirect workers will relocate to the region.
(d) Based on a household size of 2.91 (same as the average size of state-to-state migrating households between 1980 and 1985); includes natural population increase associated with the in-migrants.

Regional population impacts, including the in-migrant workforce as well as their dependents, would total about 1,800 in 1999. These impacts would increase to nearly 4,500 in 2004, and to more than 7,800 by 2014. The greatest net increases would be realized in Sacramento County, where 89.2 percent of the

project-related population growth would occur by the year 2014. Unincorporated communities near the base would be particularly affected, including Florin and Rancho Cordova. El Dorado County would receive 5.1 percent of the population growth, Placer County 3.6 percent, and Yolo County 2.1 percent.

2.2.9 Transportation

Traffic. Associated with the projected increase in employment opportunities on the base, and resident population, would be increased traffic generation. It is estimated that, by the year 2014, on-base activities would contribute a total of approximately 85,849 average annual daily trips (AADTs). This includes trips attributable to construction workers employed at the site. Although the proximity of employment, residential, and shopping opportunities, plus access to mass transit in the commercial centers (e.g. TODs) are expected to result in a decrease of trips to below traditional levels by 5 to 20 percent, the net level of traffic will increase.

Roads. To accommodate the increased levels of traffic, improvements to the transportation infrastructure are anticipated. Zinfandel Drive would extend south, parallel to Sunrise Boulevard, and terminate at Douglas Road at a neighborhood commercial center. Douglas Road would extend roughly parallel to the runway serving several neighborhood commercial centers and continue east beyond Sunrise Boulevard. Eagle's Nest Road would continue north, intersecting with Douglas Road. H Avenue would be extended to the northeast beyond the base boundary, terminating at Zinfandel Drive. Kiefer Boulevard will be upgraded from an "unimproved" status to an accessible thoroughfare westward from Eagle's Nest Road roughly parallel to Jackson Road beyond the southern extension of the airfield. Routiers Road will be extended south beyond Old Placerville Road parallel to the western base boundary.

Mass Transit. There is currently a light rail system which runs from downtown Sacramento along Highway 50 eastward for a distance of 18 miles. With the expansion of this system to the Folsom/Roseville areas as well as to the southern Sacramento area and the metropolitan airport to the north, ridership from the converted base is expected to increase. The Proposed Action considers the potential construction of an extension of the light rail line to the main base area via the existing railroad right-of-way owned by the Air Force. Feeder buses will be provided from the base to the light rail until the proposed extension is completed.

2.2.10 Utilities

By 2014, the projected activities and population increases in the Sacramento region would generate the following increases in utility demands over projected closure baseline conditions:

- Water – 2.1 million gallons per day (MGD), or an increase of about 0.5 percent
- Wastewater – 1.2 MGD, or an increase of 0.4 percent
- Solid waste – 0.01 million cubic yards per year, or an increase of about 0.5 percent
- Electricity - 171 megawatt-hours (MWH) per day, or an increase of about 0.5 percent
- Natural Gas – 7,000 therms per day, or an increase of 0.6 percent.

Improvements to some utility systems would be required to provide adequate service to proposed new facilities. The provision of these utility system upgrades and extensions would be the responsibility of project developers. A brief description of required utility improvements is provided below for each of the systems addressed within this analysis.

Water Supply. No major changes to the current groundwater extraction and supply system would be required to accommodate the Proposed Action.

Wastewater. Regional wastewater treatment is provided by the Sacramento County Regional Wastewater Treatment Plant. The system is considered to be in good condition and improvements do not appear necessary to serve new users in the short term. Upgrade of the Mather pump house and the outfall would be needed to adequately meet the Proposed Action wastewater flow levels. Future industrial users will most likely need to develop a pretreatment facility as there is currently no pretreatment system for industrial wastewater at the site.

Solid Waste. Refuse disposal services are now provided by a contractor who disposes of the solid waste at the Kiefer landfill. No major changes associated with this service are anticipated.

Electricity. Electricity is provided to the base by Sacramento Municipal Utility District (SMUD) through two power transformers connected in parallel at the base service substation. Some modifications would be required to serve the needs of new users, minimally consisting of the installation of additional meters.

Natural Gas. Pacific Gas and Electric (PG&E) supplies the base with natural gas from two transmission lines. Major renovations would be needed to provide natural gas to those areas currently serviced by propane and steam heat systems.

2.3 DESCRIPTIONS OF ALTERNATIVES

2.3.1 Non-Aviation with Mixed-Density Residential Alternative

This alternative is derived from the land use plan provided by Sacramento County, described earlier, which contains no aviation activities. This alternative

differs from the Proposed Action in that substantially greater acreage is devoted to residential use in the area previously occupied by the airfield. Residential land uses occupy 2,950 acres and include the existing military family housing. Additional development of both single- and multi-family residences would be constructed in areas to the north, east, and southeast of the existing family housing area.

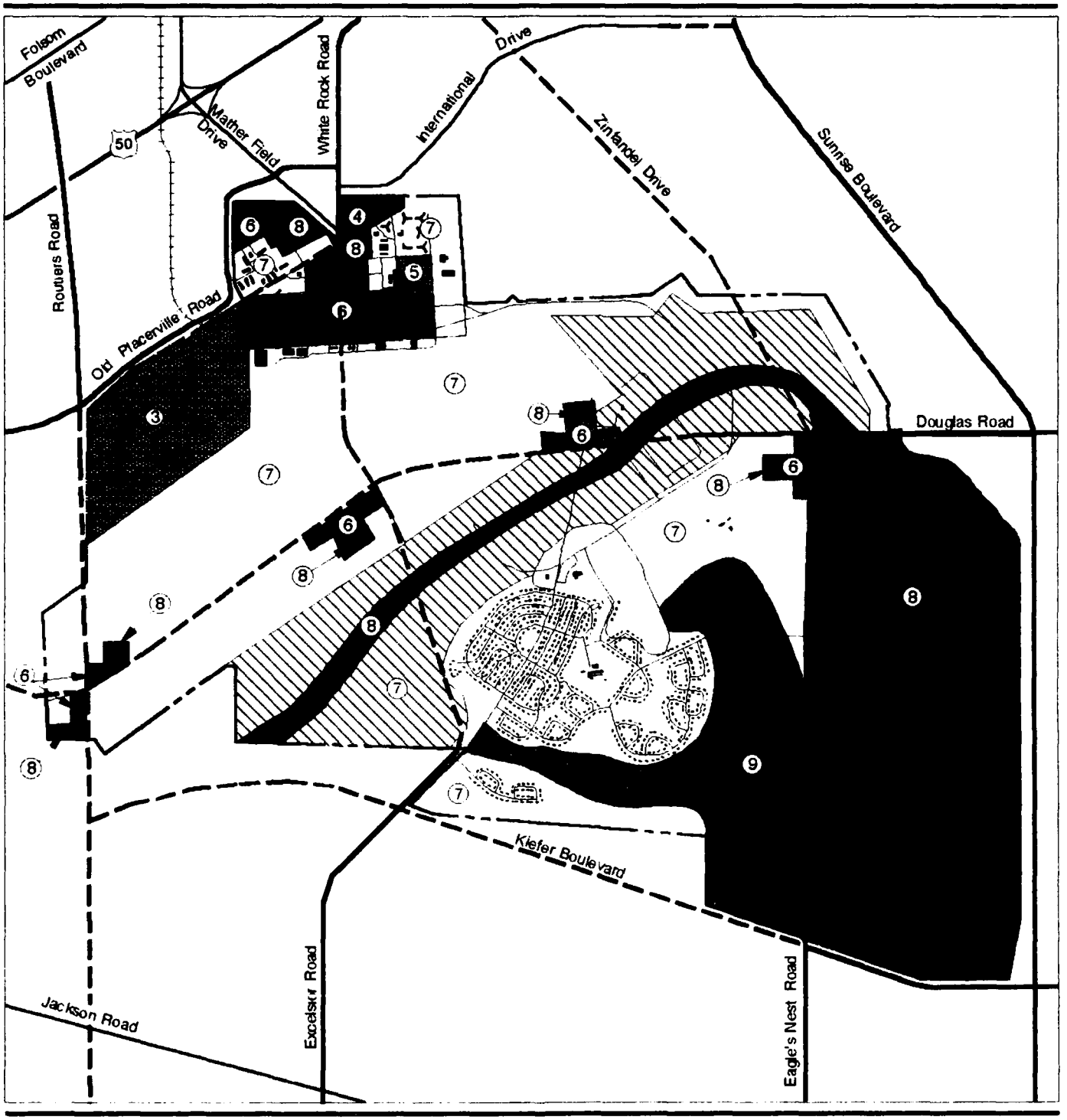
Excluding the proposed urban residential development in the main base area which occupies an acreage equal to that under the Proposed Action, other proposed residential uses show greater than a two-fold increase in the number of acres. The variation of other land use categories is small.

This alternative proposes a light industrial sector located in the 7000 area of the main base (that area currently occupied by the 940th AREFG). It is bounded to the north by the core of the commercial development, and to the south and east by low-density residential development. Single family housing comprises the largest land use under this alternative. The extension of Douglas Road with interspersed neighborhood commercial centers along it, and a belt of reclaimed parkland, separates the new low-density housing area located on the original airfield from the expansion of residential development centered around the existing family housing.

The major land use components of this alternative are shown in Figure 2.3-1 and described below. The acreage devoted to each land use category is shown in Table 2.3-1.

Table 2.3-1. Land Use Acreage - Non-Aviation with Mixed-Density Residential Alternative

Land Use Category	Acres
Airfield	0
Aviation Support	0
Light Industrial	265
Institutional	
Hospital	23
Education Complex	13
Commercial	
Commercial	151
Office	104
Residential	
Single Family	2,568
Townhouses	147
Garden Apartments	147
Apartments	88
Suburban Commercial	27
Schools	215
Parks And Recreation	1,195
Natural Habitat	773
Base Total	5,716
Pre-Development Aggregate Mining Area	1,113



EXPLANATION

1. Airfield *
2. Aviation Support *
3. Light Industrial
4. Institutional (Medical)
5. Institutional (Education)
6. Commercial
7. Residential
8. Parks/Recreation
9. Natural Habitat

Military

Pre-development Aggregate Mining

Base Boundary

Proposed Light Rail Line

Proposed Road

0 800 1600 3200 Feet

* Not Applicable

Non-Aviation with Mixed-Density Residential Alternative

Figure 2.3-1

2.3.1.1 Light Industrial. The phase-in of light industrial development would begin in 1995 at a rate of 1 percent per year continuing through 2005 and increasing to 2 percent annually thereafter through 2014. By 2014, industrial development would reach 29 percent of total buildout.

All proposed development under this land use would be in the current 7000 Area of the main base. The 265 acres in this category would house light manufacturing, research and development, and assembly activities.

2.3.1.2 Institutional

Medical. Mather Hospital will be operated as an annex to McClellan AFB providing 105 beds on the existing 23-acre site.

Education. There is a proposal to reuse 13 acres of existing facilities including the flight training center, classrooms, and auditorium in the area of the main base as a college. Additionally, existing elementary schools would be retained and would be supplemented by additional primary and secondary schools in the expanded residential area to accommodate the projected increase in school-age children. At full buildout 228 acres would be developed for educational uses. The proposed college would be developed over a two-year period at a rate of 20 percent in 1995, the initial year, and 80 percent the following year, attaining total buildout in 1996. Development of additional public schools would be coordinated with the residential construction and would be initiated in 1995.

2.3.1.3 Commercial

The phase-in of commercial development would begin in 1995 at a rate of 1 percent per year continuing through 2002 and increasing to 2 percent annually thereafter through 2014. By 2014 the annual rate of commercial development would reach 3.3 percent.

Commercial. The commercial districts are predominantly located within the urban and neighborhood commercial centers and would occupy 178 acres (including 27 acres of suburban commercial use). Retail, restaurant, entertainment and service-oriented activities would be present at these locations.

Office. The proposed office areas are components of the urban and neighborhood commercial centers and would occupy 104 acres.

2.3.1.4 Residential

Single Family. The majority of housing proposed under this alternative is composed of low-density, single-family units. Land that was previously occupied by the airfield would be converted to housing, as would the area to

the south beyond the extension of Douglas Road. This new residential area would merge with the existing family housing area. The residential units would be constructed at a density of 6 dwellings per acre on the 2,568 acres for this land use. Development would commence in 1996 and would proceed at a constant annual rate of 3 percent through 1998, when it would increase to 4 percent through 2014, reaching 76 percent of full buildout at that time.

Existing residential units would be upgraded to conform with current building codes, and would be phased into the market, beginning in 1995, at a constant rate of 20 percent per year through 1998.

Townhouses. Each of the proposed neighborhood commercial centers consists in part of dwellings at a density of twelve units per acre. There are a total of 147 acres devoted to this land use.

Garden Apartments. Urban residential development would only occur in the urban commercial center of the main base area. There are two sites where these garden style apartments would be constructed, one of which is former base dormitory. They represent a moderate density of fifteen units per acre and occupy 147 acres.

Apartments. There is a single 88-acre site identified for construction of high density (20 dwellings per acre) multiple-family residential units. It is located along Mather Boulevard north of the existing housing area and adjacent to the proposed commercial sector.

2.3.1.5 Parks, Recreation, and Natural Habitat

Parks. Each of the urban and neighborhood centers contains a park. These areas provide open space and common grounds for public use. Part of the area reclaimed from pre-development aggregate mining activities would accommodate a park along the length of a new drainage corridor. In total, 203 acres of parkland would be created under this alternative. Conversion and development of land for recreation and public space uses would be phased in over a 3-year period beginning in 1996 at an annual rate of 40 percent, decreasing to 30 percent for each of the following two years, and reaching full buildout in 1997.

Recreation. Recreation areas include the Mather Sports Complex, the existing 18-hole golf course, and Mather Lake. Mather Regional Park, located south of the lake and golf course along the eastern base boundary would be created for public use. In total, 992 acres of land would be made available for recreation.

Natural Habitat. There are 773 acres of preserved natural habitat. This encompasses land west and south of the existing housing area and extending east beyond Eagle's Nest Road. The majority of the vernal pools, riparian

corridors, and natural grasslands located in the southeastern portion of the base are contained in this area.

2.3.1.6 Pre-Development Aggregate Mining Activities

Surface mining of aggregate is proposed for approximately 1,113 acres in the area parallel to, south of, and along the former clear zone to the southeast of the airfield. The area along the new drainage corridor would be reclaimed as parkland, and the remainder would be used for low-density residential development. It is estimated that mining would take at least 16 years to complete. Reclamation will generally be complete two years after mining.

2.3.1.7 Employment and Population

Employment. Construction employment associated with this alternative would begin with nearly 1,200 jobs at closure, and would continue at varying levels until full buildout. With the addition of operations jobs beginning in 1995, total on-site employment would increase steadily from more than 2,300 in 1999 to almost 3,600 in 2004. By the year 2014, there would be nearly 7,100 jobs on the site, approximately 39 percent of the total employment anticipated there at full buildout.

Total project-related employment in the region, including direct and indirect jobs, would be about 4,200 by 1999. This employment would increase steadily to more than 6,400 in 2004 and to almost 12,400 by 2014. Although most of these jobs would accrue to the region's existing and projected baseline labor force, it is assumed that more than 2,200 of the jobs in 2014 would be filled by in-migrating workers.

Population. Population in residence on the base would be nearly 10,300 by 1999, climb steadily to more than 19,600 in 2004, and be more than 37,600 by the year 2014 (Table 2.3-2). This 2014 result is approximately 56 percent of the total residents anticipated on the site at full buildout.

Regional population impacts, including the in-migrant workforce as well as their dependents, would total almost 2,100 in 1999. These impacts would increase to nearly 3,400 in 2004, and to nearly 7,600 by 2014. The greatest net increases would be realized in Sacramento County, where 88.9 percent of the project-related population growth would occur by the year 2014. Unincorporated communities near the base would be particularly affected, including Florin and Rancho Cordova. El Dorado County would receive 5.2 percent of the population growth, Placer County 3.7 percent, and Yolo County 2.2 percent.

Table 2.3-2. Employment and Population Effects - Non-Aviation with Mixed-Density Residential Alternative

	Closure	1999	2004	2014
On-Site Employment and Population				
Total Persons On-site	1,175	12,586	23,213	44,704
Direct Employment[a]	1,175	2,324	3,593	7,098
Resident Population[b]	0	10,262	19,620	37,606
Regional Economic and Population Impacts				
Direct and Indirect Employment	2,808	4,203	6,438	12,355
Workforce Impacts[c]	199	681	1,074	2,239
Population Impacts[d]	581	2,059	3,369	7,552

(a) Excludes an estimated 12 persons employed in aggregate mining activities on the site.
(b) Includes students.
(c) Based on the following assumptions: 10 percent of the construction workforce, 30 percent of the operations workforce, and 5 percent of the indirect workers will relocate to the region.
(d) Based on a household size of 2.91 (same as the average size of state-to-state migrating households between 1980 and 1985); includes natural population increase associated with the in-migrants.

2.3.1.8 Transportation

Traffic. Associated with the projected increase in employment opportunities on the base, and resident population, would be increased traffic generation. It is estimated that by the year 2014, base-related activity would contribute a total of about 163,776 AADTs. This total includes trips by construction workers employed at the site. Although the proximity of residences, employment, shopping opportunities, and access to mass transit in the commercial centers is expected to result in a decrease of trips to below traditional levels by 5 to 20 percent, the net level of traffic will increase.

Roads. To accommodate the increased traffic, improvements to the transportation infrastructure are anticipated. There would be road extensions to improve access throughout the entire base area. The extension of Zinfandel Drive would provide the primary access from the north to the neighborhood commercial area at the intersection with Douglas Road, and the residential districts on the southern side of Douglas Road. It would connect to Eagle's Nest Road providing a north-south linkage through the property. The Douglas Road extension would serve as the base for the neighborhood commercial centers that are proposed at the intersections of Douglas Road with Mather Field Drive, Zinfandel Drive, and Excelsior and Routiers roads, respectively. Douglas Road would extend west paralleling the line of the former runway beyond the base boundary. Excelsior Road would be widened to improve access to the base, creating a north-south route through the base to the urban commercial center in the main base area. Along the boundaries of the base, additional infrastructure improvements would occur to facilitate the integration of the base property with the neighboring communities. Routiers Road would be extended through the former clear zone at the southwestern end of the

runway and south beyond Jackson Road. Sunrise Boulevard would be improved. North of the main base area, International Drive and Mather Field Drive improvements would be completed providing greater accessibility to the area. Kiefer Boulevard would be improved and would extend west from Eagle's Nest Road through Excelsior Road terminating at the extension of Routiers Road.

Mass Transit. There is currently a light rail system which runs from downtown Sacramento along Highway 50 eastward for a distance of 18 miles. There is a railroad spur connecting the main base area to the Highway 50 line. Under this alternative it is proposed to convert the spur to light rail use to facilitate the implementation of a TOD plan. It is anticipated that with the expansion of this system to Folsom, Roseville, southern Sacramento, and the metropolitan airport, ridership would increase.

2.3.1.9 Utilities. By 2014, the projected activities and population increases in the Sacramento region associated with this alternative would generate the following increases in utility demands over closure baseline conditions:

- Water – 2.0 MGD, or an increase of 0.5 percent
- Wastewater – 1.1 MGD, or an increase of 0.4 percent
- Solid Waste – 0.01 million cubic yards per year, or an increase of 0.5 percent
- Electricity – 164 MWH per day, or an increase of 0.5 percent
- Natural Gas – 7,000 therms per day, or an increase of 0.6 percent.

Some utility systems would require improvement to provide adequate service to proposed new facilities. Anticipated system improvements are expected to be similar in nature to those associated with the Proposed Action.

2.3.2 General Aviation with Aircraft Maintenance Alternative

The central focus of the General Aviation with Aircraft Maintenance Alternative is the creation of a mixed-use airport and industrial, recreational/park, commercial, and residential uses in other areas of the base. The mix of aircraft types and number of annual operations that are presented under this alternative vary, primarily in the air cargo category, from those put forward by Sacramento County Department of Airports as described in the Proposed Action. An alternative scenario to that contained in the Proposed Action is developed for this alternative.

As in the Proposed Action, this alternative also allows for transient "touch and go" operations to be performed by the 940th AREFG operating out of McClellan AFB and reflects the continued status of the California Army National Guard at Mather.

The main difference in land use patterns between this alternative and the Proposed Action is that this alternative does not contain TODs; additionally, there is considerably more acreage of natural habitat. Planned commercial and industrial development would occur in bands extending both to the north (more intensive development) and south (less intensive) of the airfield.

Under this alternative the only residential construction would be of low-density single-family units. The existing military family housing units would be demolished, the area mined for aggregate, and reclaimed for residential development.

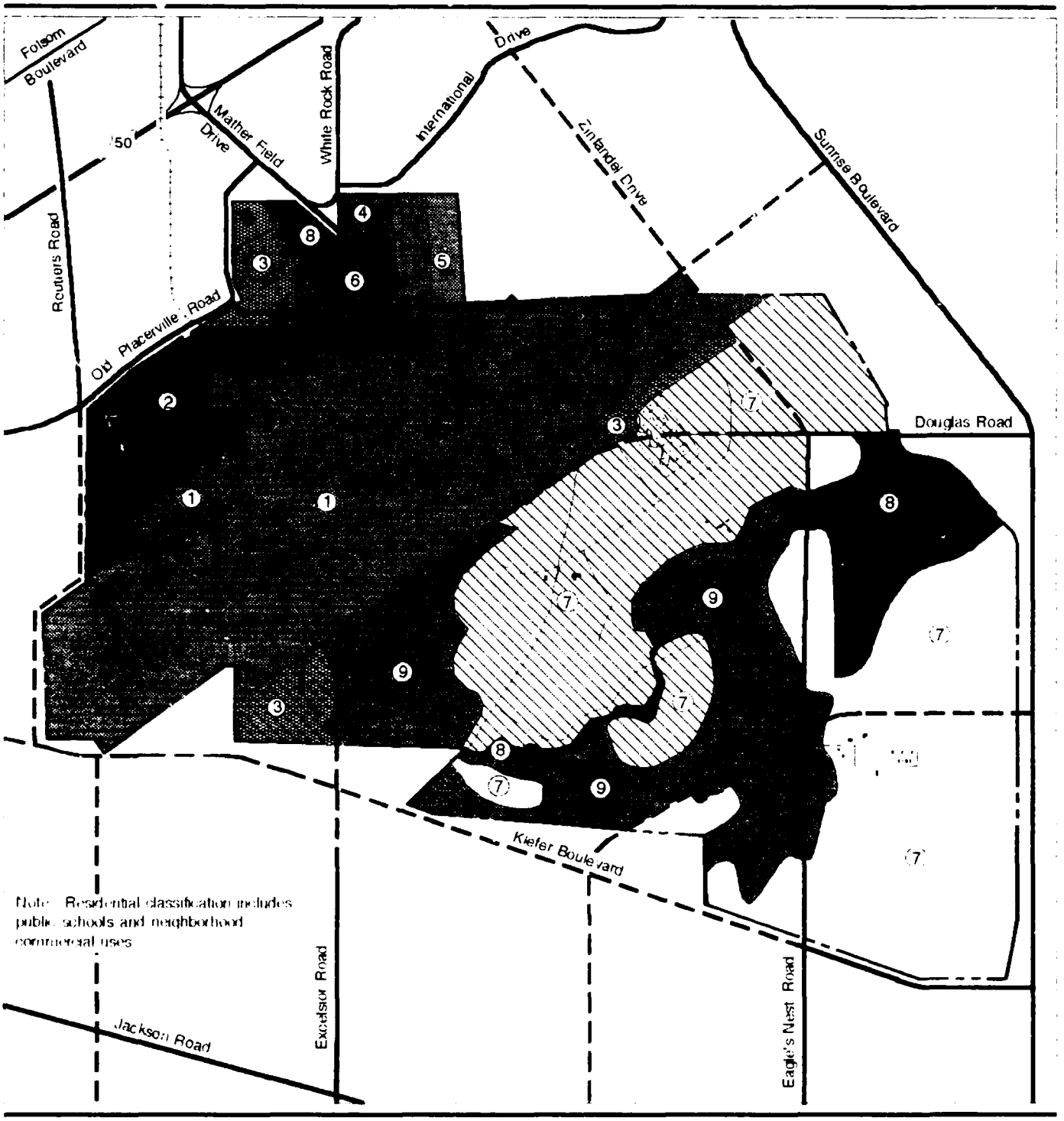
The major components of the General Aviation with Aircraft Maintenance Alternative are shown in Figure 2.3-2 and described below. The acreage devoted to each land use category is shown in Table 2.3-3.

Table 2.3-3. Land Use Acreage - General Aviation with Aircraft Maintenance Alternative

Land Use Category	Acres
Airfield	1,625
Aviation Support	322
Light Industrial	210
Institutional	
Hospital (Military)	23
Education Complex	92
Commercial	
Commercial	108
Office	0
Residential	
Single Family	1,855
Townhouses	0
Garden Apartments	0
Apartments	0
Suburban Commercial	15
Schools	215
Parks And Recreation	329
Natural Habitat	922
Base Total	5,716
Pre-Development Aggregate Mining Area	1,172

2.3.2.1 Airfield

Airfield. The airfield includes the area devoted to the two parallel runways, taxiways, ramps, aprons, and interstitial areas and comprises 1,625 acres. The airfield and appurtenant facilities would be retained and used for both civilian aviation activities and military activities by the California Army National Guard, and transient military aircraft. Proposed aviation facilities would be similar to those described for the Proposed Action, except there would be no flexibility for



EXPLANATION

1. Airfield
2. Aviation Support
3. Light Industrial
4. Institutional (Medical)
5. Institutional (Education)
6. Commercial
7. Residential
8. Parks/Recreation
9. Natural Habitat

Military

Pre-development Aggregate Mining

Airfield Pavement

Base Boundary

Proposed Light Rail Line

Proposed Road

0 800 1600 3200 Feet

General Aviation with Aircraft Maintenance Alternative

Figure 2.3-2

the addition of a crosswind runway. Airport improvements would be the same as those described for the Proposed Action.

The number of annual operations associated with the combined civilian and military aviation use is projected to be approximately 232,847 by the year 2014 (Table 2.3-4). Of the total operations forecast at complete buildout, approximately 86 percent are attributable to general aviation activities, 10 percent to transient and based military, and the remaining 4 percent to California Department of Forestry Activities, and aircraft maintenance and training. Commencing in 1999 and continuing through 2014, aircraft run-ups will also take place. These activities do not involve take off or landing exercises rather they are a component of the aircraft maintenance function and relate to testing engines over 20-minute cycles. The day-night distribution of aircraft operations is described in Table 2.3-5, with 92 percent occurring in the daytime hours.

2.3.2.2 Aviation Support. The area devoted to aviation-related uses encompasses 322 acres and is located at the southern end of the main base area, and the 7000 Area. This area would accommodate the California Department of Forestry, the U.S. Forest Service, the California State Department of Justice, the California Army National Guard, and other general aviation and aviation maintenance/refurbishing activities and ground schools.

The phase-in of aviation support development and associated facilities would begin in 1995 and proceed at an annual rate of 1 percent per year between 1995 and 2013, increasing to 2 percent in 2014, achieving 21 percent of total buildout by the year 2014.

2.3.2.3 Light Industrial

Light Industrial. There are 210 acres designated for industrial uses under this alternative. Approximately 90 acres are located in the main base area; an additional 40 acres are planned for development at the northeastern end of the runway (previously occupied by the ready apron); and 80 acres of existing military industrial lands along the southwest boundary would be maintained for similar uses.

2.3.2.4 Institutional

Medical. Mather Hospital would be maintained and would continue serving active and retired military personnel and their dependents as an annex to McClellan AFB. The hospital occupies 23 acres.

Education. The educational facilities located east of Gilbert Avenue in the Main Base area include a simulator building, classroom building complete with auditorium and academic storage facilities, and a third major building. They would be converted to a vocational/technical education complex which would

Table 2.3-4. Projected Annual Flight Operations - General Aviation with Aircraft Maintenance Alternative

Year	Operation	Fleet Mix		Annual Operations
1994	Military	50%	KC-135E	5,840
		3%	C-5A/B	365
		3%	C17	365
		3%	C-141	365
		6%	C-130	730
		13%	Jet Trainer (T-38)	1,460
		22%	P-3	2,600
	California National Guard	40%	UH-1	3,650
		60%	BECC58P	5,475
			Total	20,850
1999	Military	50%	KC-135E	5,840
		3%	C-5A/B	365
		3%	C-17	365
		3%	C-141	365
		6%	C-130	730
		13%	Jet Trainer (T-38)	1,460
		22%	P-3	2,600
	California National Guard	28%	UH-1	3,650
		39%	BEC 58P	5,475
		14%	HC-130P	2,000
		21%	MH-60	2,800
	Civil Government	100%	Aerial Tanker (DC-6)	3,650
	General Aviation	68%	Single Engine Prop	90,750
		27%	Twin Engine Prop	36,300
		2.5%	Business Jet	3,300
		2.5%	MD-500	3,300
	Aircraft Maintenance	20%	B-757-200	98
		20%	B-767-200	98
		20%	B-747-200	98
		40%	MD-83	197
	Training	75%	B-757-200	750
		25%	B-767-200	250
			Total	164,441
2004	Military	50%	KC-135E	5,840
		3%	C-5A/B	365
		3%	C-17	365
		3%	C-141	365
		6%	C-130	730
		13%	Jet Trainer (T-38)	1,460
		22%	P-3	2,600
	California National Guard	28%	UH-1	3,650
		39%	BEC-58P	5,475
		14%	HC-130P	2,000
		21%	MH-60	2,800
	Civil Government	100%	Aerial Tanker (DC-6)	3,650
	General Aviation	63%	Single Engine Prop	101,500
		30%	Twin Engine Prop	47,250
		2.5%	Business Jet	7,000
		2.5%	MD-500	5,250

Table 2.3-4. Projected Annual Flight Operations - General Aviation with Aircraft Maintenance Alternative (Continued)

Year	Operation	Fleet Mix		Annual Operations
	Aircraft Maintenance	30%	B-757-200	164
		30%	B-767-200	164
		30%	B-747-200	164
		10%	MD-83	55
	Training	50%	B-757-200	1,000
		50%	B-767-200	1,000
			Total	192,847
2014	Military	50%	KC-135E	5,840
		3%	C-5A/B	365
		3%	C-17	365
		3%	C-141	365
		6%	C-130	730
		13%	Jet Trainer (T-38)	1,460
		22%	P-3	2,600
	California National Guard	26%	UH-1	3,650
		39%	BEC-58P	5,475
		14%	HC-130P	2,000
		21%	MH-60	2,800
	Civil Government	100%	Aerial Tanker (DC-6)	3,650
	General Aviation	61%	Single Engine Prop	120,000
		30%	Twin Engine Prop	60,000
		7%	Business Jet	14,000
		2%	MD-500	6,000
	Aircraft Maintenance	30%	B-757-200	164
		30%	B-767-200	164
		30%	B-747-200	164
		10%	MD-83	55
	Training	50%	B-757-200	1,500
		50%	B-767-200	1,500
			Total	232,847

Table 2.3-5. Temporal Distribution of Operations - General Aviation with Aircraft Maintenance Alternative

Operation	Day %	Evening %	Night %
Military	90	5	5
Civil Government	90	5	5
Training	98	2	0
Maintenance	100	0	0
General Aviation	80	15	5

occupy 92 acres. In addition, there are 215 acres designated for additional primary and secondary schools. The proposed college area would develop 20 percent in 1995 and the remaining 80 percent in 1996. This primary and secondary school buildout would be completed according to the schedule for residential construction described immediately below.

2.3.2.5 Commercial. A total of 123 acres are devoted to commercial uses. In the main base area 108 acres would be converted to commercial use, and an additional 15 acres of suburban commercial use would be developed within the residential areas. Commercial land use development would also commence in 1995 and proceed at an annual rate of 4 percent from 1995 through 2003, increasing to 5 percent annually from 2004 through 2013, reaching 85 percent of total buildout by the year 2014.

2.3.2.6 Residential

Single Family. All land designated for residential development would be low-density single-family units. The existing military family housing units would be demolished, the area mined for aggregate, and new residential units constructed. Residential development would extend north beyond Douglas Road, and east to the base boundary adjacent to Mather Lake and the golf course. This land use would occupy a total of 1,855 acres. Residential construction would begin in 1994 and continue through 1997 at a constant annual rate of 1 percent, increasing to 2 percent annually in 1998 through 2014, attaining 38 percent of total buildout by 2014.

2.3.2.7 Parks, Recreation, and Natural Habitat

Parks. There are 34 acres of parks located along the riparian corridor which consist of area reclaimed after aggregate mining operations.

Recreation. The areas proposed for recreational use would total 295 acres. These include major portions of the eastern part of the base adjacent to Sunrise Boulevard and include Mather Lake. The golf course, which comprises 130 acres, would be maintained as a public-access facility. In addition, the 20-acre sports complex adjacent to the Main Gate on Mather Field Drive is proposed for public use. Lands designated for recreational use would be phased in over a 3-year period commencing with 40 percent in 1995 and dropping to an annual rate of 30 percent for each of the two following years, reaching full buildout in 1997.

Natural Habitat. This area of 922 acres contains most of the vernal pools, riparian corridors and wetland and grasslands in the southern part of the base in the vicinity of Eagle's Nest Road.

2.3.2.8 Pre-Development Aggregate Mining Activities. Surface mining of aggregate (sand and gravel) deposits is proposed over an area of 1,172 acres. This area is between the existing housing area and the airfield, running approximately parallel to it. After the mining activities are completed, the area would be roughly 35 feet below its original grade. It would be reclaimed for a mixture of light industrial uses, low-density residential areas, and parks. Complete mining is expected to require at least 16 years. Reclamation will generally be complete 2 years after mining.

2.3.2.9 Employment and Population

Employment. Construction employment associated with this alternative would begin with nearly 600 jobs at closure, and would continue at varying levels until full buildout. With the addition of operations jobs beginning in 1995, total on-site employment would increase steadily from more than 3,500 in 1999 to almost 4,900 in 2004. By the year 2014, there would be nearly 7,600 jobs on the site, approximately 68 percent of the total employment anticipated there at full buildout.

Total project-related employment in the region, including direct and indirect jobs, would be about 6,300 by 1999. This employment would increase steadily to more than 8,700 in 2004 and to more than 13,700 by 2014. Although most of these jobs would accrue to the region's existing and projected baseline labor force, it is assumed that more than 2,500 of the jobs in 2014 would be filled by in-migrating workers.

Population. Population in residence on the base would exceed 2,400 by 1999, climb steadily to more than 5,400 in 2004, and be more than 11,400 by the year 2014 (Table 2.3-6). This 2014 result is approximately 38 percent of the total residents anticipated on the site at full buildout.

Table 2.3-6. Employment and Population Effects - General Aviation with Aircraft Maintenance Alternative

	Closure	1999	2004	2014
On-Site Employment and Population				
Total Persons On-site	597	5,926	10,261	19,006
Direct Employment[a]	597	3,522	4,852	7,587
Resident Population[b]	0	2,404	5,409	11,419
Regional Economic and Population Impacts				
Direct and Indirect Employment	1,437	6,315	8,738	13,712
Workforce Impacts[c]	102	1,118	1,571	2,513
Population Impacts[d]	297	3,375	4,929	8,478

Notes:
(a) Excludes an estimated 12 persons employed in aggregate mining activities on the site.
(b) Includes students.
(c) Based on the following assumptions: 10 percent of the construction workforce, 30 percent of the operations workforce, and 5 percent of the indirect workers will relocate to the region.
(d) Based on a household size of 2.91 (same as the average size of state-to-state migrating households between 1980 and 1985); includes natural population increase associated with the in-migrants.

Regional population impacts, including the in-migrant workforce as well as their dependents, would total almost 3,400 in 1999. These impacts would increase to more than 4,900 in 2004, and to nearly 8,500 by 2014. The greatest net increases would be realized in Sacramento County, where 88.9 percent of the project-related population growth would occur by the year 2014. Unincorporated communities near the base would be particularly affected, including Florin and Rancho Cordova. El Dorado County would receive

5.2 percent of the population growth, Placer County 3.7 percent, and Yolo County 2.2 percent.

2.3.2.10 Transportation

Traffic. Associated with the projected increase in employment opportunities on the base, and resident population, would be increased traffic generation. It is estimated that by the year 2014, reuse-related activities at the base would generate a total of approximately 93,120 AADT. This total includes trips by construction workers employed at the site.

Roads. To accommodate the increased levels of traffic, improvements to the transportation infrastructure are anticipated. Zinfandel Drive would extend south, parallel to Sunrise Boulevard past Douglas Road and merge with Eagle's Nest Road. Douglas Road would continue roughly parallel to the runway, merging with the extension of Excelsior Road. Eagle's Nest Road would continue north intersecting with Douglas Road. H Avenue (at the northwestern corner of the runway) would be extended to the northeast beyond the base boundary across Zinfandel Drive, terminating at Sunrise Boulevard.

Kiefer Boulevard would receive infrastructural improvements and would serve as a new transportation corridor south of the base boundary parallel to Jackson Road. Routiers Road would extend southward beyond Old Placerville Road parallel to the western base boundary and terminating at the new extension of Kiefer Boulevard.

Two new roadways are proposed under this reuse plan, both providing new access routes to the southern portion of the base property. The first lies about halfway between Excelsior Road and Eagle's Nest Road and extends across the improved Kiefer Boulevard, crossing the base property in a northeastward orientation, then proceeding east past Eagle's Nest Road beyond the present base boundary. The second lies west of Excelsior Road, parallel to it and terminates at the extension of Kiefer Boulevard.

Mass Transit. There is a light rail system which runs from downtown Sacramento along Highway 50 for a distance of 18 miles. With the expansion of this system to the Folsom/Roseville areas as well as to the southern Sacramento area and the metropolitan airport, the ridership from the converted base is expected to increase. This alternative calls for the construction of an extension to the main base area via the existing rail right-of-way owned by the Air Force.

2.3.2.11 Utilities. By 2014, the projected activities and population increases in the Sacramento region associated with this alternative would generate the following increases in utility demands over closure baseline conditions:

- Water - 2.3 MGD, or an increase of 0.5 percent
- Wastewater – 1.2 MGD, or an increase of 0.4 percent

- Solid Waste – 0.02 cubic yards per year, or an increase of 0.5 percent
- Electricity – 184 MWH per day, or an increase of 0.5 percent
- Natural Gas – 8,000 therms per day, or an increase of 0.6 percent.

Some utility systems would have to be improved to provide adequate service to proposed new facilities. Necessary system improvements are anticipated to be the same as those associated with the Proposed Action.

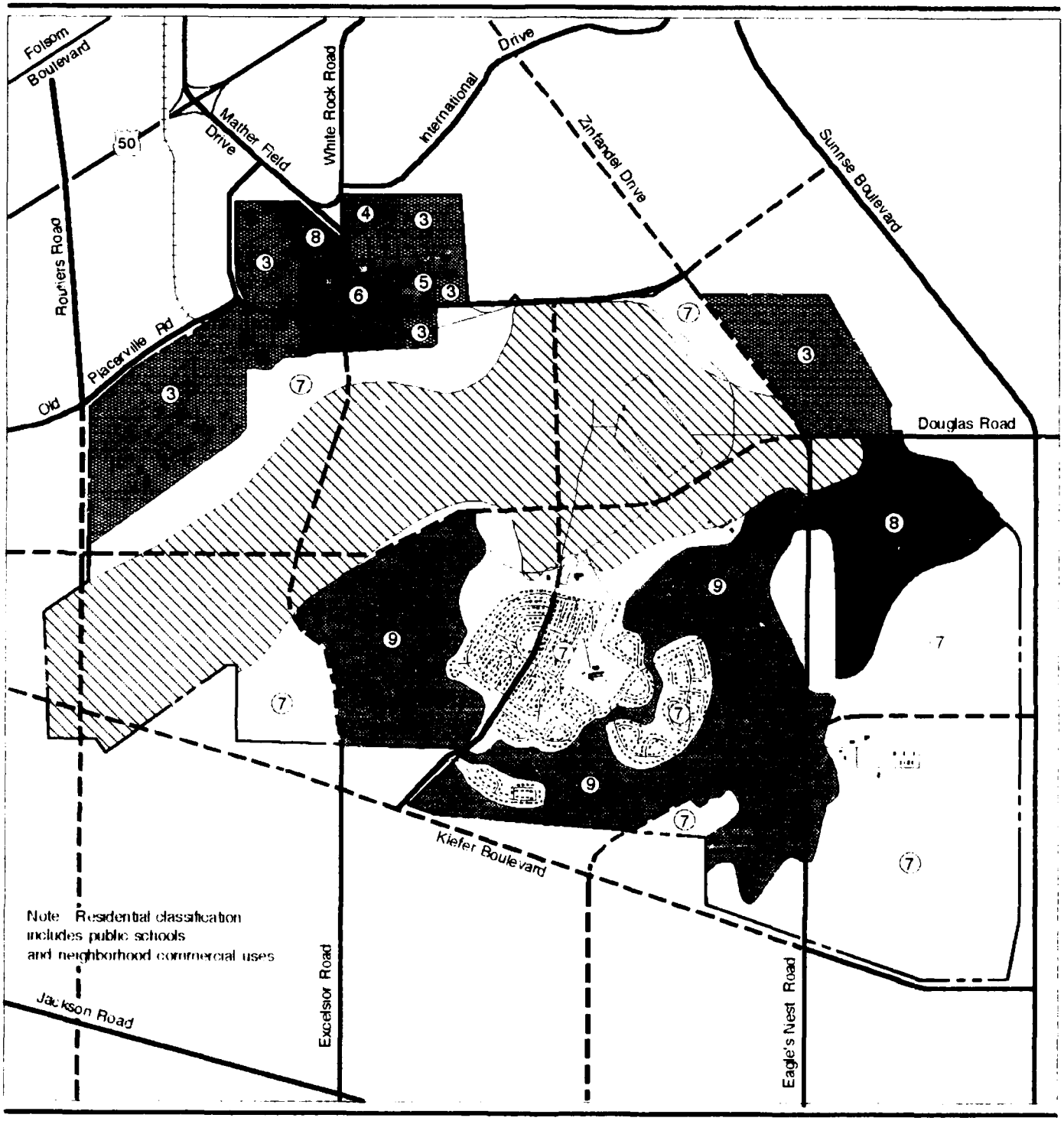
2.3.3 Non-Aviation with Low-Density Residential Alternative

The focus of this alternative is two-fold; it seeks to provide areas of low-density family housing while simultaneously preserving the sensitive natural habitats of the vernal pools, riparian corridors, and other wetland areas. Residential land uses occupy 3,212 acres and natural habitat cover 1,037 acres. This alternative varies from the Proposed Action in that there is no airfield with its attendant aircraft operations, and new low-density housing is located on the original airfield as well as to the north, south, and east of the existing housing stock. Natural habitat surrounds the golf course, Mather Lake, and the riparian corridor, creating bands of open space throughout the residential development in the southeastern portion of the property.

The major components of this alternative are shown in Figure 2.3-3 and described below. The acreage devoted to each land use category is shown in Table 2.3-7.

Table 2.3-7. Land Use Acreage - Non-Aviation with Low-Density Residential Alternative

Land Use Category	Acres
Airfield	0
Aviation Support	0
Light Industrial	607
Institutional	
Hospital (Military)	23
Education Complex	36
Commercial	
Commercial	130
Office	0
Residential	
Single Family	3,212
Townhouses	0
Garden Apartments	0
Apartments	0
Suburban Commercial	26
Schools	350
Parks And Recreation	295
Natural Habitat	1,037
Base Total	5,716
Pre-Development Aggregate Mining Area	1,617



EXPLANATION

- 1 Airfield *
- 2 Aviation Support *
- 3 Light Industrial
- 4 Institutional (Medical)
- 5 Institutional (Education)
- 6 Commercial
- 7 Residential
- 8 Parks/Recreation
- 9 Natural Habitat
- Military
- Pre-development Aggregate Mining
- Base Boundary
- Proposed Light Rail Line
- Proposed Road

0 800 1600 3200 Feet

* Not Applicable

Non-Aviation with Low-Density Residential Alternative

Figure 2.3-3

2.3.3.1 Light Industrial. Proposed development of this land use would be located in the current 7000 Area of the base and along the western end of the main base area. An additional site for industrial development is located at the northeastern corner of the base. The 607 acres in this category would house light manufacturing, research and development, and assembly activities. Industrial development would occur at a reduced level with an annual rate of less than 1 percent from 1994 through 2007. Beginning in 2008 through 2014 a 1 percent annual rate will be attained, contributing to 14 percent of total buildout by 2014.

2.3.3.2 Institutional

Medical. Mather Hospital would continue to offer services, as an annex to McClellan AFB, to active and retired military personnel and their dependents, providing 105 beds on the existing 23-acre site.

Education. The proposal is to reuse 36 acres of existing facilities including the flight training center, classrooms, and auditorium in the area of the main base as a college. The proposed college would be developed over a 2-year period with 20 percent absorbed in 1994, the initial year, and 80 percent the following year. The existing elementary schools would also be retained. Development of additional public schools would be coordinated with residential construction and would be initiated in 1994. Development would proceed at a constant annual rate of 3 percent (of total) through 2001, when it would increase to 4 percent annually in 2002 through 2014, reaching 76 percent of full buildout at that time. At full buildout, 421 acres would be developed for educational uses.

2.3.3.3 Commercial. Commercial development occupies 130 acres in the main base area, and 26 acres of suburban commercial use would be distributed throughout the residential areas. The phase-in of commercial development would begin in 1994 at an annual rate of 3 percent per year continuing through 2007, and increasing to 4 percent annually in 2008 through 2014. By 2014, commercial development would reach 70 percent of total buildout.

2.3.3.4 Residential

Single Family. The only housing type anticipated under this alternative is low-density, single-family units. The land that was previously occupied by the airfield would be converted to this land use, as would the area south of the extension of Douglas Road. This new residential area would merge with the existing family housing area and extend around the golf course and Mather Lake. The development would be interspersed with areas of natural habitat which would protect/enhance the vernal pools, riparian corridors, wetland and grassland areas. The residential units would be constructed at densities of 6 dwelling units per acre, contributing to a total of 19,272 units on 3,212 acres. The existing residential units would be upgraded to conform with the current building codes, and would be phased into the market, beginning in

1994, at a constant rate of 20 percent per year through 1998. New residential construction would also commence in 1994 at an annual rate of 3 percent through 2001, increasing to an annual rate of 4 percent in 2002 and continuing through 2014, attaining 76 percent of projected buildout in that year.

2.3.3.5 Parks, Recreation, and Natural Habitat

Recreation. The recreation areas include the sports complex, the existing 18-hole golf course, and Mather Lake. In total, 323 acres of recreation land would be maintained. Conversion and development of land for recreation and vacant land would be phased in over a 3-year period beginning in 1994 with 40 percent build out and decreasing to an annual rate of 30 percent for each of the following 2 years, reaching full buildout in 1996.

Natural Habitat. There are 1,037 acres of natural habitat. This area encompasses land west and south of the existing housing area and extending east in the vicinity of Eagle's Nest Road. The majority of the vernal pools, riparian corridors, and natural grasslands located in the southeastern portion of the base are contained in this area.

2.3.3.6 Pre-Development Aggregate Mining Activities

The surface mining of aggregate is proposed for approximately 1,617 acres primarily in the area of the current airfield and clear zone. The area would be reclaimed for low-density residential development. Mining of this area is expected to take over 20 years to complete. Reclamation will generally be complete two years after mining.

2.3.3.7 Employment and Population

Employment. Construction employment associated with this alternative would begin with more than 1,600 jobs at closure, and would continue at varying levels until full buildout. With the addition of operations jobs beginning in 1995, total on-site employment would increase steadily from more than 3,000 in 1999 to almost 4,500 in 2004. By the year 2014, there would be nearly 7,700 jobs on the site, approximately 40 percent of the total employment anticipated there at full buildout.

Total project-related employment in the region, including direct and indirect jobs, would be almost 5,500 by 1999. This employment would increase steadily to nearly 8,100 in 2004 and to more than 13,600 by 2014. Although most of these jobs would accrue to the region's existing and projected baseline labor force, it is assumed that almost 2,400 of the jobs in 2014 would be filled by in-migrating workers.

Population. Population in residence on the base would be nearly 10,800 by 1999, climb steadily to almost 20,000 in 2004, and approach 38,400 by the year

2014 (Table 2.3-8). This 2014 result is approximately 79 percent of the total residents anticipated on the site at full buildout.

Regional population impacts, including the in-migrant workforce as well as their dependents, would total more than 2,600 in 1999. These impacts would increase to almost 4,200 in 2004, and to nearly 8,100 by 2014. The greatest net increases would be realized in Sacramento County, where 88.8 percent of the project-related population growth would occur by the year 2014. Unincorporated communities near the base would be particularly affected, including Florin and Rancho Cordova. El Dorado County would receive 5.2 percent of the population growth, Placer County 3.7 percent, and Yolo County 2.3 percent.

Table 2.3-8. Employment and Population Effects - Non-Aviation with Low-Density Residential Alternative

	Closure	1999	2004	2014
On-Site Employment and Population				
Total Persons On-site	1,640	13,803	24,454	46,048
Direct Employment[a]	1,640	3,018	4,477	7,687
Resident Population[b]	0	10,785	19,977	38,361
Regional Economic and Population Impacts				
Direct and Indirect Employment	3,916	5,480	8,084	13,628
Workforce Impacts[c]	278	871	1,328	2,395
Population Impacts[d]	810	2,630	4,167	8,081

Notes: (a) Excludes an estimated 12 persons employed in aggregate mining activities on the site.
(b) Includes students.
(c) Based on the following assumptions: 10 percent of the construction workforce, 30 percent of the operations workforce, and 5 percent of the indirect workers will relocate to the region.
(d) Based on a household size of 2.91 (same as the average size of state-to-state migrating households between 1980 and 1985); includes natural population increase associated with the in-migrants.

2.3.3.8 Transportation

Traffic. Associated with the projected increase in employment opportunities on the base, and resident population would be increased traffic generation. It is estimated that by the year 2014, reuse-related base activities would generate a total of approximately 194,045 average annual daily trips.

Roads. To accommodate the increased levels of traffic, improvements to the transportation infrastructure are anticipated. There would be road extensions to improve access throughout the entire base area. The extension of Zinfandel Drive would provide the primary access from the north, connecting through to Eagle's Nest Road and providing a north-south linkage through the property. Douglas Road would extend west through the residential development beyond the base boundary. Excelsior Road would be widened to improve access to the base, thereby creating a north-south route through the base to the main base area.

Along the boundaries of the base additional infrastructure improvements would occur to facilitate integration of the base property with the neighboring communities. Routiers Road would be extended both to the north and south through the former clear zone at the southwestern end of the runway. H Avenue (at the northwestern corner of the runway) would be extended to the northeast beyond the base boundary, across Zinfandel Drive, terminating at Sunrise Boulevard. North of the main base area improvements to International Drive and Mather Field Drive would be completed providing greater accessibility to the area. Two new roadways are proposed under this alternative; one would be located between Excelsior Road and Eagle's Nest Road at the southern end of the base and would cross the base property in a northeast orientation crossing Eagle's Nest Road, then head east beyond the current base boundary. The second would originate off of the improved Kiefer Boulevard, bisect the existing housing area, continue north and terminate at the base boundary. Infrastructural improvements would upgrade Kiefer Boulevard creating a new transportation corridor running roughly parallel to the southern base boundary and extending beyond the base.

Mass Transit. There is a light rail system which runs from downtown Sacramento along Highway 50 for a distance of 18 miles. There is also a railroad spur connecting the main base area to the Highway 50 line. Under this alternative it is proposed to convert the spur to light rail use. It is anticipated that with the expansion of this system to Folsom, Roseville, southern Sacramento, and the metropolitan airport, the ridership would increase.

2.3.3.9 Utilities

By 2014, the projected activities and population increases in the Sacramento region associated with this alternative would generate the following increases in utility demands over closure baseline conditions:

- Water - 2.2 MGD, or an increase of 0.5 percent
- Wastewater - 1.2 MGD, or an increase of 0.4 percent
- Solid Waste - 0.02 million cubic yards per year, or an increase of 0.5 percent
- Electricity - 176 MWH per day, or an increase of 0.5 percent
- Natural Gas - 7,000 therms per day, or an increase of 0.6 percent.

Some utility systems would have to be improved to provide adequate service to proposed new facilities. Necessary system improvements are anticipated to be the same as those associated with the Proposed Action.

2.3.4 Other Land Use Concepts

In addition to the Proposed Action and alternatives described above, two major independent proposals and numerous federal transfers and conveyances for

only partial utilization of the base are analyz· ·. Since their implementation does not require the entire land area of the base, each is assessed independently as an overlay on the other comprehensive land use plans already presented above. The two major independent proposals are: (1) a California Department of Transportation (Caltrans) Research and Development Center (a conveyance), and (2) a theme park (negotiated sale). Related land uses and impacted acreages are indicated in Table 2.3-9.

In the analyses of both the Caltrans and theme park proposals, two locations for each are proposed; one based on aviation-oriented reuse (for the Proposed Action and General Aviation with Aircraft Maintenance Alternative), and one adapted to the non-aviation plans. The overlay of the Caltrans proposal on the aviation-related proposals is illustrated in Figure 2.3-4 and its relationship to the non-aviation proposals is as shown in Figure 2.3-5. The respective overlays of the theme park are depicted in Figures 2.3-6 and 2.3-7. The impacts associated with each of the overlays are summarized below.

2.3.4.1 Caltrans Research and Development Center. The overlay (involving the federal conveyance of property) proposes the development of a research and development center by a consortium of Caltrans, the Federal Highway Administration. academic and the private sector. The center would provide facilities for testing and developing a wide variety of existing and emerging technologies across a broad front of transportation operations. These could include private transportation, various modes of mass transit, the ground portion of air transportation systems, goods movement, and freeways. The proposed center could contain the following major facilities: freeway test track (with frontage roads) with a minimum circumference of 6 miles and encompassing approximately 2,000 acres; rail research, display center, and transit demonstration and research center; crash test facility; observation tower(s); research and development campus; office space; and laboratory composed of office/conference, lab/shop, storage, and parking facilities.

The relationship between the overlay and the Proposed Action and each alternative is briefly described in the following sections.

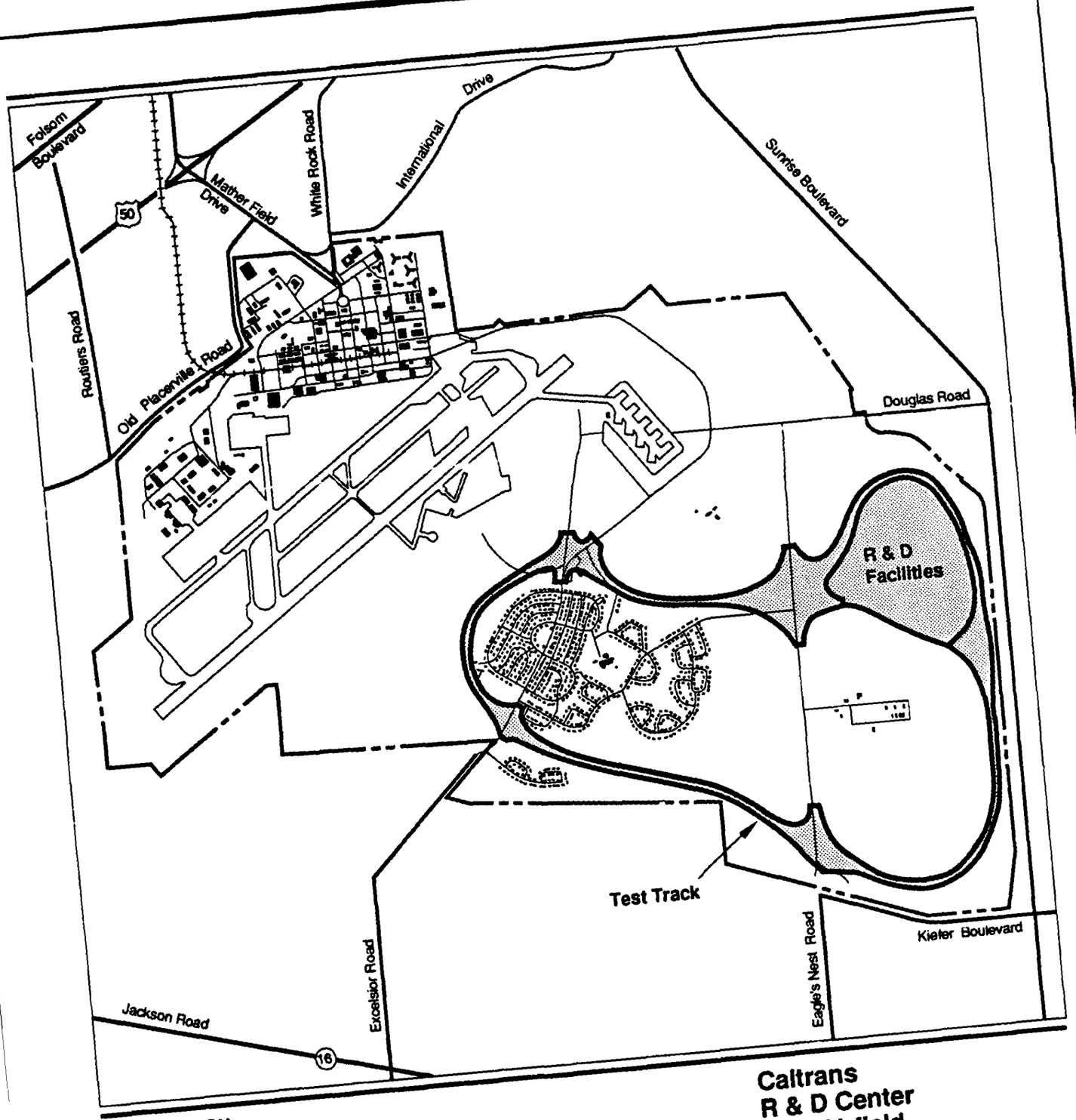
Proposed Action. Placing the Caltrans facility in the southeastern corner of the base would allow for the continuation of aviation activities (see Figure 2.3-4). The track and attendant facilities would occupy 525 acres and would impact commercial, office, residential, parks and recreation, and natural habitat land uses (see Table 2.3-9 for the impacted acreages).

Non-Aviation with Mixed-Density Residential Alternative. The facility is located at the north end of the base occupying 470 acres (see Figure 2.3-5). This facility would impact commercial, office, residential, parks and recreation, and natural habitat land uses (see Table 2.3-9 for the impacted acreages).

Table 2.3-9. Other Land Use Concepts: Adjusted Land Use Acreage

Land Use Categories	Caltrans R&D Center				Theme Park			
	Proposed Action	Non-Aviation with Mixed-Density Residential	General Aviation with Aircraft Maintenance	Non-Aviation with Low Density Residential	Proposed Action	Non-Aviation with Mixed-Density Residential	General Aviation with Aircraft Maintenance	Non-Aviation with Low Density Residential
AIRFIELD	NC	NC	NC	NC	NC	NC	-11	NC
AVIATION SUPPORT	-17	NC	NC	NC	-305	NC	NC	NC
INDUSTRIAL								
Light Industrial	NC	NC	NC	-27	NC	-29	-5	-189
INSTITUTIONAL								
Hospital	NC	NC	NC	NC	NC	NC	NC	NC
Education Complex	NC	NC	NC	NC	NC	NC	NC	NC
COMMERCIAL								
Commercial	-3	-3	NC	NC	-7	-70	NC	-50
Office	-3	-2	NC	NC	-6	-16	NC	NC
RESIDENTIAL								
Single Family	-36	-419	-343	-432	-250	-1,654	-1,514	-1,796
Townhouses	NC	-24	NC	NC	-29	-117	NC	NC
Garden Apartments	NC	NC	NC	NC	NC	-28	NC	NC
Apartments	NC	NC	NC	NC	NC	-14	NC	NC
Suburban Commercial	NC	NC	NC	NC	NC	NC	NC	NC
Schools	NC	NC	NC	NC	NC	NC	NC	NC
PARKS AND RECREATION	-382	-22	-110	NC	-769	-120	-20	NC
NATURAL HABITAT	-84	NC	-72	-11	-676	NC	-492	-13
CALTRANS R&D CENTER	525	470	525	470	NA	NA	NA	NA
THEME PARK	NA	NA	NA	NA	2,042	2,048	2,042	2,048
PRE-DEVELOPMENT AGGREGATE MINING AREAS (acres)	1,203	1,113	1,172	1,617	1,203	1,113	1,172	1,617

NC - No Change
NA - Not Applicable



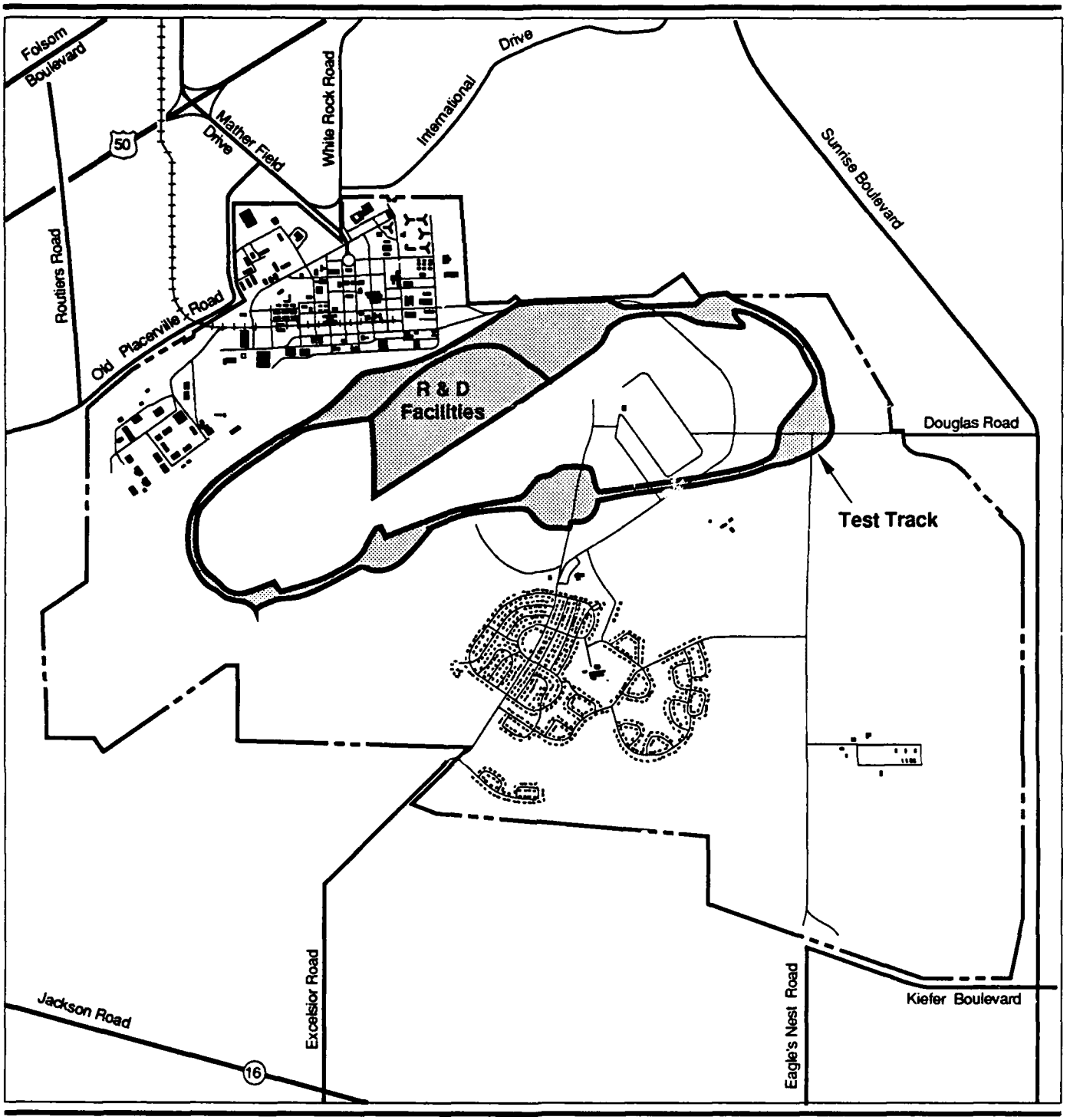
Caltrans R & D Center with Airfield

EXPLANATION

- Base Boundary
- Light Rail Line
- Caltrans Facilities

0 800 1600 3200 Feet

Figure 2.3-4



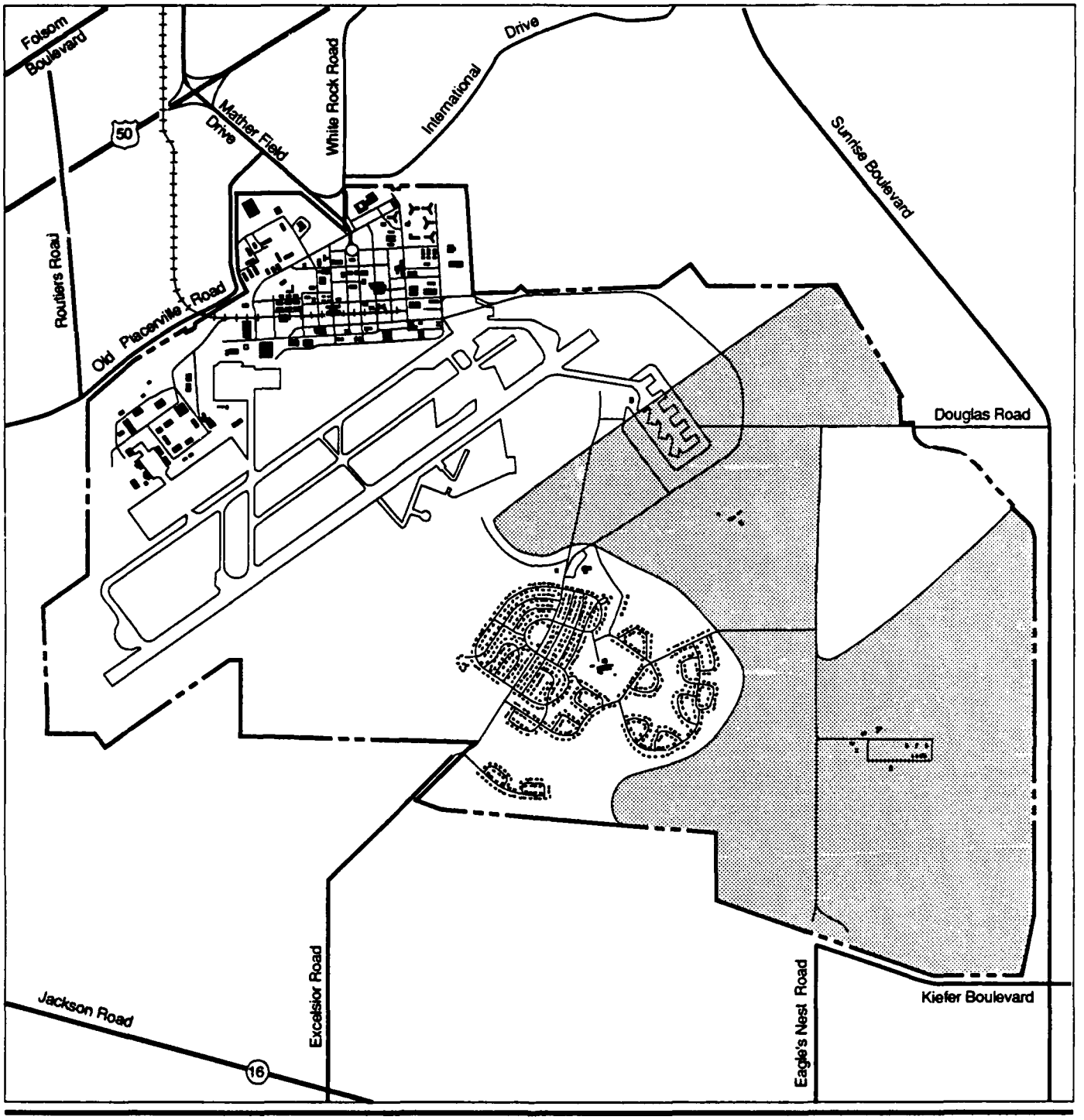
EXPLANATION

- Base Boundary
- Light Rail Line
- Caltrans Facilities

Caltrans R & D Center without Airfield

0 800 1600 3200 Feet

Figure 2.3-5



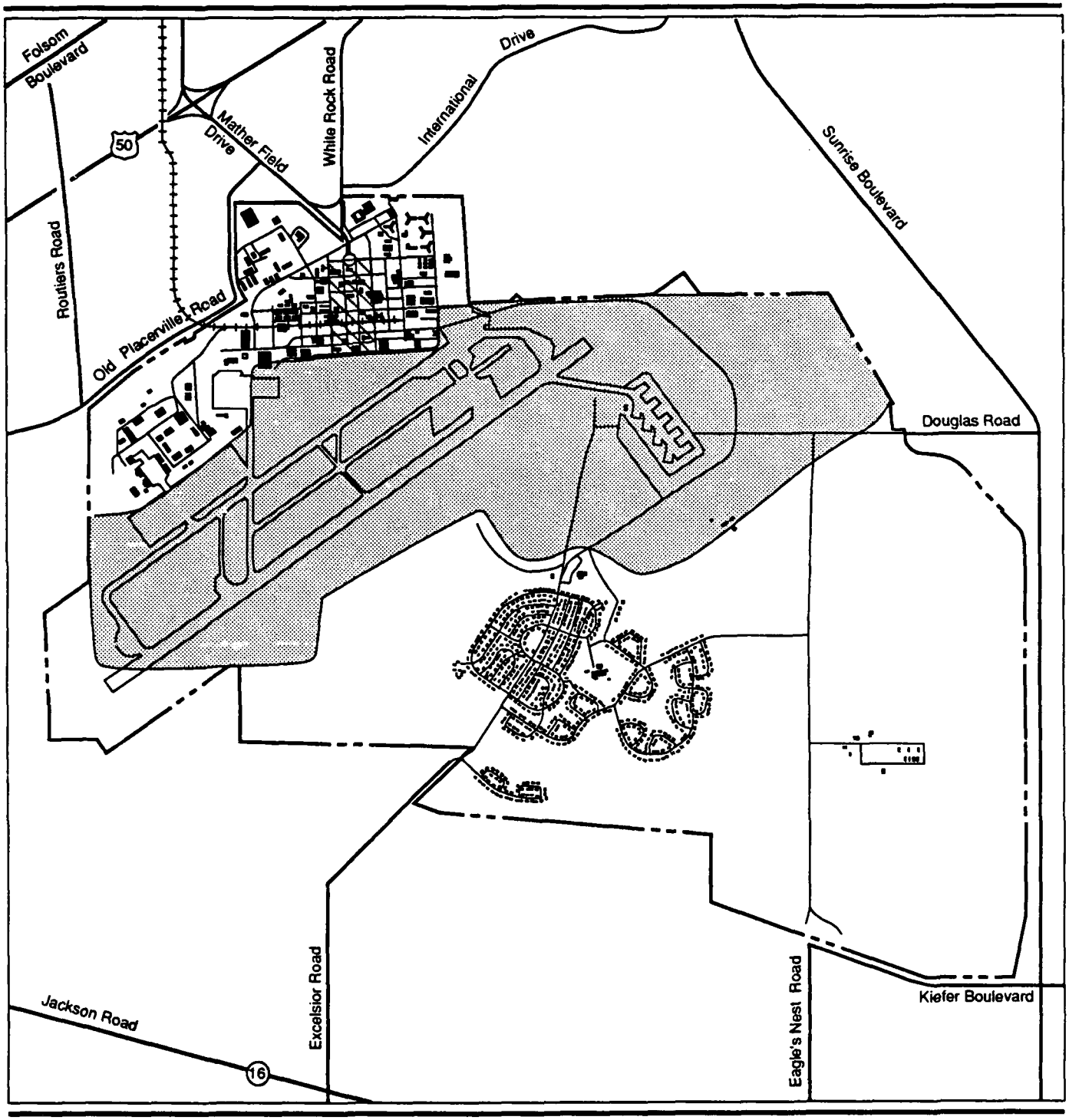
EXPLANATION

- Base Boundary
- Light Rail Line
- Theme Park

Theme Park with Airfield

0 800 1600 3200 Feet

Figure 2.3-6



EXPLANATION

- Base Boundary
- Light Rail Line
- Theme Park
- Hotels

Theme Park without Airfield

0 800 1600 3200 Feet

Figure 2.3-7

General Aviation with Aircraft Maintenance Alternative. Placement of the facility in the southeastern corner of the base is applicable for this alternative (see Figure 2.3-4). This proposal would replace a total of 525 acres comprised of residential, parks and recreation, and natural habitat land uses (see Table 2.3-9 for the impacted acreages).

Non-Aviation with Low-Density Residential Alternative. In this alternative the facility is proposed along the northern edge of the base (see Figure 2.3-5). The test track and facilities would require 470 acres and impact industrial, residential, parks and recreation, and natural habitat land uses (see Table 2.3-9 for the impacted acreages).

2.3.4.2 Theme Park. The following elements would comprise the proposed theme park: (1) core area of the park; (2) hotels and adjacent parking lots; (3) visitor parking lots; (4) entrance buffer area between parking and the highway; (5) manufacturing, production facilities and vacant land; and (6) parkland areas.

The theme park is projected to employ 3,500 persons including 500 non-local (in-migrating) employees. It would attract an average of 15,000 and peak of 25,000 visitors daily, many of whom would stay at least one night. The facility would have a maximum occupancy of 30,000 visitors daily.

The relationship between the overlay and the Proposed Action and each alternative is briefly described below:

Proposed Action. The aviation-compatible positioning of the theme park would occupy 2,042 acres in the southeastern portion of the base (see Figure 2.3-6). As such, it would primarily impact the residential, parks and recreation, and natural habitat areas (see Table 2.3-9 for impacted acreages).

Non-Aviation with Mixed-Density Residential Alternative. The theme park in the non-aviation context would occupy 2,048 acres in the north-central area of the base (see Figure 2.3-7). It would displace the majority of single-family residential land use, three of the TODs, and some of the park and recreation corridor (see Table 2.3-9 for impacted acreages).

General Aviation with Aircraft Maintenance Alternative. The aviation-compatible positioning of the theme park would occupy 2,042 acres in the eastern section of the property, affecting mostly natural habitat area (see Figure 2.3-6 and Table 2.3-9 for impacted acreages).

Non-Aviation with Low-Density Residential Alternative. The positioning of the theme park with this alternative would replace 2,048 acres of mostly single-family residential development, as well as some light industrial land uses (see Figure 2.3-7, and Table 2.3-9 for impacted acreages).

2.3.4.3 Other Federal Transfers and State/Local Conveyances. In compliance with the Federal Property and Administrative Services Act of 1949, DOD solicited proposals from other federal agencies regarding their interest in acquiring any lands or facilities that might become available. A number of agencies, both federal, state, and local, have formally expressed interest in the transfer or conveyance of specific facilities and parcels of land from DOD. Each of these requests is discussed below, and the applicable on-base locations of proposed transfers are indicated in Figure 2.3-8 while those of conveyances are identified in Figure 2.3-9.

U.S. Department of Agriculture, U.S. Forest Service Pacific Southwest Region. A request has been made for facilities for general office space; warehouse space for office supplies, furniture, displays, audio-visual equipment; a fitness center for employees; child day-care center services; public and employee parking for 100 to 150 automobiles and 15 secured spaces for government vehicles. The facility will serve as administrative headquarters for the Forest Service in California and employ approximately 495 people with an annual aggregate payroll of $19 million, and an additional $10 to 15 million in indirect services. The Forest Service also seeks approximately 40 acres for use as a demonstration project relative to eucalyptus-breeding research.

U.S. Department of Veteran's Affairs. The Department of Veteran's Affairs seeks transfer of real properties. No specific facilities have yet been identified.

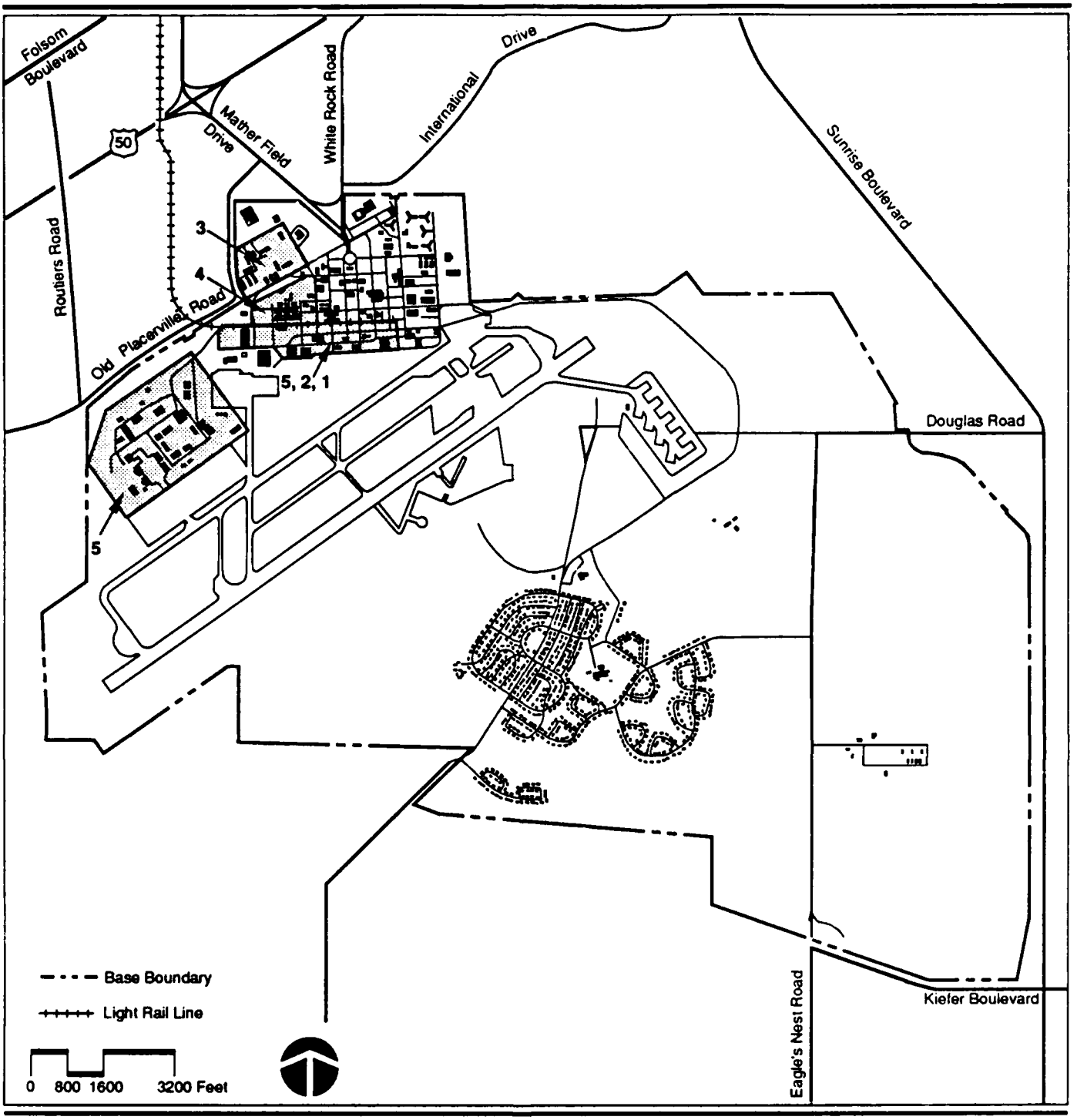
Bureau of Land Management (BLM). The BLM Aviation Management Group seeks office and hangar space. No further details were available concerning this proposal.

U.S. Army Test, Measuring, and Diagnostic Equipment Support Center. The U.S. Army seeks Building #4473. No further details were available concerning this proposal.

Department of Health and Human Services Residential Treatment Center for American Indian Youth. The Department of Health and Human Services seeks to establish a 24-bed in-patient care facility.

Mather Heritage Foundation. The Mather Heritage Foundation seeks a small parcel of land adjoining the Silver Wings Museum (Facility #3860) to place a commemorative statue.

State of California Department of Forestry. The Department of Forestry seeks a Consolidated Air Operations Facility with air program management and operations support (from Sacramento Executive Airport) with 7,500 square feet (s.f.) of office space and 21 personnel and 115,000 s.f. of hangar space; Fixed Wing Maintenance Operations (from Stockton) with 30 contractors, 8,000 s.f. of covered storage space for 3 to 6 administrative aircraft, 6 acres of ramp space for a total of 48 aircraft (19 air tankers, 13 air attack aircraft. 10 helicopters,



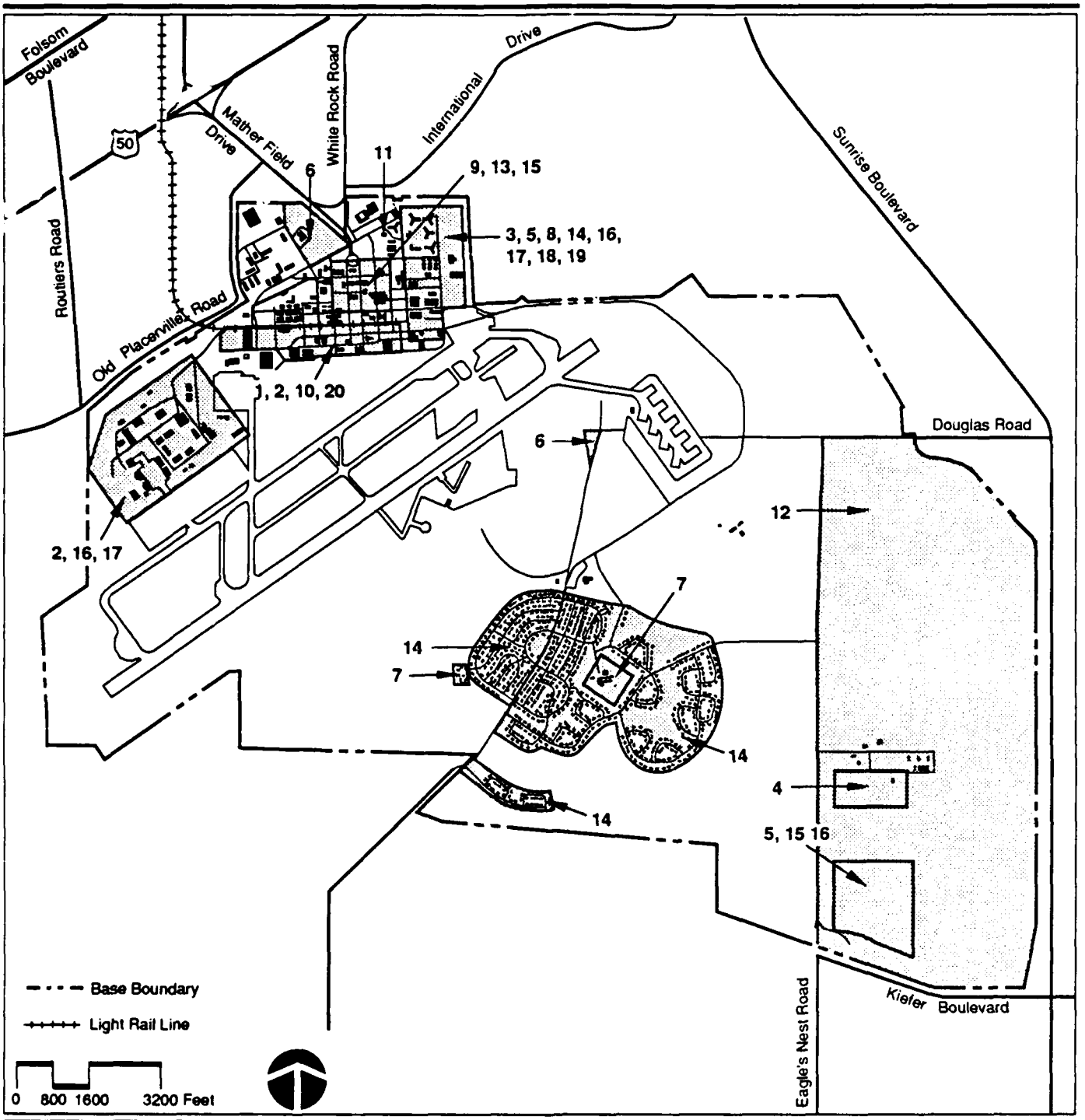
EXPLANATION

Potential Sponsors for Proposed Federal Transfers

1. Bureau of Land Management and U.S. Forest Service
2. U.S. Forest Service
3. U.S. Department of Veterans' Affairs
4. U.S. Postal Services
5. U.S. Army

Proposed Federal Transfers

Figure 2.3-8



EXPLANATION

Requested State and Local Government Reuses

1. California Department of Forestry
2. California National Guard
3. California State University, Sacramento
4. California State Fire Marshal
5. City of Sacramento Police Department
6. Cordova Recreation and Parks District
7. Folsom/Cordova Unified School District
8. Los Rios Community College District
9. Mather Heritage Foundation
10. Regional Transit Authority
11. Sacramento County Child Care and Family Support Facility
12. Sacramento County, Department of Parks and Recreation
13. Sacramento County Department of Public Works
14. Sacramento County Housing and Redevelopment Agency
15. Sacramento County Sheriff's Department
16. Sacramento County Sheriff's Department Aero Bureau
17. Sacramento County-wide Education Consortium
18. Sacramento County Training Office
19. State Commission of Peace Officer Standards
20. State of California Department of Justice

Note:
Refer to Figures 2.3-4 and 2.3-5 for Caltrans R&D Center

Proposed Conveyances

Figure 2.3-9

6 administrative or special aircraft; Rotary Wing Maintenance Operations (from Stockton) with administrative aircraft and storage of most aircraft during winter (aircraft dispersed throughout state for the rest of the year). The Department seeks to establish a Future Air Attack Base located close to water, power, and taxiways with 15 acres of construction site to build offices, ready-room, shops, and parking for at least 6 air-tankers.

State of California Department of General Services. The Department of General Services seeks conveyance of aviation support facilities to house the California National Guard.

State of California Department of Justice, Bureau of Narcotic Enforcement. The Bureau of Narcotic Enforcement seeks hangar and ramp space.

State of California, Department of Transportation (Caltrans). Caltrans seeks to create a Western Region Research and Design Center combining federal, state, academic, and commercial uses (as described in detail in Section 2.3.4.1).

State Commission of Peace Officer Standards, Los Rios Community College District, Sacramento Police Department, and Sacramento County Sheriff's Department. These departments seek space to conduct training sessions.

California State University, Sacramento. The University desires that the Planetarium be moved to Mather Park.

California State Fire Marshall. The Fire Marshall seeks to lease one or more explosive storage bunker for safekeeping of fireworks and explosives, and to share the use of auditorium, classroom, and fire training areas.

Sacramento County Department of Parks and Recreation. The Department of Parks and Recreation is interested in the public conveyance of lands bordered by Douglas Road, Eagle's Nest Road, Kiefer Boulevard, and the Folsom South Canal (approximately 1,000 acres). The Department will continue operation of 64-acre lake, 34-stall equestrian center, 18-hole championship golf course, model airplane facility, and small arms range. The Department also wishes to convert Chapel #2 to a regional center for the handicapped. Undeveloped land would be used to create an oak woodland forest, multi-sports complex, group picnicking, camping, velodrome, floral gardens and other special facilities appropriate for regional significance; these facilities are likely to require an investment to $10 to 15 million of county funds. This public conveyance is supported by U.S. Department of the Interior, National Park Service, Western Region.

Sacramento County Sheriff's Department, Aero Bureau/Airbourne Law Enforcement. The Sheriff's Department seeks to base 4 helicopters, 2 fixed-wing planes, and 21 staff, and to lease 22,470 s.f.

Sacramento County Child Care and Family Support Center. The Child Care Center seeks conveyance of the Mather Child Care Center (Facility #651) to be developed into a child and family support center.

Sacramento County-wide Education Consortium: Sacramento County Office of Education, Sacramento County School Districts, California State University, Sacramento, Los Rios Community College. This consortium seeks Building 2500 and warehouse space of 100,000 s.f. for vehicle maintenance and repair facilities.

Sacramento Housing and Redevelopment Agency. The Housing and Redevelopment Agency requests that all family housing units, community facilities, improvements and surrounding open space be sold at a discounted price to the Housing Authority of the County of Sacramento, or to a specially created nonprofit development corporation affiliated with the Sacramento Housing and Redevelopment Agency. The agency also seeks to increase locally available stock of moderately priced housing.

Cordova Recreation and Park District. The Recreation and Park District seeks to acquire through public conveyance the base gymnasium, 3 lighted softball fields, 7 tennis courts, lighted outdoor game courts, jogging trails, parking lots, a 3-acre picnic area near the Alert site, and other open space areas. This public conveyance is supported by U.S. Department of the Interior, National Parks Service, Western Region.

Folsom-Cordova Unified School District. The Folsom-Cordova Unified School District seeks to have lands and the remainder of buildings associated with Kitty Hawk Elementary School and Mather Elementary School publicly conveyed.

Los Rios Community College District. The Los Rios Community College District seeks Classroom Buildings #3750, #2500, the Simulator Building #3785, the Aviation Maintenance Training Buildings #4850, 4851, 4750, 4852, 4853.

City of Sacramento Police Department. The Sacramento Police Department seeks an interim agreement for range facilities, staff offices, dormitory rooms for 50 visitors, classroom space, emergency vehicle operations buildings, kitchen and dining facilities, gymnasium, secure storage area, and library.

Regional Transit Authority. The Transit Authority seeks to reuse railway right-of-way to the Folsom line, and to use Building #4200 and 20 acres for storage and maintenance of buses and light rail vehicles.

2.3.5 No-Action Alternative

The No-Action Alternative would result in the U. S. Government retaining ownership of the property after closure. The property would not be put to further use. The base would be preserved, i.e., placed in a condition intended to minimize deterioration and ensure public safety. A DMT would be provided to ensure base security and maintain the grounds and physical assets, including the existing utilities and structures. No other military activities/missions or airfield activity would be performed on the property.

The future land uses and levels of maintenance would be as follows:

- Maintain structures in mothballed condition. This would involve disconnecting or draining some utility lines and securing facilities
- Isolate or deactivate utility distribution lines on base
- Provide limited maintenance of roads to ensure access
- Provide limited grounds maintenance of open areas. This would primarily consist of infrequent cutting to eliminate fire, health, and safety hazards
- Maintain golf course in such a manner as to facilitate economical resumption of use
- Maintain existing leases, where applicable.

A DMT has been established at Mather AFB. The responsibilities of this team include coordinating closure activities, establishing a caretaker force to maintain Air Force properties after closure, and serving as the Air Force liaison supporting community reuse. For the purposes of environmental analysis, it was assumed that this team would comprise approximately 50 people on site at the time of closure.

The DMT, as used in this document, refers to the Air Force disposal personnel and/or to one of the caretaker contractors. For example, under the No-Action Alternative, the contractors are responsible for the management and disposition of their own hazardous waste. The Air Force DMT would be responsible for inspection and oversight to ensure hazardous waste practices are in compliance with pertinent regulations.

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

The Proposed Action and alternatives described previously, together with the overlays, embody a diversity of land uses at different locations that include all of the alternatives that were identified during scoping.

2.5 OTHER FUTURE ACTIONS IN THE REGION

Three actions likely to be implemented in the foreseeable future and located within the ROI are considered as contributing a potential cumulative impact to those of the disposal and reuse of Mather AFB.

Sacramento Army Depot. The first, as part of the Round-2 base closures, involves the full closure of the Sacramento Army Depot (SAAD). This facility occupies 485 acres and is located approximately 10 miles southwest of Mather AFB. The action recommends the transfer of personnel to Tobyhanna, Pennsylvania; Anniston, Alabama; Red River and Corpus Christi, Texas Army depots, as well as transferring some of the maintenance workload to McClellan Air Logistics Center. Full closure would eliminate 700 positions and transfer 2,300 others, culminating in a loss of 3,000 SAAD positions. This action could potentially result in a population decrease of 7,900 people in the Sacramento Metropolitan Statistical Area (MSA), including the transfer of employees and their families (EBASCO Environmental, 1990).

Sunrise-Douglas Development. The second project considered involves planned development of a 1,226 acre mixed-use project in the vicinity of Mather AFB. The proposed site is located east and immediately adjacent to Mather AFB at the Douglas Road-Sunrise Boulevard intersection. The developer is in the process of securing zoning changes from agricultural uses to permit commercial, industrial, open space, and low- and medium-density residential construction. Of the proposed uses, nearly 69 percent comprises residential development. The open space designation will protect/enhance the wetland areas on site.

Aggregate Mining Activities. The third project involves aggregate mining activities proposed in the vicinity of the base. The project site, at which both mining and screening activities will take place, encompasses 1,234 acres between Mather AFB on the north, Jackson Road on the south, Mather Boulevard to the east, and Bradshaw Road on the west. The proposed activities include excavating the site to a depth of 35 to 60 feet below existing grade and restoring and revegetating the floor following each phase of mining. Approximately 100 acres comprised of Morrison Creek, Mather Drain, tributaries of Morrison Creek, and adjacent and isolated wetlands, including vernal pools are located within the proposed mining area. No fill will be used to divert creeks and drainages; overburden, and excavated and mined materials will not be stockpiled in these areas (Holliman, Hackard and Taylor and G.W. Consulting Engineers, 1990).

2.6 COMPARISON OF ENVIRONMENTAL IMPACTS

A summary comparison of the influencing factors and environmental impacts on each biophysical resource affected by the Proposed Action and alternatives is

presented in Tables 2.6-1 through 2.6-6. Influencing factors are non-biophysical elements, such as population, employment, land use, aesthetics, public utility systems, and transportation networks, that directly impact the environment. These activities have been analyzed to determine their effects on the environment. Impacts to the environment are described briefly in the summary and discussed in detail in Chapter 4.0. Tables 2.6-7 and 2.6-8 present influencing factors and environmental impacts of the federal transfers and independent land use concepts.

Table 2.6-1. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 1999*

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
LOCAL COMMUNITY					
• Population	1,813	2,059	3,375	2,630	No increase in long term
• Direct Employment	1,917	2,324	3,522	3,018	No increase in long term (56)
• Indirect Employment	1,683	1,879	2,793	2,462	No increase in long term (17)
• Traffic (annual average daily trips)	35,092	96,072	36,573	114,718	No change
• Flight Operations (annual)	214,191	NA	164,441	NA	No change
• Water Demand (MGD)	0.5	0.5	0.9	0.7	No change
• Wastewater Generation (MGD)	0.3	0.3	0.5	0.4	No change
• Solid Waste Generation (million cubic yards/yr)	0.00	0.00	0.01	0.01	No change
• Electricity Demand (MWH/day)	36	41	67	52	No change
• Natural Gas Demand (1,000 therms/day)	2	2	3	2	No change
• Land Use	Aviation support uses are incompatible with proposed adjacent low-density residences on northeast portion of base. Could create noise, traffic, safety and air quality impacts. Reduction in noise contour under 65 dB could make more land available for residential development. Conversion of open space to developed use would cause potential adverse aesthetic effects.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	Light industrial development and aggregate mining near single-family residences may cause visual impacts.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	No change

* Factors reflect change over closure baseline conditions.

Table 2.6-1. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 1999*

Page 2 of 2

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
HAZARDOUS MATERIALS/WASTE MANAGEMENT					
• Hazardous Materials	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• Hazardous Waste	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Decrease in hazardous waste.
• IRP	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact
• Storage Tanks	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Effective management strategies for maintenance/removal.
• Asbestos	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/ demolition.	Effective management strategies for renovation/demolition.	No impact
• Pesticides and Herbicides	No impact	No impact	No impact	No impact	No impact
• PCBs	No impact	No impact	No impact	No impact	No impact
• Radon	No impact	No impact	No impact	No impact	No impact
• Medical/Biohazardous Waste	No impact	No impact	No impact	No impact	No impact

* Factors reflect change over closure baseline conditions.

Table 2.6-2. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2004*

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
LOCAL COMMUNITY					
• Population	4,473	3,369	4,929	4,167	No increase in long term
• Direct Employment	4,325	3,593	4,852	4,477	No increase in long term (56)
• Indirect Employment	4,212	2,845	3,886	3,607	No increase in long term (17)
• Traffic (annual average daily trips)	54,203	119,515	55,392	142,897	No change
• Flight Operations (annual)	302,867	NA	192,847	NA	No change
• Water Demand (MGD)	1.2	0.9	1.3	1.1	No change
• Wastewater Generation (MGD)	0.6	0.5	0.7	0.6	No change
• Solid Waste Generation (million cubic yards/yr)	0.01	0.01	0.01	0.01	No change
• Electricity Demand (MWH/day)	91	69	101	85	No change
• Natural Gas Demand (1,000 therms/day)	4	3	4	4	No change
• Land Use	Aviation support uses are incompatible with proposed adjacent low-density residences on northeast portion of base. Could create noise traffic, safety and air quality impacts. Reduction in noise contour under 65 dB could make more land available for residential development. Conversion of open space to developed use would cause potential adverse aesthetic effects.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	Light industrial development and aggregate mining near single-family residences may cause visual impacts.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	No change

* Factors reflect change over closure baseline conditions.

Table 2.6-2. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2004*

Page 2 of 2

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
HAZARDOUS MATERIALS/WASTE MANAGEMENT					
• Hazardous Materials	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• Hazardous Waste	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• IRP	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact
• Storage Tanks	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Effective management strategies for maintenance/removal.
• Asbestos	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/ demolition.	Effective management strategies for renovation/demolition.	No impact
• Pesticides and Herbicides	No impact	No impact	No impact	No impact	No impact
• PCBs	No impact	No impact	No impact	No impact	No impact
• Radon	No impact	No impact	No impact	No impact	No impact
• Medical/Biohazardous Waste	No impact	No impact	No impact	No impact	No impact

* Factors reflect change over closure baseline conditions.

Table 2.6-3. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2014*

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
LOCAL COMMUNITY					
• Population	7,828	7,552	8,478	8,081	No increase in long term
• Direct Employment	7,019	7,098	7,587	7,687	No increase in long term (56)
• Indirect Employment	5,172	5,257	6,125	5,941	No increase in long term (17)
• Traffic (annual average daily trips)	85,849	163,775	93,120	194,045	No change
• Flight Operations (annual)	302,867	NA	232,847	NA	No change
• Water Demand (MGD)	2.1	2.0	2.3	2.2	No change
• Wastewater Generation (MGD)	1.1	1.1	1.2	1.2	No change
• Solid Waste Generation (million cubic yards/yr)	0.01	0.01	0.02	0.02	No change
• Electricity Demand (MWH/day)	171	164	184	176	No change
• Natural Gas Demand (1,000 therms/day)	7	7	8	7	No change
• Land Use	Aviation support uses are incompatible with proposed adjacent low-density residences on northeast portion of base. Could create noise, traffic, safety, and air quality impacts. Reduction in noise contour under 65 dB could make more land available for residential development. Conversion of open space to developed use would cause potential adverse aesthetic effects.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	Light industrial development and mining near single-family residences may cause visual impacts.	Aggregate mining incompatible with existing residential and recreation areas. Compatibility problems with low-density residential and adjacent off-base industrial areas. Potential for visual impacts on residential areas from aggregate mining, especially north of mined areas.	No change

* Factors reflect change over closure baseline conditions.

Table 2.6-3. Summary of Project-Related Influencing Factors for Reuse of Mather AFB in the Year 2014*

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
HAZARDOUS MATERIALS/WASTE MANAGEMENT					
• Hazardous Materials	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• Hazardous Waste	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Potential increase in types and quantities. Effective management to be implemented.	Decrease in hazardous materials.
• IRP	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact. Remediation may delay redevelopment.	No impact
• Storage Tanks	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.	Effective management strategies for maintenance/removal.
• Asbestos	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/ demolition.	Effective management strategies for renovation/demolition.	No impact
• Pesticides and Herbicides	No impact	No impact	No impact	No impact	No impact
• PCBs	No impact	No impact	No impact	No impact	No impact
• Radon	No impact	No impact	No impact	No impact	No impact
• Medical/Biohazardous Waste	No impact	No impact	No impact	No impact	No impact

* Factors reflect change over closure baseline conditions.

Table 2.6-4. Summary of Environmental Impacts of Reuse of Mather AFB in the Year 1999

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
Natural Environment					
• Soils and Geology	Aggregate mining extends regional supply by 5 years. Potential adverse impact, disturbs topography of 250 acres, of which 120 acres will be reclaimed by 1999.	Aggregate mining extends regional supply of aggregate by 8 years. Potential adverse impact, disturbs topography of 250 acres, of which 120 acres will be reclaimed by 1999.	Aggregate mining extends regional supply of aggregate by 8 years. Potential adverse impact, disturbs topography of 250 acres, of which 120 acres will be reclaimed by 1999.	Aggregate mining extends regional supply of aggregate by 13 years. Potential adverse impact, disturbs topography of 250 acres, of which 120 acres will be reclaimed by 1999.	No impact
• Water Resources	Increased total drawdown by 6 ft. Aggregate mining adversely impacts 250 acres of drainage area.	Increased total drawdown by 15 ft. Aggregate mining adversely impacts 250 acres of drainage area.	Increased total drawdown by 5 ft. Aggregate mining adversely impacts 250 acres of drainage area.	Increased total drawdown by 8 ft. Aggregate mining adversely impacts 250 acres of drainage area.	Increased total drawdown by 0.5 ft.
• Air Quality	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	No impact
• Noise	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose no people to 65 DNL or greater.	Traffic noise will expose 459 people to 65 DNL or greater	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose no people to 65 DNL or greater.	Traffic noise will expose 600 people to 65 DNL or greater.	No impact
• Biological Resources	Loss of 799 acres of vegetation, including 18 acres of wetlands.	Loss of 1,000 acres of vegetation, including 25 acres of wetlands.	Loss of 445 acres of vegetation, including 12 acres of wetlands.	Loss of 863 acres of vegetation, including 15 acres of wetlands.	No impact
• Cultural Resources	No impact	No impact	No impact	No impact	No impact
• Paleontological Resources	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	No impact

Table 2.6-5. Summary of Environmental Impacts of Reuse of Mather AFB in the Year 2004

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
Natural Environment					
• Soils and Geology	Aggregate mining extends regional supply by 5 years. Potential adverse impact, disturbs topography of approximately 580 acres of which 450 acres will be reclaimed by 2004.	Aggregate mining extends regional supply of aggregate by 8 years. Potentially adverse impact, disturbs topography of 580 acres, of which 450 acres will be reclaimed by 2004.	Aggregate mining extends regional supply by 8 years. Potential adverse impact, disturbs topography of 580 acres, of which 450 acres will be reclaimed by 2004.	Aggregate mining extends regional supply by 13 years. Potential adverse impact, disturbs topography of 580 acres, of which 450 acres will be reclaimed by 2004.	No impact
• Water Resources	Increased total drawdown by 13 ft. Aggregate mining adversely impacts 580 acres of drainage area.	Increased total drawdown by 27 ft. Aggregate mining adversely impacts 580 acres of drainage area.	Increased total drawdown by 9 ft. Aggregate mining adversely impacts 580 acres of drainage area. Mining also adversely impacts up to 1,400 ft of Morrison Creek.	Increased total drawdown by 20 ft. Aggregate mining adversely impacts 580 acres of drainage area. Mining also adversely impacts up to 7,500 ft of the East Ditch Channel.	Increased total drawdown by 1 ft.
• Air Quality	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	No impact
• Noise	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose 5 people to 65 DNL or greater.	Traffic noise will expose 635 people to 65 DNL or greater.	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise would expose 5 people to 65 DNL or greater.	Traffic noise would expose 875 people to 65 DNL or greater.	No impact
• Biological Resources	Additional loss of 571 acres of vegetation, including 33 acres of wetlands.	Additional loss of 653 acres of vegetation, including 26 acres of wetlands.	Additional loss of 533 acres of vegetation, including 6 acres of wetlands.	Additional loss of 682 acres of vegetation, including 8 acres of wetlands.	No impact
• Cultural Resources	No impact	No impact	No impact	No impact	No impact
• Paleontological Resources	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	No impact

Table 2.6-6. Summary of Environmental Impacts of Reuse of Mather AFB in the Year 2014

Resource Category	Proposed Action	Non-Aviation with Mixed-Density Residential Alternative	General Aviation with Aircraft Maintenance Alternative	Non-Aviation with Low-Density Residential Alternative	No-Action Alternative
Natural Environment					
• Soils and Geology	Aggregate mining extends regional supply by 5 years. Potential adverse impact, disturbs topography of approximately 1,203 acres, all of which will be reclaimed by total buildout.	Aggregate mining extends regional supply of aggregate by 8 years. Potential adverse impact, disturbs topography of 1,113 acres, all of which will be reclaimed by total buildout.	Aggregate mining extends regional supply by 8 years. Potential adverse impact, disturbs topography of 1,172 acres, all of which will be reclaimed by total buildout.	Aggregate mining extends regional supply by 13 years. Potential adverse impact, disturbs topography of 1,350 acres, of which 1,190 acres will be reclaimed by buildout.	No impact
• Water Resources	Increased total drawdown by 26 ft. Aggregate mining adversely impacts 1,203 acres of drainage area.	Increased total drawdown by 45 ft. Aggregate mining adversely impacts 1,113 acres of drainage area.	Increased total drawdown by 16 ft. Aggregate mining adversely impacts 1,172 acres of drainage area.	Increased total drawdown by 40 ft. Aggregate mining adversely impacts 1,350 acres of drainage area.	Increased total drawdown by 2 ft.
• Air Quality	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NOx, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	No impact
• Noise	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose 127 people to 65 DNL or greater.	Traffic noise will expose 1,042 people to 65 DNL or greater.	Projected aircraft noise levels would expose 60-70 people to 65 DNL or greater. Traffic noise will expose 140 people to 65 DNL or greater.	Traffic noise will expose 1,331 people to 65 DNL or greater.	No impact
• Biological Resources	Total loss of 1,931 acres of vegetation, including 63 acres of wetlands.	Total loss of 2,562 acres of vegetation, including 83 acres of wetlands.	Total loss of 1,668 acres of vegetation, including 28 acres of wetlands.	Total loss of 2,501 acres of vegetation, including 37 acres of wetlands.	No impact
• Cultural Resources	No impact	No impact	No impact	No impact	No impact
• Paleontological Resources	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.	No impact

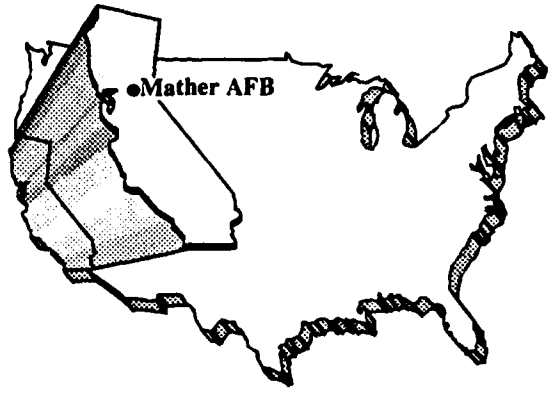
Table 2.6-7. Summary of Influencing Factors Associated with Federal Transfers and Independent Land Use Concepts

Resource Category	Caltrans R&D Center	Theme Park
LOCAL COMMUNITY		
• Population	4,000	3,500
• Direct Employment		
• Indirect Employment		
• Traffic (annual average daily trips)	Decrease of 0.9% to increase of 20.6%.	Decrease of 11.3% to increase of 45.9%.
• Flight Operations (annual)	No impact to flight operations.	No impact to flight operations.
• Utilities Demand	Increase of 0.2% to 11% for all utilities.	Increase of 8.6% to decrease of 16%.
• Land Use	Potentially creates safety, noise, traffic, and visual impacts on existing and proposed residential land uses.	Potentially creates traffic and noise impacts for existing housing (east placement) and on adjacent proposed residential and industrial development.
HAZARDOUS MATERIALS/WASTE MANAGEMENT		
• Hazardous Materials	Increase in types and quantities. Effective management to be implemented.	increase in types and quantities. Effective management to be implemented.
• Hazardous Waste	Slight increase in types and quantities. Effective management to be implemented.	Slight increase in types and quantities. Effective management to be implemented.
• IRP	No impact, remediation may delay redevelopment.	No impact, remediation may delay redevelopment.
• Storage Tanks	Reuse of some existing tanks. Effective management strategies for usage and removal.	Reuse of some existing tanks. Effective management strategies for usage and removal.
• Asbestos	Effective management strategies for renovation/demolition.	Effective management strategies for renovation/demolition.
• Pesticides and Herbicides	No impact	No impact
• PCBs	No impact	No impact
• Radon	No impact	No impact
• Medical/Biohazardous Waste	No impact	No impact

Table 2.6-8. Summary of Environmental Impacts Associated with Federal and Independent Land Use Concepts

Resource Category	Caltrans R&D Center	Theme Park
NATURAL ENVIRONMENT		
• Soils and Geology	No additional impacts identified.	No additional impacts identified.
• Water Resources	Range of 100 year average rates of net water level decline 0.5-1 ft/yr.	Range of 100 year average rates of net water level decline 0.9-1.2 ft/yr.
• Air Quality	Emissions of NO_X, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.	Emissions of NO_X, ROG, CO, and PM_{10} could interfere with achievement of attainment levels.
• Noise	No additional impacts identified.	No additional impacts identified.
• Biological Resources	Range and displaced habitats: 0-86 acres natural habitat 2-8 acres wetlands 0.3-6 acres vernal pools 3-23 acres parks 0-350 acres of recreation.	Range and displaced habitats: 0-676 acres of natural habitat 4-25 acres vernal pools 7-16 acres of wetlands 11-647 acres of recreation 0-635 acres of grassland.
• Cultural Resources	No additional impacts created.	No additional impacts created.
• Paleontological Resources	Potentially adverse impacts attributable to aggregate mining.	Potentially adverse impacts attributable to aggregate mining.

THIS PAGE INTENTIONALLY LEFT BLANK



CHAPTER 3

3.0 AFFECTED ENVIRONMENT

This chapter describes the expected environmental conditions of Mather AFB and its ROI as they would be at the time of base closure in September 1993. This status will serve as the premise against which any environmental impacts associated with the potential reuses as described in Section 2.0 will be evaluated.

3.1 INTRODUCTION

This chapter provides information which serves as a baseline against which to identify and evaluate environmental changes. Although this EIS focuses on the biophysical environment, some non-biophysical elements are addressed to the extent that they impact the environment. The non-biophysical elements (influencing factors) of land use and aesthetics, transportation networks in the region and local communities, public utility systems, and population and employment are addressed. This chapter also describes hazardous materials found on base, storage tanks, asbestos, herbicides and pesticides, polychlorinated biphenyls (PCBs), radon, medical and biohazardous waste, and the IRP process. Finally, it describes the pertinent natural resources of geology and soils, water resources, air quality, noise, biological resources, and cultural resources.

The ROI to be studied will be defined for each resource area affected by the Proposed Action and alternatives. The ROI determines the geographical area to be addressed as the Affected Environment. Although the base boundary may constitute the ROI limit for many resources, potential impacts associated with certain issues (e.g., air quality, utility systems, and water resources) transcend these limits. ROIs are carefully delineated to produce an accurate basis for analysis regarding base disposal and reuse impacts.

The baseline conditions assumed for the purposes of analysis in this document are the conditions projected at base closure. Impacts associated with disposal and/or reuse activities may then be addressed separately from the impacts associated with base closure. The closure EIS (U.S. Air Force, 1990g) addressed the general preclosure conditions and impacts of closure. A reference to preclosure conditions is provided where appropriate in this document, in order to provide a comparative analysis over time. This will assist the decision maker and agencies in understanding potential long-term impacts in comparison to conditions when the installation was active.

3.2 LOCAL COMMUNITY

3.2.1 Community Setting

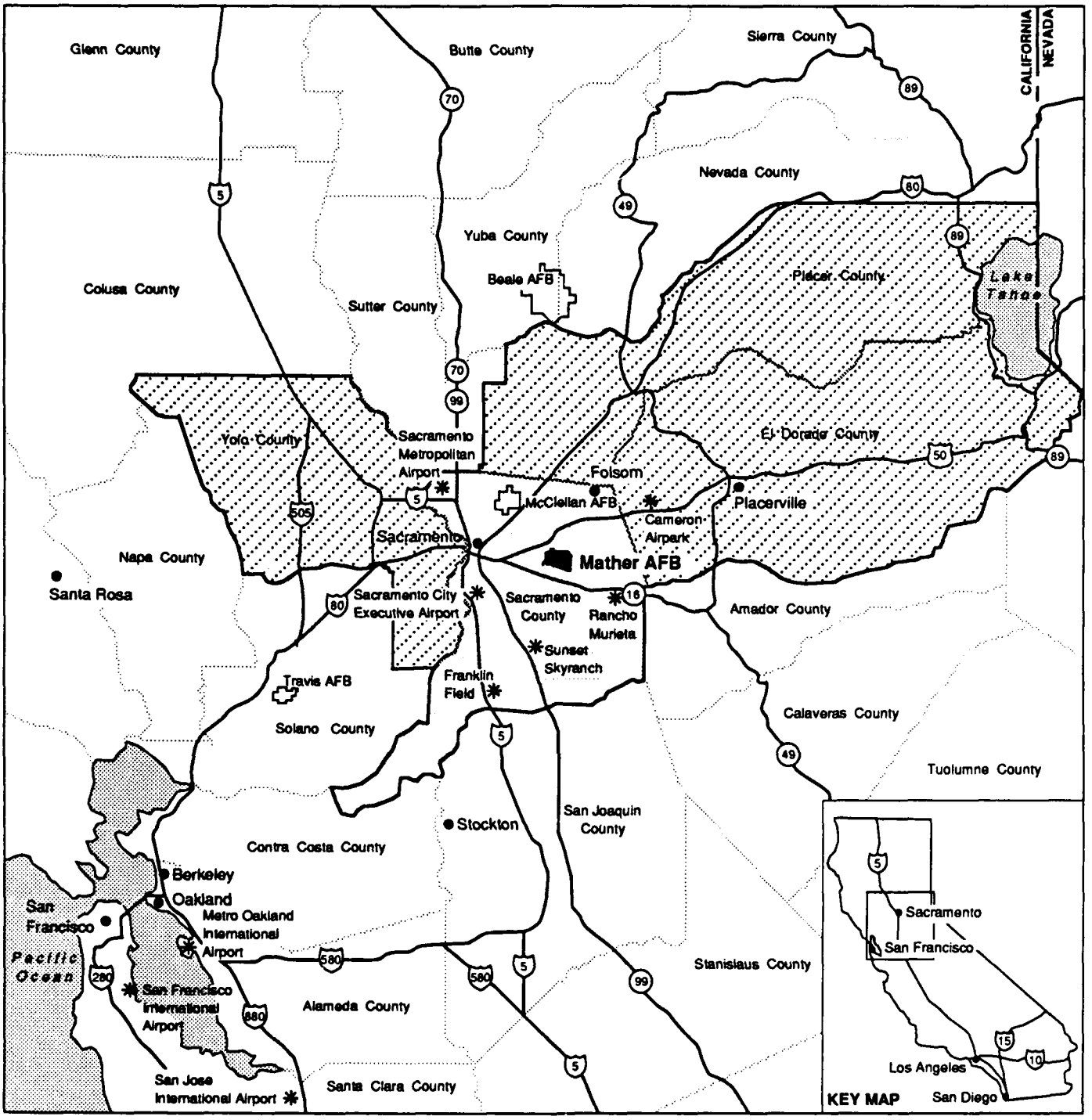
The ROI for this community setting is the Sacramento MSA, a four-county region consisting of Sacramento, El Dorado, Placer, and Yolo counties. Mather AFB is located in Sacramento County in central California (Figure 3.2-1). The base is in the lower Sacramento Valley between the Coast Range and the foothills of the Sierra Nevada range, approximately 80 miles northeast of San Francisco, and 10 miles southeast of Sacramento, the capital of California. The base occupies 5,716 acres adjacent to the community of Rancho Cordova. The topography of the main base and airfield is approximately level; the family housing and outlying areas have gently rolling contours; gently rolling terraces flank the American River (Figure 3.2-2).

The climate in the Sacramento Valley portion of Central California is comparable to a Mediterranean or subtropical climate, one that is characterized by hot, dry summers and cool, moist winters. Relative humidity ranges from 60 to 90 percent in winter, and from 15 to 30 percent in summer. The amount of daily sunshine averages 44 percent in January, increasing to more than 90 percent by June through August (U.S. Air Force, 1990a). Approximately 18.8 inches per year of annual rainfall occurs principally during winter months (October through May) (U.S. Air Force, 1990a). Excessive rainfall and damaging winds are rare in the vicinity of the base.

The vicinity around Mather AFB is linked to roadways, rail, water, and air transportation networks. The Sacramento area is accessed to the east and west by Interstate 80 (I-80), State Route (SR) 16 (Jackson Road), and U.S. Highway 50. Interstate 5 (I-5) and State Highway 99 provide north-south connections. These roadways provide access to commercial, residential, and recreational areas in the region (see also Section 3.2.4). Vehicular access to the base is via U.S. Highway 50 to Mather Field Drive, via Sunrise Boulevard to Douglas Road, and via Old Placerville Road.

Three major rail companies: Southern Pacific, Union Pacific, and AMTRAK serve the Sacramento MSA. The largest switching yard west of Chicago is located in Roseville, approximately 20 miles northeast of Sacramento. The route of the Southern Pacific line in the Mather vicinity runs east/westward and parallels Highway 50. Mather AFB owns the right-of-way to a Southern Pacific railroad spur that connects to the base near the convergence of west Mather Field Drive and Old Placerville Road. A light rail system currently operates along an 18-mile route which runs parallel to U.S. Highway 50 and I-80 from downtown Sacramento. Future plans call for expansion to the Folsom/Roseville areas, to Sacramento Metropolitan Airport, and south Sacramento.

The Sacramento region is served by two airports that provide varying levels of service to the area. Sacramento Metropolitan Airport, about 20 miles to the northwest, hosts commercial air carriers that have daily flights to major



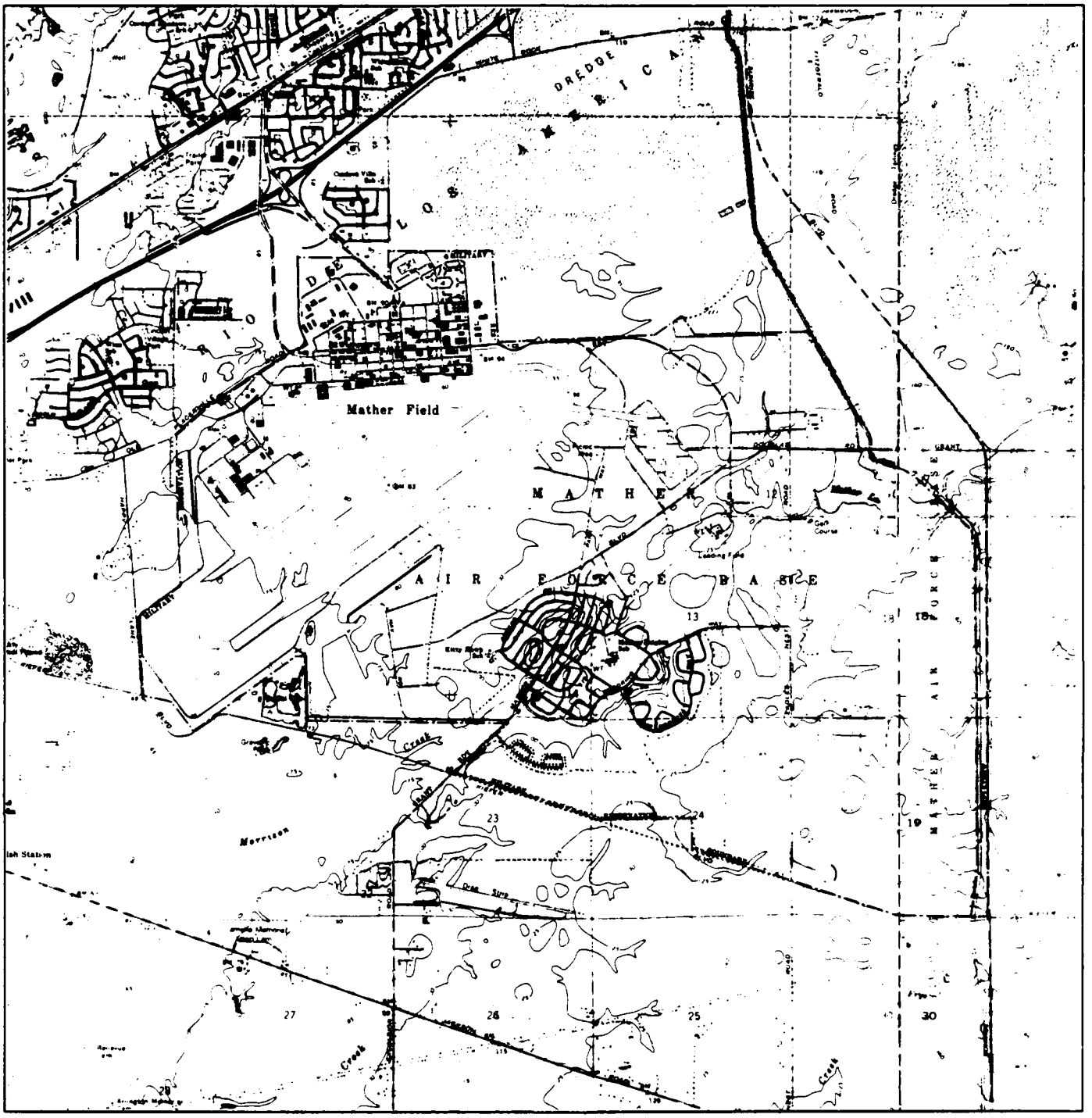
EXPLANATION

- Airports
- Sacramento MSA
- Sacramento County
- Air Force Base
- County Boundary

0 5 10 20 Miles

Regional Map

Figure 3.2-1



Vicinity Topographic Map

Figure 3.2-2

California cities, allowing access to international connections. Sacramento Executive Airport provides general aviation services to the area (U.S. Air Force, 1990g).

Major cities in the region and their estimated 1990 populations are Sacramento (369,365), and Folsom (29,802) (Figure 3.2-3).

The greatest population growth forecast for the region is predicted to occur over the next thirty years in the Sierra Nevada foothill counties, two of which, Placer and El Dorado, are part of the Sacramento MSA. These counties are predicted to experience population increases of 81 percent and 86 percent, respectively. The population of the region as a whole is predicted to increase by 55 percent in this period while the population of the remainder of California is forecast to grow by only 38 percent. The largest net gain will take place within Sacramento County, growing by 52 percent over its 1990 population by the year 2020 (Sacramento County Department of Airports, 1990).

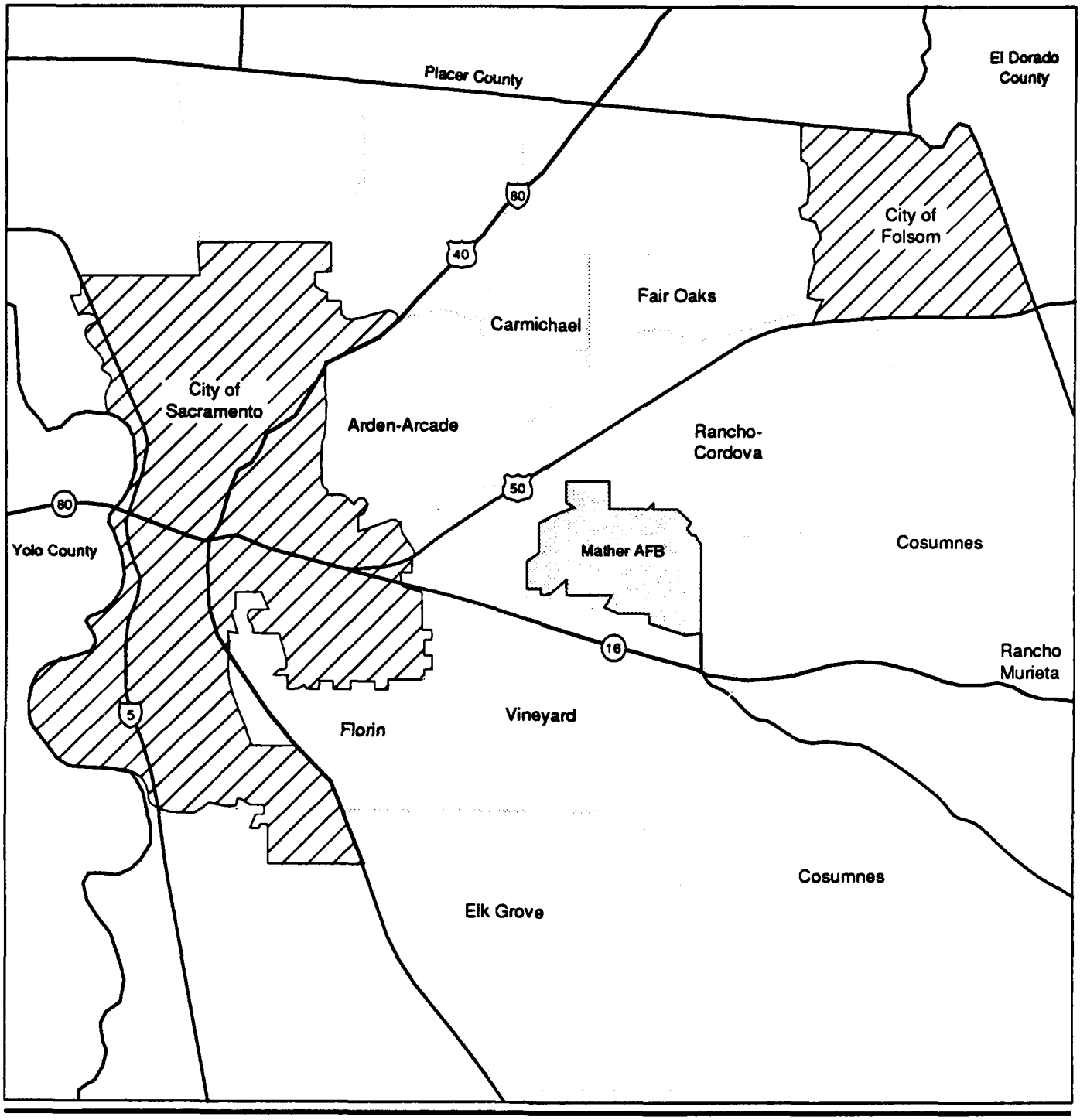
Growth in the region's housing stock has generally kept pace with population growth, and vacancy rates are moderate, approximately 8.5 percent regionally (U.S. Air Force, 1991c).

The Sacramento MSA is currently experiencing a period of rapid economic expansion, most of which is located along the Highway 50 corridor in Sacramento County. This corridor, from Folsom to Rancho Cordova, is also predicted to have strong residential growth over the period 1989 to 2010. Folsom is currently undergoing the largest residential growth in the Sacramento MSA. The recent development of a major industrial and office center in this corridor contributed to this trend.

The I-80 and I-5 corridors are also expected to experience residential growth between 1989-2010. The I-80 corridor in Roseville and Rocklin is also experiencing growth in residential development; due in part to the relocation of a major electronics facility. The Laguna/Elk Grove area is experiencing residential growth, due mostly to a spillover effect from development along the I-5 corridor (Sacramento County, 1989).

California's Employment Development Department (EDD) reported in 1987 that within Sacramento County greater than 40 percent of the total jobs were within services and trades. Governmental services comprised an additional 33 percent. Retail trade was the third largest sector in terms of jobs, and was projected to rank second in the number of new jobs provided between 1987 and 1992. Within the manufacturing industries, food processing was the largest employer, capitalizing on the close proximity to livestock, fruit, produce, and other agricultural producers.

The remaining counties of the Sacramento MSA are more limited in their employment offerings. They tend to rely more heavily on agriculture, tourism, and timber production, though some areas of Placer county are experiencing



EXPLANATION

- Incorporated Cities
- Unincorporated Portions of Sacramento County
- Adjacent Counties
- County Boundaries
- Unincorporated Community Boundaries

0 1 2 4 Miles

City Boundaries and Unincorporated Areas

Figure 3.2-3

growth in manufacturing-related industries (Appraisal, Mather Air Force Base, 1990).

At the time of full operation (1988), Mather supported 6,530 jobs on base, and 2,453 indirect jobs in an area comprising counties within 50 miles of the base. In 1988, Mather direct and indirect employment amounted to 1.4 percent of the Sacramento MSA jobs. In 1989 an estimated $122 million flowed directly from Mather AFB into the local region and the indirect impact to this area totaled approximately $314 million (U.S. Air Force, 1989b).

3.2.2 Installation Background

In February 1918 the Sacramento Chamber of Commerce entered into an agreement with the federal government to establish a site for an airfield and pilot training school. The base was dedicated to honor Lieutenant Carl Spencer Mather who was killed on a flight training mission in January 1918.

Following World War I the base was used intermittently to support small military units, and in the 1920s it became a terminal for aerial forest patrol and air mail service planes. In 1923, the base closed due to continued declines in base population.

In 1930, Mather was selected as the site for an all Air Corps tactical exercise. This eventually resulted in Mather Air Field operating as a flight training base. Temporary headquarters were established in the Sacramento Chamber of Commerce building in 1941, and shortly afterwards the base was officially reactivated. Prior to the end of World War II, Mather Field had become the home of not only pilot trainees, but also of navigator, observer, and bombardier students. The field was also used as a stopover location for troops, aircraft, and materials enroute to or returning from combat duty in the Pacific.

In 1946, Mather AFB became the only airfield to provide advanced training of navigator-bombardiers, and radio operators. By the 1950s Mather was training hundreds in these skills for service in the Korean conflict. The training of electronic warfare officers was also added to the curriculum.

In 1958, the Strategic Air Command (SAC) B-52 wing was assigned to Mather. This represented the first combat organization offering both a B-52 bomber squadron and KC-135 tanker squadron at an Air Training Command base. In 1989 the B-52 squadron was inactivated though the aircraft continued to use the airfield for "touch and go" exercises.

Mather AFB became the center for inter-service and international undergraduate navigator training in the mid-1970s, approximately 10 years after the Air Force consolidated all navigator training to one location. By 1990, the primary mission of Mather AFB was to provide all formal long range, over water Air Force Navigator training. As such, the 323rd Flying Training Wing was the single supplier of all undergraduate navigator training for DOD.

Mather AFB hosted the Naval Air Training Unit and the Marine Aerial Navigation School, which provided the only source of long-range over water U.S. Naval Flight Officers and enlisted Marine navigators. Approximately 30 allied nations received basic navigation instruction at Mather Field (U.S. Air Force, 1990h).

The base contains its own housing, schools, hospital, commercial, and recreational facilities, as well as the operational air base. Most of the base development took place in the 1940s through the 1960s, and many World War II buildings are still in existence. Expansion and base improvements continued through the 1980s, but ceased after base closure was announced. Vacant lands comprise approximately half of the base, primarily located on the eastern portion of the base they surround the family housing area.

3.2.3 Land Use and Aesthetics

This section describes the land uses and aesthetics for the base property and the surrounding areas of Mather AFB at base closure. Projected land uses at closure are assumed to be similar to existing land uses in the vicinity of the base.

To the north of Mather is the unincorporated community of Rancho Cordova. Since Rancho Cordova is unincorporated, only Sacramento County regulates planning, zoning, and subdivision control in the area surrounding Mather AFB.

Mather AFB is owned by the U.S. Government. The base is unincorporated and, unless transferred within the federal government, would fall under the jurisdiction of Sacramento County after the Air Force disposes of the base property.

Land use refers to the types of human activities and natural conditions associated with land areas, and the plans and policies governing the management, development, and use of these areas. The ROI for land use includes lands on the base, lands adjacent to the base, and off-base lands that are affected by flight activities associated with the airfield at Mather AFB. Information analyzed for this section was collected through field visits to Mather Air Force Base and surrounding areas, interviews with representatives of Mather AFB, local economic development organizations, and local and regional planning agencies. Land use plans, policies, and relevant environmental and real property studies for Mather AFB, Sacramento County, and the city of Folsom were also reviewed.

3.2.3.1 Land Use

On-Base Land Use. Mather AFB contains 5,716 acres of land. In addition, the base has acquired 124 acres of aviation easements, most of which are located in the runway clear zones, that restrict development. A number of outgrants consisting of permits, licenses, leases, and easements have been granted by Mather AFB within the boundaries of the base. Examples of these include a permit issued by the Air Force to the U.S. Forest Service for use of

administrative and hangar space on the base, a license granted to Sacramento County for a county-operated and maintained bicycle lane that goes to the main entrance of the base, a lease issued to the Folsom Cordova Unified School District for on-base lands on which they constructed an elementary school, and an easement given to PG&E for a gas line that crosses portions of the base.

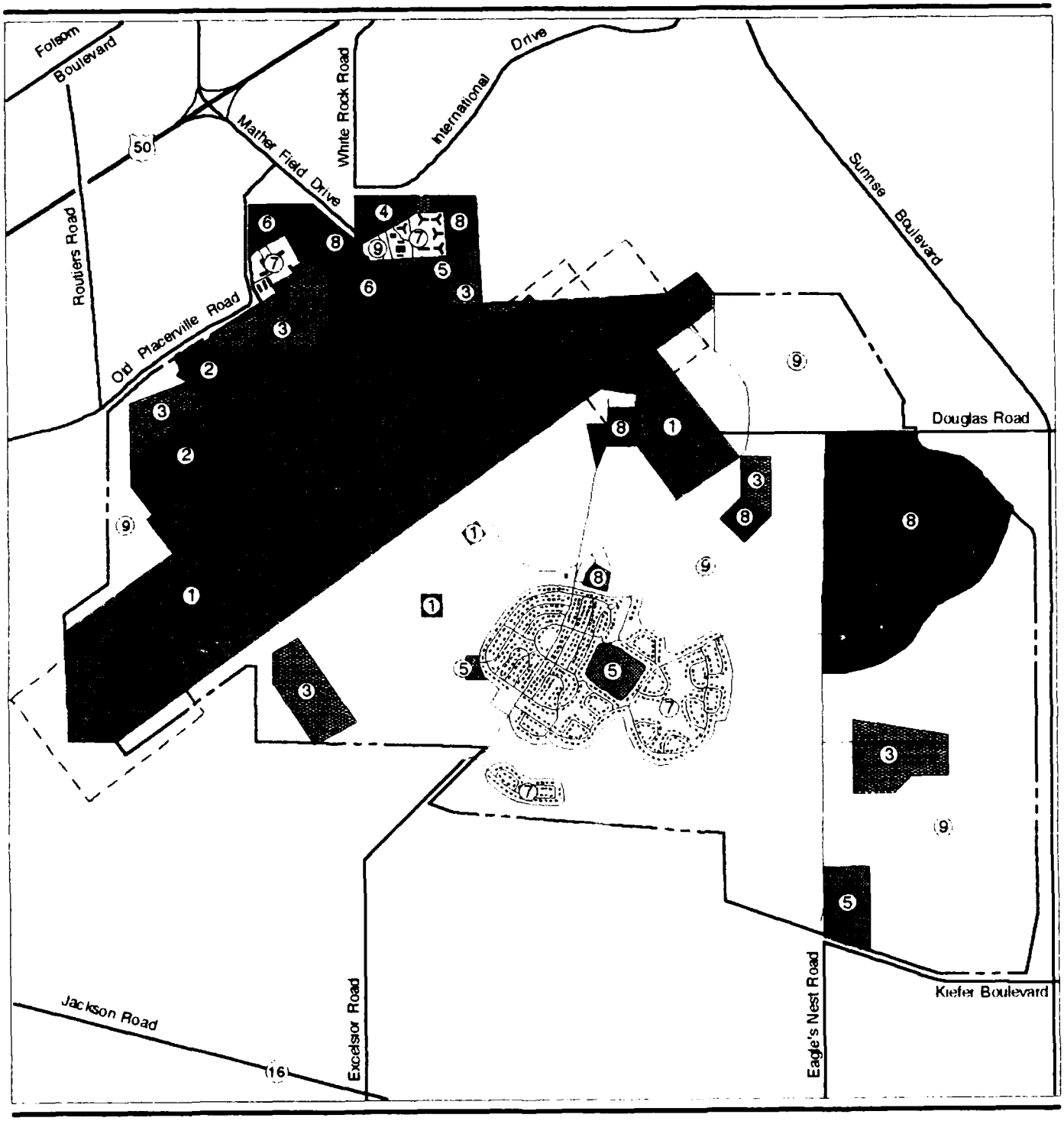
A Base Comprehensive Plan was prepared for Mather AFB in 1987. The plan describes land use as of that time, prior to the commencement of closure activities. Three land use categories make up approximately 70 percent of the base. Vacant land comprises 30 percent, airfield, 26 percent, and housing, 16 percent. Table 3.2-1 identifies existing on-base land use in each category; Figure 3.2-4 shows the distribution of on-base land uses.

Table 3.2-1. Existing On-Base Land Use

Land Use Category	Acres	Percent
Airfield	1,486	26
Aviation Support	452	8
Industrial	423	7
Institutional		
Medical	40	1
Education	106	2
Commercial	217	4
Residential	920	16
Public/Recreation	358	6
Vacant Land	1,714	30
Totals	5,716	100

Community-commercial and community-service facilities are fragmented and scattered throughout the main base area. The following text briefly describes on-base land use categories.

Approximately 2,870 acres of on-base land could potentially be used as agricultural land. The Farmland Protection Policy Act (FPPA), 7 U.S. Code of Regulations (USC) Sec. 4201 et seq., and implementing regulations at 7 Code of Federal Regulations (CFR) Part 268, require federal agencies to consider and try to mitigate adverse effects of federal programs on the protection of farmlands that are prime, unique, or of statewide or local importance. However, based on an evaluation conducted by the U.S. Department of Agriculture Soil Conservation Service pursuant to the FPPA, none of the 2,870 acres qualifies as prime, unique, or statewide or locally important farmland under the FPPA criteria (see AD Form 1006, Appendix K). Conversion of the 2,870 acres to nonagricultural uses is not protected nor does it require mitigation under the FPPA.



EXPLANATION

- 1 Airfield
- 2 Aviation Support
- 3 Industrial
- 4 Institutional (Medical)
- 5 Institutional (Education)
- 6 Commercial
- 7 Residential
- 8 Parks/Recreation
- 9 Vacant Land
- Clear Zone

0 800 1600 3200 Feet

Existing On-Base Land Use

Figure 3.2-4

Airfield facilities include the runways, taxiways, and aircraft parking/apron areas. Mather AFB has two active parallel runways: a northeast-southwest primary instrument runway measuring 11,300 feet x 300 feet, and a northeast-southwest Runway measuring 6,100 feet x 150 feet. Ground movement of aircraft is accomplished through the use of seven taxiways. There are 11 designated aprons serving the airfield. An alert apron with underground facilities is located southeast of the northern end of the primary runway. Airfield Clear Zones (CZs), and Accident Potential Zones (APZ I and APZ II) are associated with the runways and additional clearances are associated with the taxiways and aprons.

Visual aids on Runway 4R/22L include high-intensity edge, threshold, approach, and taxiway lights. Runway 4L/22R has high-intensity edge lights. The airfield components are generally well maintained and in good condition except for the aprons which are in fair condition. An aircraft control tower is located south of the runway and the main fire department facility is located adjacent to the flightline north of the runways.

The **Aviation Support** areas contain facilities for aerospace ground equipment and jet engine maintenance. Reflecting the base's primary mission, aviation support areas occupy a large portion of the land at Mather AFB and are located between the airfield and the main base area.

Two large aircraft hangars (over 50,000 square feet each), a number of smaller hangars, office facilities, warehouses and maintenance facilities are also located along the flightline. An extensive on-base liquid fuels system, including a bulk storage and flightline distribution system, has been developed to support aviation operations.

Industrial areas on Mather include warehouse and storage facilities, holding ponds for flood control, and a weapons storage area. These areas are located north of the aviation support areas, south of the airfield, and in the southeastern portion of the base, respectively.

The **Medical** area, in the north central portion of the main base area, includes the renovated base hospital and related ancillary structures. The facility provides a full range of medical services.

The **Education** areas include two elementary schools located near the family housing areas on the central part of the base, small arms training area in the southeastern corner of the base, and additional education and training facilities in the main base area.

The office facilities in the **Commercial** area are generally located in the central part of the main base area near the Mather Field Drive entrance. Several of these office buildings were recently constructed and are generally in good to excellent condition.

An additional on-base commercial area supports both retail and service needs of base personnel. Facilities include the base exchange, commissary, bowling alley, credit union, post office, child care center, movie theater, and temporary lodging facilities.

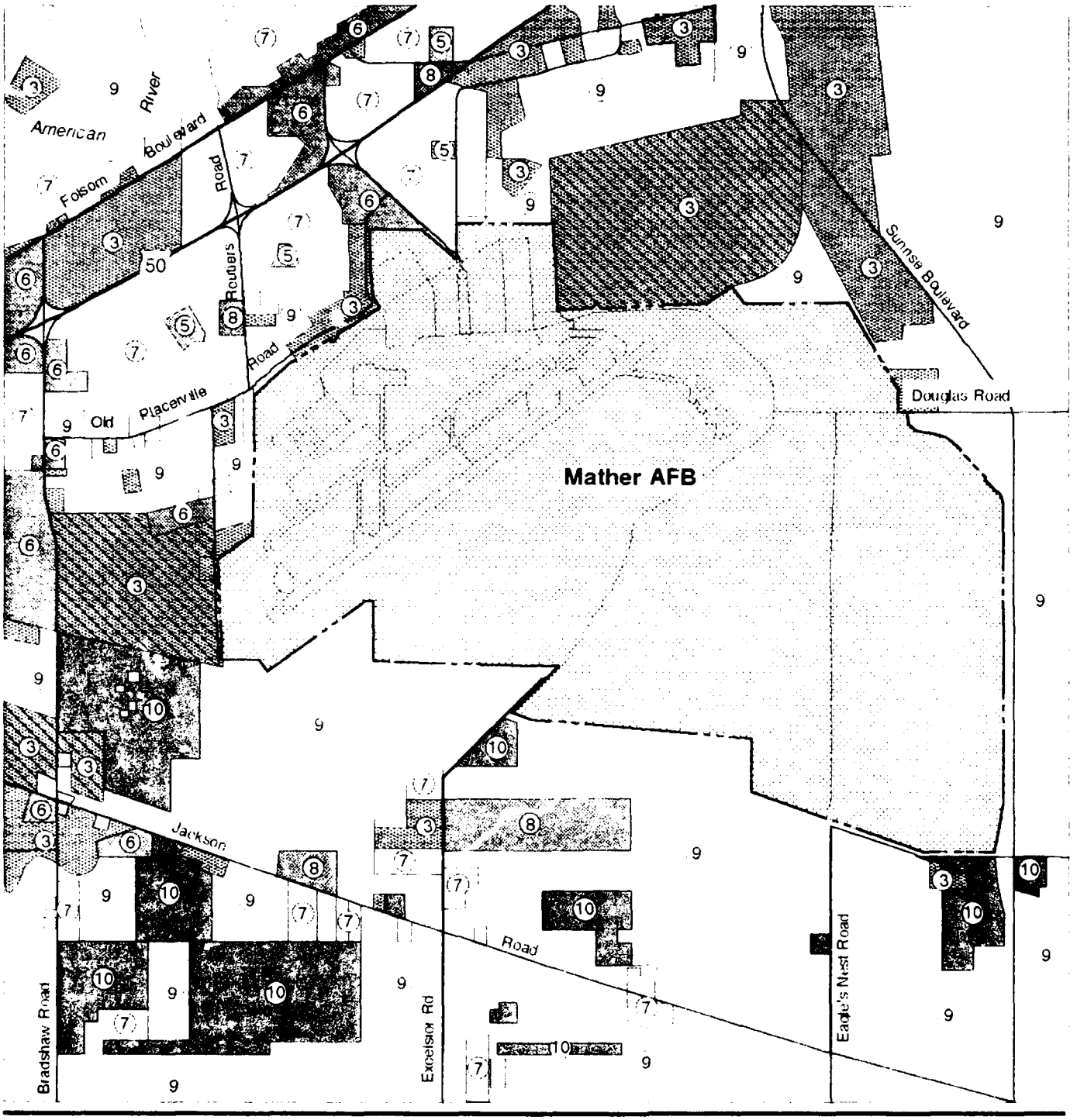
Two **Residential** housing areas built in the 1950s and 1960s, with approximately 1,200 total family housing units, known as Capehart and Wherry housing, are located in the center of the base, southeast of the runways. The family housing area is located approximately one to two miles from the main base, so that it is relatively isolated from the majority of the community services and commercial areas serving the base population. Unaccompanied and short-term accompanied housing and dorms are located in the main base area.

There are several public **Recreation** areas on base. Mather Lake, a 64 acre artificial lake and its surrounding area, is used for hunting, fishing, non-powered boating, picnicking, and nature-watching. An 18-hole golf course is located south of the lake. Other recreation facilities on the base include jogging/hiking and riding trails, a rod and gun club, a riding club, a picnic area, running track, gymnasium, bowling center, ball fields, and tennis courts.

The existing vacant land areas at Mather AFB are primarily located in the southeastern half of the base south of the runways. These areas are generally developable, except for the Morrison Creek flood plain.

There are several potential constraints to existing and future use of lands on Mather AFB including IRP hazardous waste sites located on the base, areas of vernal pools and wetlands, and Morrison Creek which flows through the base. IRP sites are addressed in the Hazardous Waste sections of this EIS, and vernal pools and wetlands in the Biological Resources sections. Substantial aggregate deposits are known to be located on Mather AFB particularly in the vicinity of the runways, and mining is occurring adjacent to the base at either end of the primary runway.

Off-Base Land Use. Lands in the vicinity of the base include a variety of residential, commercial, resource development/industrial, light industrial, and undeveloped uses, ranging from urbanized areas to open rural lands (Figure 3.2-5). Areas to the west of the base primarily include light industrial and research and development uses with some agricultural land. North of the base, the Rancho Cordova community contains commercial, residential, research and development and related uses. There is strip commercial development along Folsom Boulevard and Mather Field Drive, and commercial development uses at the interchanges along U.S. Highway 50. Active gravel mining and research and development occur to the northeast of the base. Lands east and south of the base are mostly agricultural (developed with ranchettes) or undeveloped. The ranchettes are typically on 5-acre parcels with an on-site residence, septic system, well, and some type of hobby farming. A 1,225 acre mixed-use project is planned for the area immediately east, across



EXPLANATION

- (1) Airfield
- (2) Aviation Support
- (3) Industrial
- (4) Institutional (Medical)
- (5) Institutional (Education)
- (6) Commercial
- (7) Residential
- (8) Parks/Recreation
- (9) Vacant Land
- (10) Agriculture
- Mining
- Base Boundary
- Area of Study

0 1000 2000 4000 Feet

* Not Applicable

Existing Off-Base Land Use

Figure 3.2-5

Sunrise Boulevard from Mather AFB. It will consist of low- and medium-density residential, open space, and commercial uses.

The base is bordered on the east by the Folsom canal and by off-base areas designated by the existing General Plan map (June 1990) as agricultural cropland and by the Proposed General Plan Public Review Draft Land Use Diagram (February 1991) as agriculture/80 acres with a resource conservation overlay. Agriculture/80 acres is a designation used to identify land that is generally used for agricultural purposes, but less suited for intensive agricultural pursuits due to soils, water supply, slope, crop yield, or farm unit fragmentation constraints. The minimum acreage size is 80 acres with not more than one single-family unit per 80 acres. Typical farming activities include dry grain, and irrigated and dry pasture. Uses other than agriculture are not permitted in this designation.

Other uses that may affect future development in the general area include a rendering plant and an auto race track located south and southeast of the base, respectively, and the three aggregate surface mining operations. One mining operation is located on the northeast base boundary, and two on the southwestern boundary of the base.

Land Use Plans. As a federal installation, Mather AFB is not subject to local zoning and planning authority. The Sacramento County General Plan was adopted in 1982 and is currently being revised. The General Plan map designates Mather AFB as "Other Public/Quasi Public" use. In recognition of planning efforts associated with the closure and reuse of Mather AFB, the Sacramento County Board of Supervisors has rezoned the base as a Special Planning Area. Sacramento County has adopted a work program for the development of a preferred Mather Air Force Base Reuse Plan which would be negotiated with the Air Force. Once a reuse plan is negotiated and developed, a General Plan Amendment will be filed by the County and an Environmental Impact Report prepared prior to adoption of the General Plan Amendment. A Community Plan Amendment would also be adopted and rezoning would occur. Sacramento County has jurisdiction over the lands adjacent to the base. The Sacramento County General Plan proposes industrial land uses on the north, south, and west sides of the base. The east side of the base is proposed as general agricultural.

The Sacramento County General Plan outlines countywide goals and policies for the general nature and direction of urban development. It does not contain the necessary details for effectively identifying and addressing the problems and needs of the distinct communities. In order to fulfill these needs, a Community Planning Program was initiated by Sacramento County in 1975. The Community Planning Program divided the county into 24 community areas for the purpose of analysis and community planning. Three of these communities, Rancho Cordova, Vineyard, and Cosumnes, adjoin Mather AFB (Figure 3.2-3). To date, two community plans have been adopted by Sacramento County for the communities adjacent to Mather AFB. These adopted community plans are

for Cordova (Sacramento County, 1978) and Vineyard (Sacramento County, 1985b).

The Mather AFB Comprehensive Land Use Plan (CLUP) was prepared in January 1987 by the Airport Land Use Commission (Sacramento Area Council of Governments) under the authority of the Airport Land Use Commission Law, Article 3.5, California Public Utilities Code. The purpose of the CLUP is to protect public health, safety, and welfare by ensuring the orderly expansion of development surrounding Mather that minimizes exposure to excessive noise and safety hazards.

The CLUP establishes planning policies for areas impacted by airfield noise, height restrictions, and safety hazards at Mather AFB and provides a comprehensive plan for land use that defines compatible types and patterns of future land use. It provides a basis for determining compatible land uses but not a specific development plan.

Adoption of the Mather AFB CLUP set in motion, according to Section 21670 of the California Public Utilities Code, a revision of Sacramento County's general plan and other land use controls and regulations, where necessary, to be consistent with the CLUP.

Air Force Policies Affecting Adjacent Land Uses. The Air Force developed the Air Installation Compatible Use Zone (AICUZ) program to minimize development that is incompatible with aviation operations in areas on and adjacent to military airfields. Municipalities or counties that have land located within the AICUZ are not required to zone this land in accordance with the AICUZ. However, the Air Force encourages cooperation by such jurisdictions when making land use decisions.

The AICUZ land use recommendations for areas near a military airfield are based on two composite studies. One study addresses compatible land uses based on exposure levels to aircraft noise. The other addresses safety issues and identifies the areas with hazard potential due to aircraft accidents and obstructions to air navigation. Then the composite study is prepared with the safety zones and noise contours combined to make 13 Compatible Use Districts (CUDs). CUDs are delineated specifically for each individual Air Force base, using operational information derived from the base mission. An AICUZ report for Mather AFB was issued in 1982 (U.S. Air Force, 1982). It addressed operations conducted at the base.

The AICUZ program applies only to military airfields. Similar criteria are established by the FAA for civilian airports.

Mather Air Force Base AICUZ Policies. The AICUZ Report for Mather AFB published in 1982 is based upon aircraft operations at that time. The AICUZ designates expanded CZs and two APZs at the ends of the two Mather AFB runways. The cumulative length of the CZ and APZs is 15,000 feet from the

runway threshold. The CZs at either end of the primary runway are 3,000 x 3,000 feet, and those of the parallel runway are approximately 2,000 x 3,000 feet. Within the CZs, the overall safety risk is so high that necessary land use restrictions prohibit economic use of the land. The Air Force has acquired the necessary real property interest (through restrictive easements) in these areas to prevent incompatible uses.

The APZ I poses a safety risk factor, but is less critical than the CZ. This area varies from 3,000 to 4,000 feet wide (depending on the runway) and 5,000 feet long. APZ I has compatibility with a variety of industrial/manufacturing, transportation, communication/utilities, wholesale trade, open space, recreation, and agricultural uses. However, high-density uses are not acceptable.

APZ II still poses some risk. APZ II also varies from 3,000 to 4,000 feet wide and is 7,000 feet long, beyond APZ I. Acceptable uses include those of APZ I and personal business services of low intensity or scale of operation. High density functions such as multi-story buildings, places of assembly (theaters, churches, schools, restaurants, etc.) and high density office uses are not considered appropriate.

In addition to accident potential, the AICUZ identifies and examines existing noise contours associated with aircraft operations and presents recommended land uses that would be compatible with these contours. Since the AICUZ Report was issued, the 320th Bombardment Wing was deactivated at Mather AFB, effective October 1989, with a resulting reduction of 24 daily operations by B-52s, leaving a total of about 366 daily aircraft operations. These include daily operations by T-37s (183), T-43s (49), KC-135Es (38), and transient aircraft (96).

In general, land uses in the immediate vicinity of Mather AFB are compatible with AICUZ considerations for noise, accident potential, and height and obstruction criteria. There are small incompatible areas to the northeast and south because of recreational zoning along canals and creeks, to the southwest because of existing residential zoning (low-density and agricultural-residential), and to the west (one area of low-density residential and one of public use) (U.S. Air Force, 1990g). The existing 65 dB noise contour contains approximately 5,790 residences identified using aerial photos.

AICUZ Noise Considerations. AICUZ noise contours are based on composite noise ratings that are calculated from flight patterns, numbers and types of aircraft, power settings, times of operations, and climatic conditions (U.S. Air Force, 1982). A day-night weighted average sound level (DNL) is used to describe the noise environment.

Section 3.4.4 discusses the aircraft noise due to aircraft activity at Mather AFB. Aircraft operational data necessary for the generation of noise contours are also contained in the final EIS for the closure of Mather AFB (U.S. Air Force, 1990g). The areas of Sacramento County most affected by noise are zoned for

agricultural and industrial use. Industrial use is generally compatible with noise levels of DNL 65 to 75 dB.

AICUZ Safety Considerations. The second objective of the AICUZ is to ensure that the areas surrounding the base are safe and that land uses in areas of high accident potential are properly planned. The AICUZ delineates areas at either end of the runway where the probability of aircraft accidents are highest. These areas have been identified through statistical analysis of past Air Force aircraft accidents in the vicinity of Air Force facilities worldwide. Based on accident risk, certain land use restrictions are recommended and identified by specific zones known as the CZ and two APZs, APZ I and APZ II.

Zoning. Zoning surrounding the base primarily consists of mixed, M-1 (light industrial) and M-2 (heavy industrial) zones to the west, south, and northeast, with some residential zoning to the northwest, and agricultural zoning with some industrial zones to the east.

3.2.3.2 Aesthetics. Aesthetics is defined as the visibility and appearance of the physical environment, which may be of concern to the public under certain conditions. Visual resources comprise the natural and artificial features that give a particular environment its aesthetic qualities. These features form the overall impression that a viewer receives of an area, or its landscape character. The ROI for aesthetics includes the base itself and off-base locations visible from the base.

The importance of a change in visual resources is influenced by social considerations. These include public values, goals, awareness, and concern regarding visual quality. This is termed as visual sensitivity and is defined as the degree of public interest in a visual resource and concern over changes in the quality of that resource (BLM, 1978; USFS, 1977). Visual sensitivity is a key factor in assessing how important an effect on a visual resource may be.

For analysis purposes, sensitivity ratings have been assigned to resources on the base. These are listed below and are considered further in the impact analysis:

- High visual sensitivity exists in areas where views are rare, unique, or in other ways special, such as in remote or pristine environments. High-sensitivity views would include landscapes that have landforms, vegetative patterns, water bodies, or rock formations of unusual or outstanding quality. No areas of the base are considered to be highly sensitive.
- Medium visual sensitivity areas are more developed than those of high sensitivity. Human influence is more apparent in these areas and the presence of motorized vehicles and other evidence of modern civilization is commonplace. These landscapes generally have features containing varieties in form, line, color, and texture, but tend to be more common than high visual sensitivity areas. Mather Lake; wetland and vernal pool areas; Mather Golf Course; the picnic area; undeveloped open space areas

outside the main base core; and the Wherry and Capehart single family housing areas are considered to be of medium visual sensitivity.

- Low visual sensitivity areas tend to have minimal landscape features, with little change in form, line, color, and texture. The portions of Mather AFB not previously mentioned in terms of aesthetics are considered to have low visual sensitivity.

The topography of the main base and airfield is approximately level; the family housing area and outlying areas have gently rolling contours. The most visually dominant structures on the base are the hangars along the flightline. The airfield tower stands out visually as the tallest structure on the base, while most other facilities have a low-lying, horizontal appearance. Mather Lake and vernal pools give the eastern portions of the base a more natural appearance, however, evidence of development is usually within view.

There is a wide range of building types in the main base area, with various types of details at walls, eaves, and windows. Building types include: one and two story wood frame buildings built in the early 1940s with sloping asphalt shingle roofs and horizontal siding, in varying states of repair; concrete masonry and concrete slab buildings built in the 1950s; a variety of concrete buildings built at various times; metal buildings with metal roofs and little or no windows; several brick buildings built in the 1960s; several buildings constructed in the 1980s of split-faced concrete masonry; and one stucco building.

In the flightline area, large hangars of metal and concrete dominate the visual environment, interrupted by the introduction of different building types. The Wherry Housing Area consists of single-story duplex and single-family units built in the early 1950s and 1960s. The Capehart Housing Area was built in the 1960s and reflects the type of housing typical of that time. Public spaces, such as playgrounds and bus stops, are not consistently maintained and sometimes detract from the overall visual environment of the housing area.

The Weapons Storage Area (WSA), SAC Alert Area, and communications area (radar facility), are remote facilities that have a more industrial appearance. The WSA and Alert Area are fenced, with minimal landscaping, and the latter facility contains an observation tower.

Areas on Mather AFB are visible from portions of roads bordering the base, especially Old Placerville Road, Sunrise Boulevard, and Kiefer Boulevard. In general, the base provides a visual transition between the more intense urbanization to the north, and the rural/agricultural areas to the south. The more densely developed area of the main base borders the urbanized areas of Rancho Cordova north and west of the base. Mather Lake, buffer areas around the WSA, vacant land, vernal pools, and other undeveloped areas form much of the southern and eastern portion of the base. Due to the base topography, the AICUZ and CLUP-related development restrictions, and the large amount of undeveloped land on the base, there are a number of locations where there are relatively open views across the base. Surface mining of aggregate adjacent to

the base and the resulting overburden piles, pits and pools, some over 60 feet deep, are among the most notable alterations to the visual environment of the base.

3.2.4 Transportation

The ROI for the transportation analysis includes the existing principal road, air, and rail networks in the Sacramento region. The area in the immediate vicinity of the base is of special interest. This discussion of transportation focuses on the segments of the transportation networks in the region that serve as direct or mandatory indirect linkages to the base, and those that are commonly used by personnel at Mather AFB.

3.2.4.1 Roadways. Traffic volumes are typically reported as either the AADT, which is the number of vehicular movements in both directions on a segment of roadway averaged over a full calendar year, or the number of vehicular movements on a road segment during the average peak hour. The average peak hour volume is typically about 10 percent of the AADT but varies depending on the size and type of traffic generator (Transportation Research Board, 1985). These values are useful indicators in determining the extent to which the roadway segment is used and in assessing the potential for congestion and other problems.

Actual traffic flow conditions are generally reported in terms of level of service (LOS), rating factors that represent the general freedom (or restriction) of movement on roadways (Table 3.2-2). The LOS scale ranges from A to F, depending upon the volume-to-capacity ratio, with low-volume, high-speed, free-flowing conditions classified as LOS A. LOS E is representative of conditions that, although not favorable from the point of view of the motorist, provide the greatest traffic volume per hour. With minor interruptions, LOS E will deteriorate to LOS F (Transportation Research Board, 1985). As traffic volumes increase or traffic-handling capacities along given roadways decrease, free-flow conditions become restricted and LOS deteriorates. LOS F represents breakdown, stop-and-go conditions.

LOS values are used to define morning and evening peak-hour conditions and depend on the physical characteristics of the roadway, traffic volumes, and the vehicular mix of traffic, reported for typical clear-weather conditions. A common design goal is to provide peak-hour service at levels no lower than LOS C or D. A typical two-lane urban highway will have a maximum two-way design capacity of 1,500 to 2,000 passenger vehicles per hour. On such roads, travel is affected substantially by traffic in the opposing lane, and by curves and hills, all of which impair a motorist's ability to pass safely. By contrast, each lane of an interstate highway (divided, with restricted access) provides a capacity of about 2,000 vehicles under a wide range of conditions. In urban or suburban settings, the capacity of signalized intersections that restrict traffic flow influences LOS more than the capacity of a roadway segment. LOS ratings presented in the remainder of this subsection were determined by: (1) peak-hour traffic volumes

Table 3.2-2. Road Transportation Levels of Service

LOS	Description	Criteria (Volume/Capacity) 4-lane Freeway	4-6-Lane Arterial	2-Lane Highway
A	Free flow with users unaffected by presence of others in traffic stream	0-0.35	0-0.28	0-0.10
B	Stable flow, but presence of other users in traffic stream becomes noticeable.	0.36-0.54	0.29-0.45	0.11-0.23
C	Stable flow, but operation of single users becomes affected by interactions with others in traffic stream	0.55-0.77	0.46-0.60	0.24-0.39
D	High density, but stable flow; speed and freedom of movement are severely restricted; poor level of comfort and convenience.	0.78-0.93	0.61-0.76	0.40-0.57
E	Unstable flow; operating conditions near capacity with reduced speeds, maneuvering difficulty, and extremely poor levels of comfort and convenience.	0.94-1.00	0.77-1.00	0.58-0.94
F	Forced or breakdown flow with traffic demand exceeding capacity; unstable stop-and-go traffic.	>1.00	>1.00	>0.94

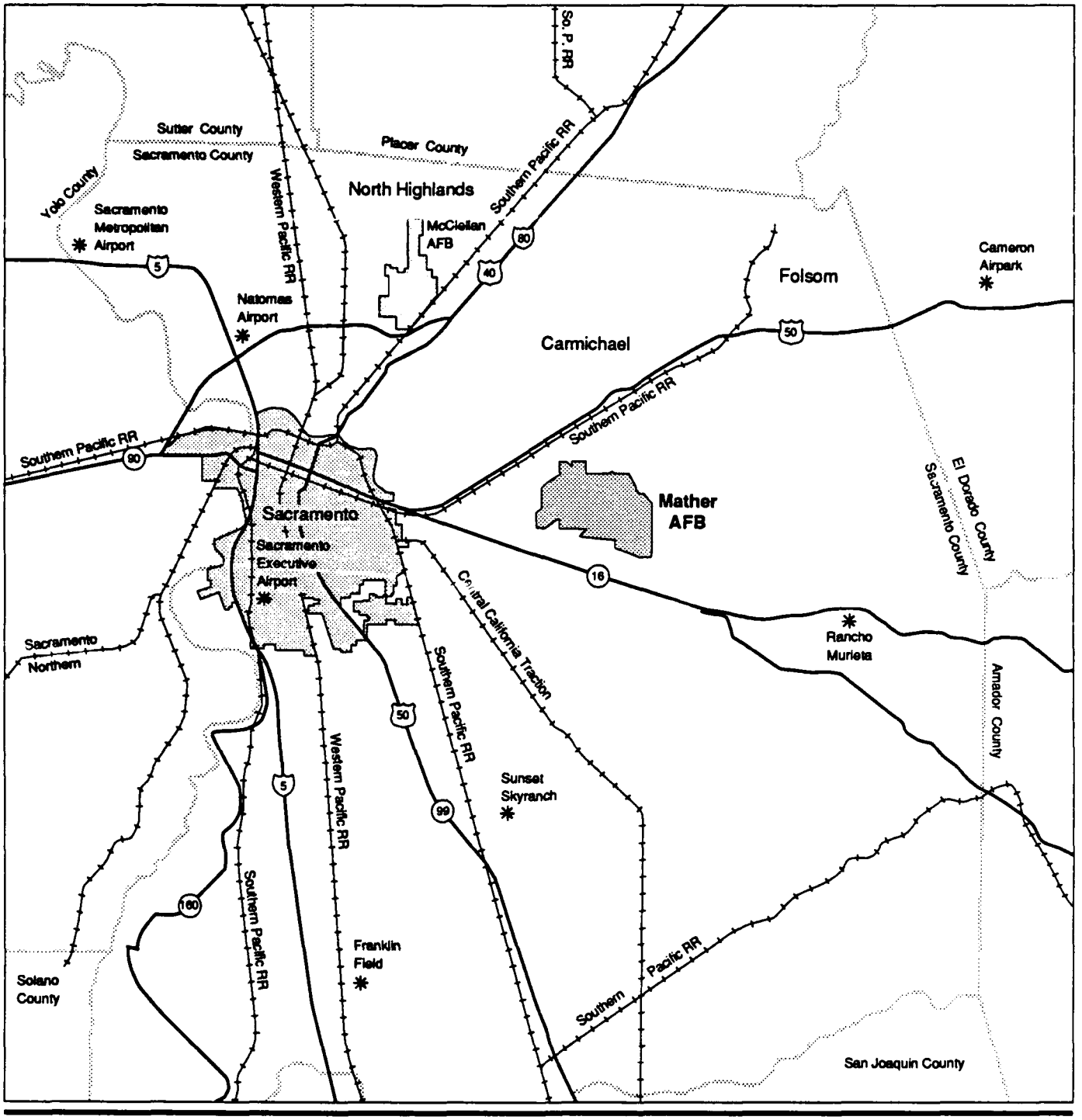
Source: Transportation Research Board, 1985.

and capacity for key roadways, and (2) intersection volumes and capacities for urban and suburban road segments.

Existing road and highway conditions are described at three levels: (1) regional, representing the major links within the Sacramento metropolitan area; (2) local, representing key community roads; and (3) Mather AFB roads.

Regional Preclosure Reference. The region surrounding Mather AFB is served by a network of interstate, federal, and state highways, and city and county roads (Figure 3.2-6). I-5, a north-south freeway 10 miles west of the base, provides access to Stockton and Los Angeles to the south and to Red Bluff and Redding to the north. I-80, located about 6 miles north of the base, runs northeast-southwest through Sacramento, and connects with San Francisco about 90 miles to the southwest, and to Reno, Nevada, about 135 miles to the northeast. U.S. Highway 50, about 1 mile north of the base, extends to South Lake Tahoe and Carson City, Nevada, to the east. U.S. Highway 50 is the main corridor carrying traffic from east and west of the base to base-access roads with interchanges at Bradshaw, Mather Field Drive, and Sunrise Boulevard. The other important regional highway through the region is U.S. 99 which parallels I-5 to Stockton and continues south to Fresno and Bakersfield. These four major highway corridors radiate from downtown Sacramento.

Caltrans has scheduled several improvements for U.S. Highway 50 in the vicinity of the base, including widening Bradshaw Road overcrossing to six lanes



EXPLANATION

- ✱ Airports
- Highways
- Railroads

Regional Transportation Map

0 1.25 2.5 5 Miles

Figure 3.2-6

(Figure 3.2-7). Although no widening of the eight-lane U.S. 50 in the area is planned at present, high-occupancy vehicle lanes have been considered.

The AADT on U.S. Highway 50 between Bradshaw and Mather Field Drive in 1990 was about 136,000 vehicles, and between Mather Field Drive and Zinfandel Drive was about 129,000 vehicles (California Department of Transportation, 1991).

The Circulation Element of the Sacramento County General Plan is currently under revision. The November 1990 Draft Plan shows the planned status of several roadways in the vicinity of Mather AFB:

- Old Placerville Road, four-lane arterial by 2010 (already accomplished)
- Mather Boulevard (through the base), four-lane arterial by 2010
- Sunrise Boulevard, eight-lane special thoroughfare by 2010
- Excelsior Road, four-lane arterial north of Jackson Road by 2010, south of Jackson Road after 2010
- Bradshaw, six-lane thoroughfare by 2010.

In addition the Plan shows transit corridor feeder lines along Bradshaw, Sunrise, and Mather Field Drive to the main hub.

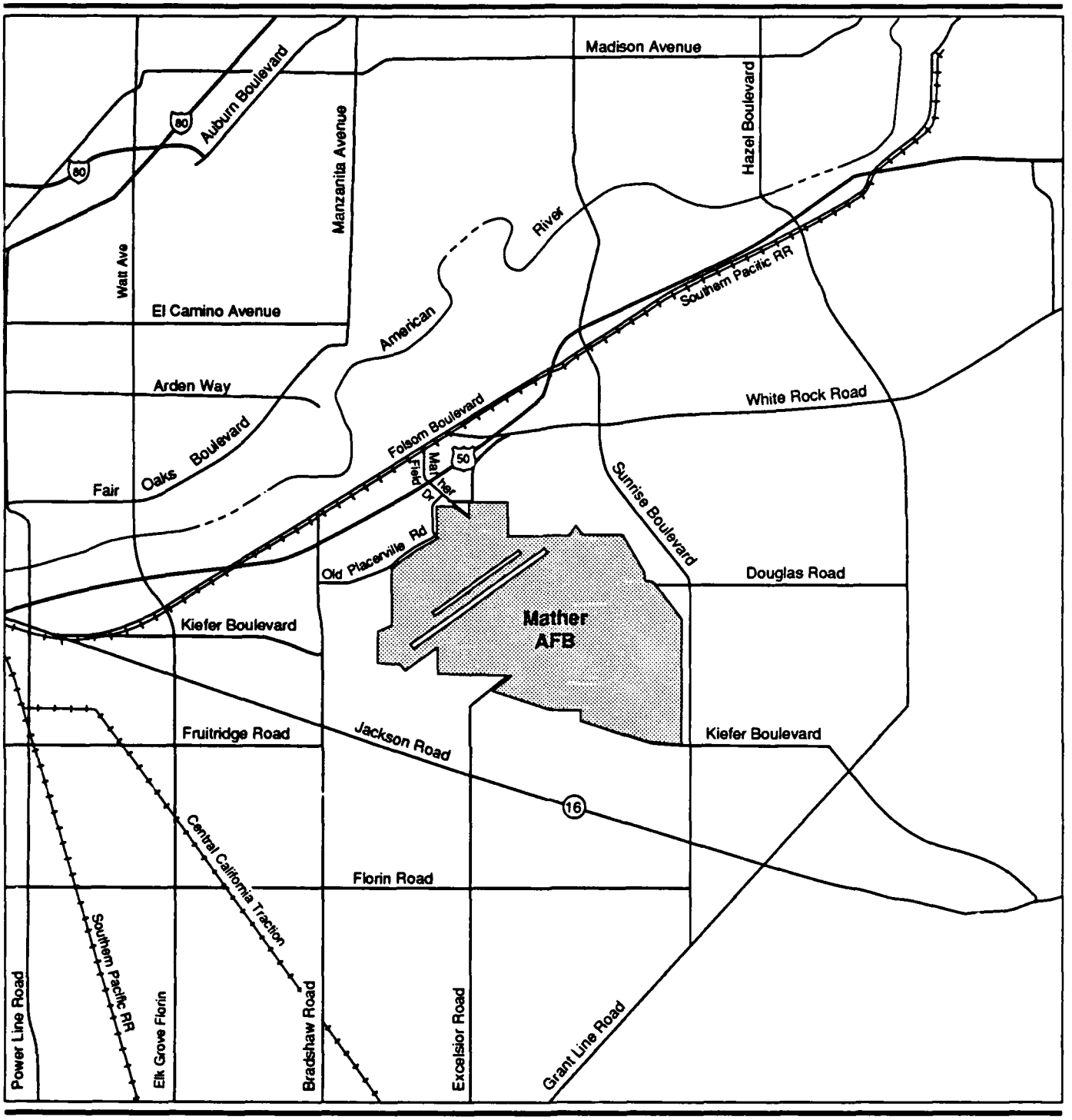
The analysis of LOS in Section 4.2.3 of this document assumes that the improvements listed above will occur by the year cited. Old Placerville Road is already improved with four lanes.

Although current revisions to the Circulation Element may change these plans, this analysis assumes that these improvements will be made by the year indicated. It is also assumed that other roadway widenings will take place early enough to avoid traffic conditions that would cause the LOS to drop to level F. Roadway widening is generally accomplished when properties adjoining the roadway are improved. When widening is required after adjoining properties are already developed, it becomes necessary for local agencies (or the state, in the case of state highways) to institute roadway widening.

Regional Closure Baseline

Upon closure, AADT levels on U.S. Highway 50 would drop by about 25,000. At the present annual growth rate of about 2.7 percent, and assuming no other extraordinary development in the immediate area, this loss of AADT would be regained in about 18 years.

Local Preclosure Reference. Figure 3.2-8 shows the existing local road network in the immediate vicinity of Mather AFB and roads assumed to be in place at base closure. Direct access to the base can be made from six roadways. These six and three other roads are considered to be key community roads for this study. The Sacramento County Transportation Division of the Department of Public Works has recently completed the *Mather*



EXPLANATION

Highways

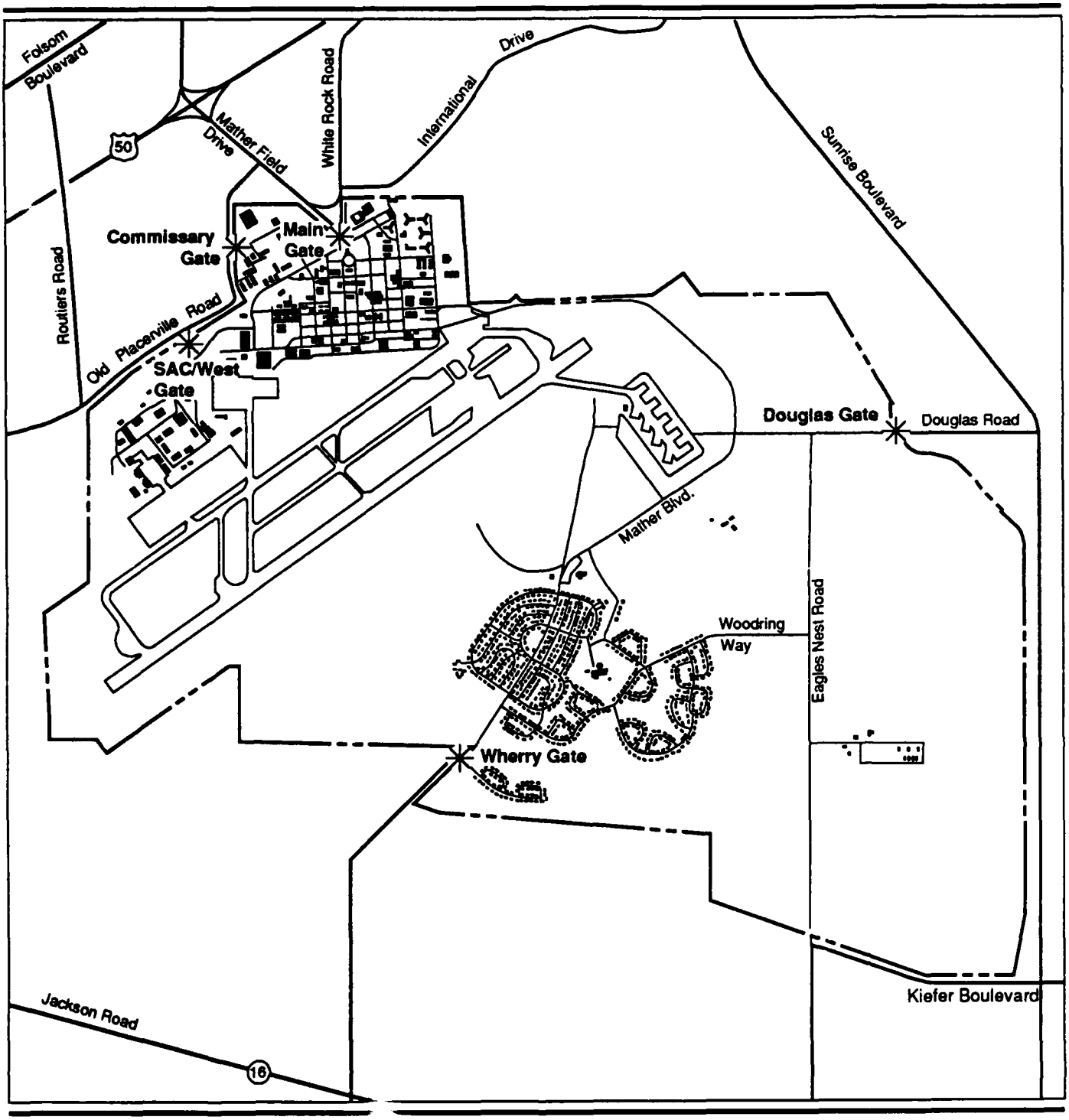
Railroads

River

Vicinity: Major Roads

0 1/2 1 2 Miles

Figure 3.2-7



EXPLANATION

✳ Base Gates

Mather AFB Street Network

0 800 1600 3200 Feet

Figure 3.2-8

Air Force Base Reuse Study, Traffic Analysis and Infrastructure Report (Sacramento County, 1991). This report is an outgrowth of the MIST study and proposes improvements necessary in the vicinity of the base to accommodate different reuse alternatives. These improvements, as referred to in this EIS, are cited in the descriptions of key community roads below.

- Mather Field Drive (between the base and U.S. 50)
- Old Placerville Road (between the base and Routiers Road)
- Excelsior Road North (between the base and Kiefer Boulevard)
- Routiers Road North (from Old Placerville Road to U.S. 50)
- Kiefer Road West (between Excelsior Road and Routiers Road)
- Douglas Road (between the base and Sunrise Boulevard)
- Zinfandel Drive (between the base and International Drive)
- International Drive (between the base and Zinfandel Drive).

Mather Field Drive is a five-lane (four lanes plus a turn lane) roadway leading 0.75 miles, south from the interchange with U.S. Highway 50 to the Main Gate. It also extends north of U.S. Highway 50 about 0.5 mile to Folsom Boulevard.

Old Placerville Road adjoins a portion of the west side of the base and runs between Bradshaw Road (about one mile west of the base) and Rockingham Drive. Rockingham Drive connects to Mather Field Drive with a signalized intersection about 0.5 mile to the east of its intersection with Old Placerville Road. Old Placerville Road is recommended to become a six-lane arterial (Sacramento County, 1991).

Excelsior Road, a two-lane low volume road, extends from the base's Wherry Gate about two miles south to SR 16 (Jackson Road), and continues south. Excelsior Road is recommended for six lanes south of the base (Sacramento County, 1991).

Routiers Road is a two-lane road which presently runs from Old Placerville Road on the south across U.S. 50 to Folsom Boulevard on the north. An interchange with U.S. 50 is planned for the future. Routiers Road does not presently extend south from Old Placerville Road, but such a southerly extension is recommended by the County Transportation Division.

Kiefer Boulevard is presently an unpaved road between about one-quarter mile west of Sunrise Boulevard and the southerly alignment of Routiers Road; other portions are paved and are two lanes wide. The Sacramento County Transportation Planning Division recommends that Kiefer Boulevard have six lanes between Bradshaw Road and Routiers Road.

Douglas Road is a two-lane, east-west road which exits the east base boundary. It is proposed that this road be widened to four lanes between the base boundary and Sunrise Boulevard, and possibly further east.

Zinfandel Drive is a two-lane road between International Drive and White Rock Road, and a four-lane road north of there to its intersection with U.S. 50. Although it does not presently run south of International Drive to the base, it is recommended to do so with four lanes by the Transportation Planning Division.

International Drive is presently a four-lane roadway between Mather Field Drive, the base, and east past Zinfandel Drive to about one-quarter mile west of Sunrise Boulevard.

Other important roadways in the area include Bradshaw Road, one mile west of the base which has a full interchange with U.S. Highway 50. In 1989, Bradshaw Road had a daily traffic count of about 46,800 just south of the U.S. 50 interchange. Rockingham Drive, which serves as a connector between Mather Field Drive and Old Placerville Road, had a daily traffic count of 7,680 in 1985 (Sacramento County Department of Public Works, 1989b). Jackson Road (SR 16), paralleling the base's southern boundary, serves base-destined traffic from both the east and west.

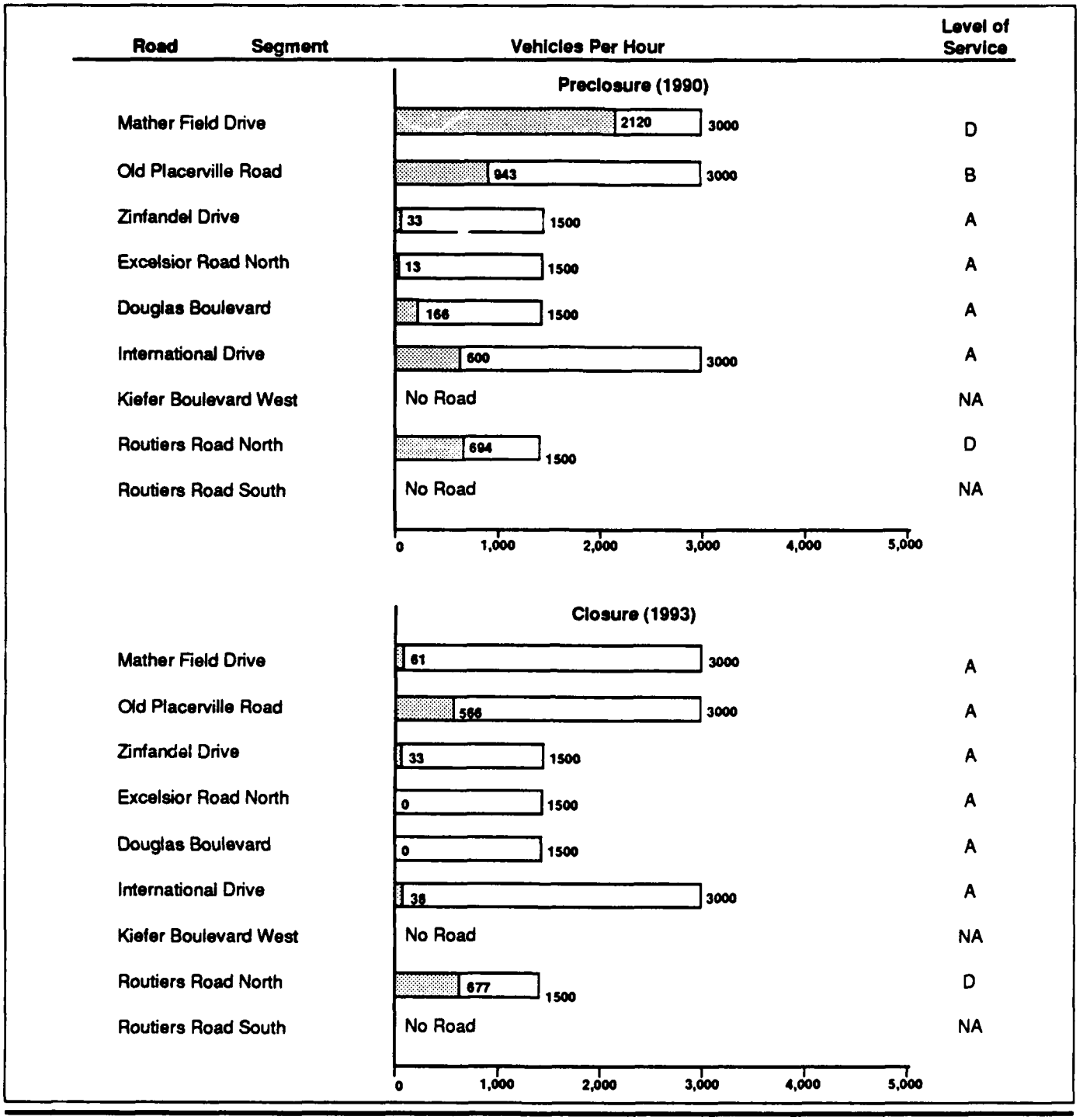
Figure 3.2-9 presents the preclosure (1990) peak-hour trips, peak hour capacity, and LOS for the key community roads.

Local Closure Baseline. The average annual growth in Sacramento County between 1980 and 2014 is projected to be 1.85 percent. It is likely that traffic on the key roads will increase by the rate minus the traffic generated by the base. Figure 3.2-9 shows the projected closure (1993) peak hour trips on the key community roads under these assumptions, including 18 trips generated by 50 caretaker employees. Except for Routiers Road, all key community roads are projected to retain very desirable LOS conditions upon closure. Some improvement in LOS should be experienced on the Mather Field Drive - U.S. Highway 50 Interchange.

On-Base Roadways Preclosure Reference. Five gates provide access to Mather AFB (see Figures 3.2-8 and 3.2-10); only the Main Gate remains open every day for 24 hours. The Douglas Gate is open from 6:30 a.m. to 10:00 p.m., and the West Gate is open from 6:30 a.m. to 6:30 p.m. The Commissary Gate and Wherry Gate are currently closed. These gates all have one-lane, in and out configurations that inhibit rush hour traffic flow.

The principal on-base roads from the Main Gate are Eknes Street and Sixth Street. They are north-south, one-way, two-lane roadways which together form a two-way couplet. This couplet serves as the main entry and exit route of the base. The AADT on these roadways was 4,460 and 8,740 vehicles, respectively, in 1988.

Airmen Way links the Commissary Gate (at Old Placerville Road), the commissary, and nearby activity sites. Except at the gate where it has four lanes, Airmen Way is a two-lane road with a 1988 AADT of about 4,340 vehicles



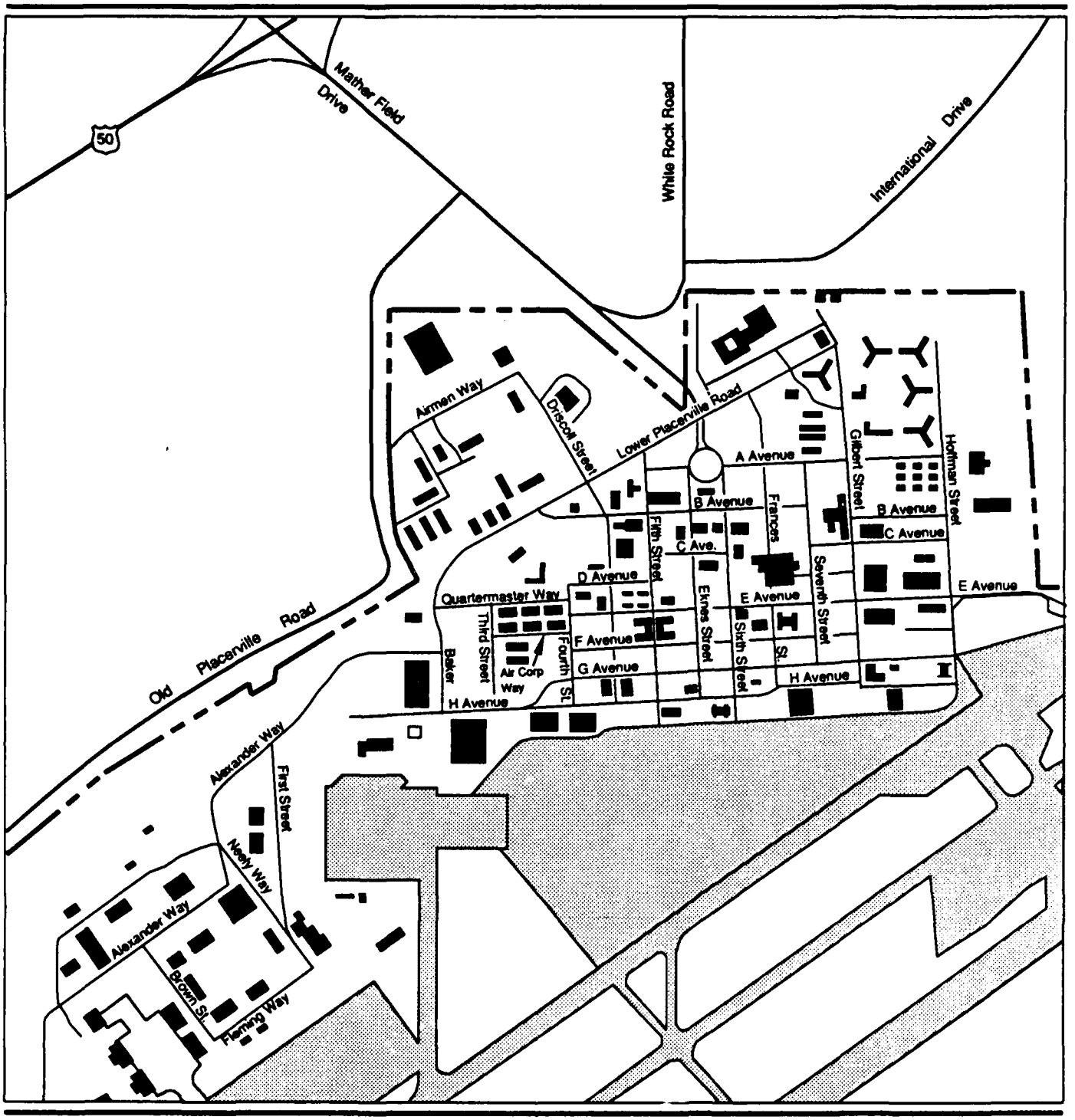
EXPLANATION

Peak-Hour Traffic Volume (passenger cars per hour)

Peak-Hour Traffic Capacity (passenger cars per hour)

Peak-Hour Traffic Volumes on Key Community Roads

Figure 3.2-9



EXPLANATION

Base Boundary

Airfield Pavement

Mather AFB
Street Network

0 300 600 1200 Feet

Figure 3.2-10

just east of the gate. This roadway connects the commissary area to the base's major east-west roads.

Mather Boulevard is a two-lane road which provides access from the Wherry Gate entrance and connects G and H avenues to Douglas Road. G and H avenues are connected into a continuous two-lane roadway providing major east-west circulation through the base and linking the West Gate with Mather Boulevard. G Avenue had an AADT of 6,660 vehicles just east of the West Gate in 1988. E Avenue is a two-lane roadway which provides east-west circulation through the base and crosses major north-south roadways such as Sixth Street and Eknes Street. Douglas Road connects Mather Boulevard with the West Gate, and in 1988 had an AADT of 1,700 vehicles (Omni-Means, Ltd., 1988).

On-Base Roadways Closure Baseline. Upon closure of Mather AFB in 1994 it is assumed the only traffic on base would be generated by a small (50-person) DMT with the Main Gate being the only access point. The closure AADT at the Main Gate is projected to be 180, and peak-hour traffic would be 18 vehicles.

3.2.4.2 Airspace. Airspace is a finite resource that can be defined vertically and horizontally, as well as temporally, when describing its use for aviation purposes. As such, it must be managed and used in a manner that best serves the competing needs of commercial, general, and military aviation interests. The FAA is responsible for the overall management of airspace and has established airspace designations that are designed to protect aircraft while operating to or from an airport or transiting enroute between airports. Each type of airspace is defined in the Glossary of Terms and Acronyms/ Abbreviations in Appendix A.

A given geographical region may encompass several different types of airspace that apply not only to normal instrument flight rule (IFR) and visual flight rule (VFR) aircraft operations, but to military flight training operations as well. Such defense-related airspace has been established for existing Mather AFB training activity. However, this military-use airspace, which is located outside of the airspace ROI for this study, would not be a significant factor relative to airbase reuse. As such, defense-related airspace is not considered further in this EIS.

Airspace management, the regulation of air traffic, and the development of airport flight procedures are governed by various FARs and FAA Orders, airspace procedures handbooks, Advisory Circulars and local operating procedures. Collectively, regulations and airspace policy guidance serve to ensure that the national airspace system is managed safely and efficiently while it accommodates continuing increases or changing conditions in air traffic and airport development.

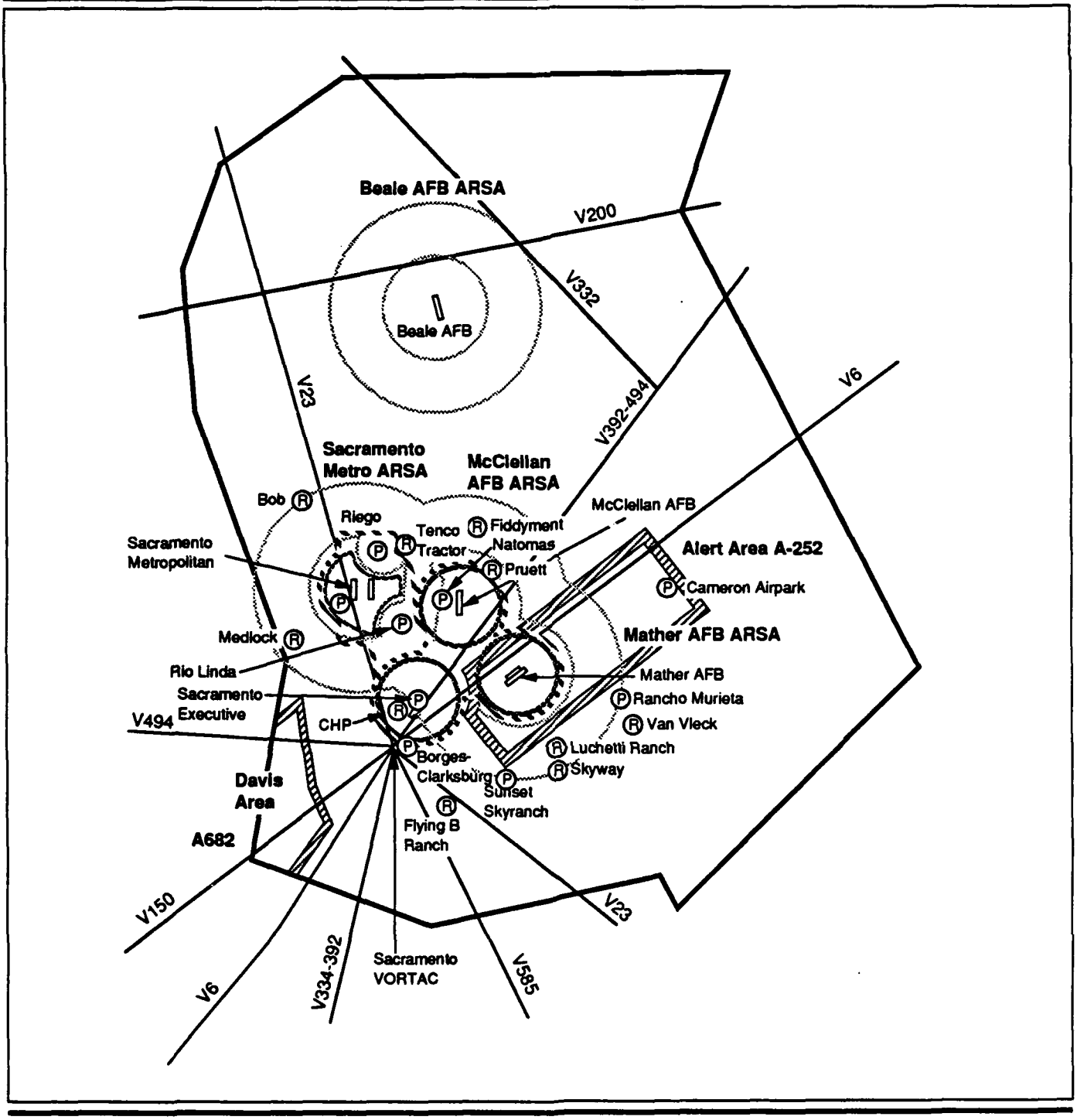
Airspace Region of Influence. The airspace ROI for Mather AFB consists of the airspace structure that is associated with the control of aircraft arrivals and departures at Mather and other nearby airports. Mather AFB aircraft arrivals and departures are integrated with a complex flow of aircraft operating to or from the

numerous civilian and military airports located in the Sacramento area. The four major airports in the Sacramento area which are the key facilities that influence these traffic flows are Mather AFB, McClellan AFB, Sacramento Metropolitan Airport, and Sacramento Executive Airport. Traffic flows associated with these key airports are contained within a major portion of the Sacramento Approach Control airspace area. Other civilian airports that are in close proximity to Mather AFB also lie within the Sacramento Approach Control area. The ROI considered for this airspace analysis is therefore defined by the area delegated by the FAA to the Sacramento TRACON for the control of air traffic in the Sacramento area.

Preclosure Reference. Mather AFB is one of several military and civilian airports located within the terminal airspace boundaries of the Sacramento Approach Control Area. The Sacramento Approach Control Area, depicted in Figure 3.2-11, consists of airspace delegated to the FAA-operated TRACON facility (located adjacent to McClellan AFB) by the FAA Air Route Traffic Control Center (ARTCC) in Oakland, California. With one exception, the vertical limits of this area are between the surface and 11,000 feet above mean sea level (MSL). Altitudes in the Davis Area at the southwest corner of the approach control area extend from 7,000 feet MSL to 11,000 feet MSL.

Within the Sacramento Approach Control area, aircraft traffic flows have been established that provide for an orderly transition between the airports located within the area and the enroute airspace system (Figures 3.2-12 and 3.2-13). These traffic flows are keyed to the primary air carrier, military and general aviation airports that are equipped to serve both VFR and IFR aircraft operations in the area. These airports are Sacramento Metropolitan Airport, Mather AFB, McClellan AFB, Beale AFB, Sacramento Executive Airport, and Yuba County Airport.

Aircraft based at Mather AFB include KC-135E aerial tankers of the 940th AREFG, T-43 and T-37 trainers of the 323rd Flying Training Wing, and H-1 helicopters of the California Army National Guard. Non-based, transient aircraft activity at Mather AFB consists primarily of operations by Air Training Command and Air Force and Navy tactical aircraft. Typical types of transient aircraft that use Mather AFB are T-38s, F-16s, F-14s, F-18s, and A-6s. Lockheed C-130 turboprop aircraft periodically use Mather AFB as a transient stopping facility. The airbase is also used by B-52 bombers and C-141 jet transports for practice instrument low approaches. However, these aircraft seldom actually land at Mather. Mather AFB is also used periodically by fire suppression aircraft of the California Department of Forestry and the U.S. Forest Service. In calendar year (CY) 1990, Mather AFB had a total of 77,975 aircraft operations (an aircraft operation is one takeoff or one landing) by all aircraft types (Table 3.2-3). The general aviation aircraft operations are primarily those by the forest services and by overflights of aircraft transiting the airport traffic area.

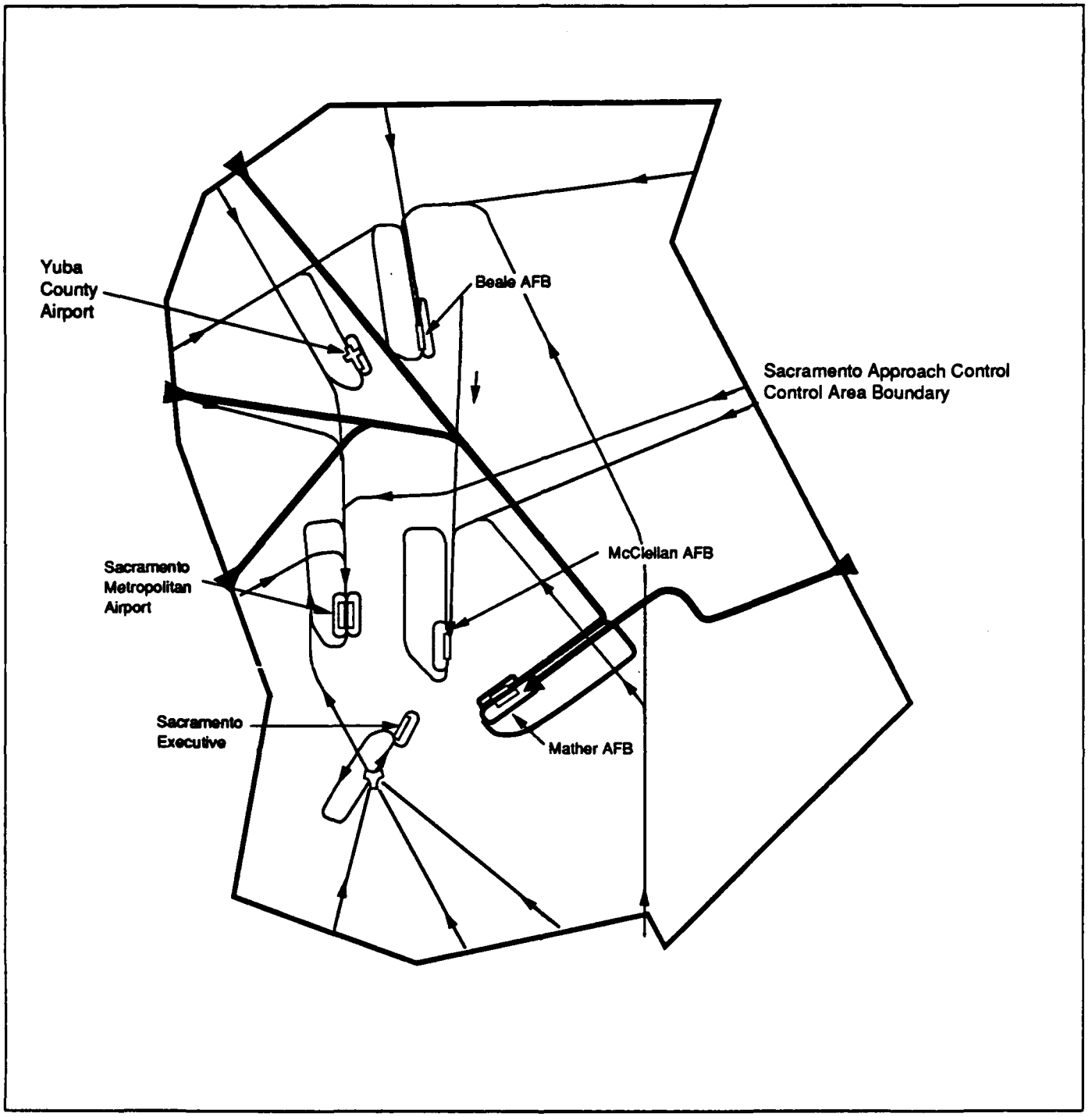


EXPLANATION

- Sacramento Approach Control Boundary
- Airport Radar Service Areas
- Airport Traffic Areas
- Airport Control Zones
- Federal Airways
- Special Use Airways
- Public Use/General Aviation Airport
- Restricted Use/Private Airport
- Commercial/Military Airports

Airport Area Region of Influence

Figure 3.2-11



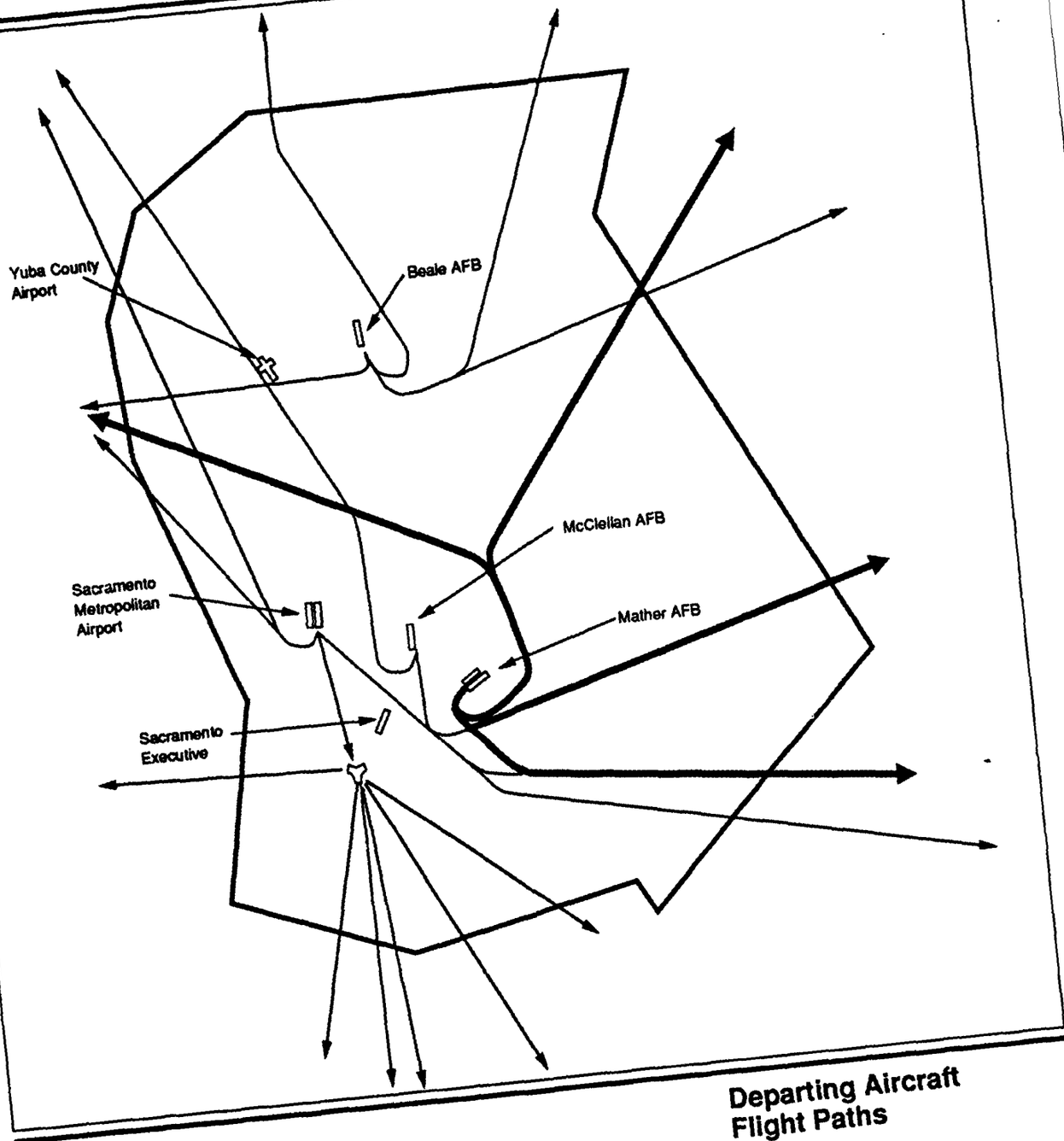
EXPLANATION

- Arriving Flight Paths for Mather AFB
- Arriving Flight Paths for Other Airports
- Sacramento VORTAC

0 5 10 20 Nautical Miles

Arriving Aircraft Flight Paths

Figure 3.2-12



Departing Aircraft Flight Paths

EXPLANATION

- Departing Flight Paths for Mather AFB
- Departing Flight Paths for Other Airports
- Sacramento VORTAC

0 5 10 20 Nautical Miles

Figure 3.2-13

Table 3.2-3. Mather AFB Aircraft Operations, CY 1990

Aircraft Category	Aircraft Operations	%
Military	72,868	93.5
Civil		
General Aviation	5,107	6.5
Air Carrier/Air Taxi	0	0
Total	77,975	100.0

Source: USAF, Mather AFB

Appendix H contains additional information and graphic depictions of the existing Mather AFB aircraft traffic patterns and instrument approach and departure procedures.

There are a total of 60 civil airports and three military airbases (including Mather AFB) within the ROI. Of the 60 civil airports, 21 are public-use airports and 39 are private-use airports. FAA-operated air traffic control towers are located at Sacramento Metropolitan Airport and Sacramento Executive Airport. Published instrument approach procedures are available for Sacramento Metropolitan Airport, Sacramento Executive Airport, Lincoln Airport, Nevada County Airport, Oroville Airport, and Yuba County Airport. Aircraft operations at all other airports are conducted only in visual weather conditions.

Of the 60 civilian airports in the Mather ROI, those which may be most directly influenced by landings, takeoffs, and traffic pattern operations at Mather AFB are those which underlie the airbase's Airport Radar Service Area (ARSA), and traffic pattern airspace areas. *These airports are listed in* Table 3.2-4.

Table 3.2-4. Airports Underlying Mather AFB Traffic Pattern Airspace

Airport	Type
Cameron Airpark	Public Use
Lakepark Helistop	Private Use
Lecchetti Ranch	Private Use
Mosier	Private Use
Rancho Murieta	Public Use
Sacramento Executive	Public Use
Skyway	Private Use
Sunrise One Helipad	Private Use
Sunset Skyranch	Public Use

Table 3.2-5 delineates the existing and projected annual operations for each of the four public use airports in the vicinity of Mather AFB. The CY 1990 Sacramento Executive Airport operations data are recorded by the FAA-operated air traffic control tower (ATCT) at the airport. The aircraft operations at the other three non-towered airports are estimated by airport management. There are no operational data available for the private use airports.

Table 3.2-5. Existing and Projected Closure Baseline Annual Aircraft Operations for Civilian Airports in the Vicinity of Mather AFB

Airport	Annual Operations 1990	1993
Cameron Airpark	45,000	37,960
Rancho Murieta	15,000	34,137
Sacramento Executive	179,175	160,396
Sunset Skyranch	Not Available	25,586

Sources: FAA Sacramento Executive Airport ATCT; Airport Managers; The California Aviation System Plan with Extrapolation.

Closure Baseline. With respect to the base closure in September 1993, the FEIS for the closure of Mather AFB indicates that the 323rd Flying Training Wing will be relocated to Randolph AFB and the 940th AREFG will move to McClellan AFB. Upon base closure and termination of flight operations at Mather AFB, all designated ATC airspace areas, published instrument procedures, and Alert Area A-252 would be cancelled. The control tower, the ILS, and the tactical air navigation (TACAN) would be decommissioned. Disposition of the ILS and TACAN relative to either removal from the airbase or placement on caretaker status, would depend on the status of reuse planning activities at the time of closure. Airspace associated with current Mather AFB activities could be used by Sacramento Approach Control to realign approach and departure procedures to the extent that any additional efficiency in overall traffic flows could be achieved. VFR aircraft operating from public and private airports in the area could transit the airspace around the closed airfield without concern for existing air-ground communications requirements or aircraft operations at Mather.

3.2.4.3 Air Transportation. The air transportation analysis includes passenger travel by commercial airline and charter flights, and business and recreational travel by private (general) aviation. There are a total of seven non-military airports in Sacramento County, three of which are publicly owned (Sacramento Metropolitan Airport, Executive Airport, and Franklin Field). All of these have general aviation, but only Sacramento Metropolitan accommodates commercial aviation. Sacramento Metropolitan Airport is about 20 miles northwest of the base (see Figure 3.2-6). Air carriers and commuter air lines are available at Sacramento Metropolitan Airport, with direct service to major cities in California.

Sacramento Metropolitan Airport handled about 3,733,600 passengers in 1989 and is projected to have about 5,003,400 by 1995. This assumes 5 percent growth per year through 1995 (Sacramento County, 1989). The latest airport improvements increased operations capacity to provide for the next 40 years at a currently predicted 5-percent annual growth rate in passenger volume (Stanton, 1991).

Upon closure of Mather AFB there would be an approximate 0.34 percent reduction in travel through the Sacramento Metropolitan Airport resulting from the loss of Mather AFB military-related passengers who currently use the airport.

This percentage is based upon the ratio of military-related passengers (about 12,300) to total passengers (about 3,631,800) (U.S. Air Force, 1991c; Sacramento County, 1989). The loss of base-related passengers would soon be overcome by projected population growth in the Sacramento metropolitan area.

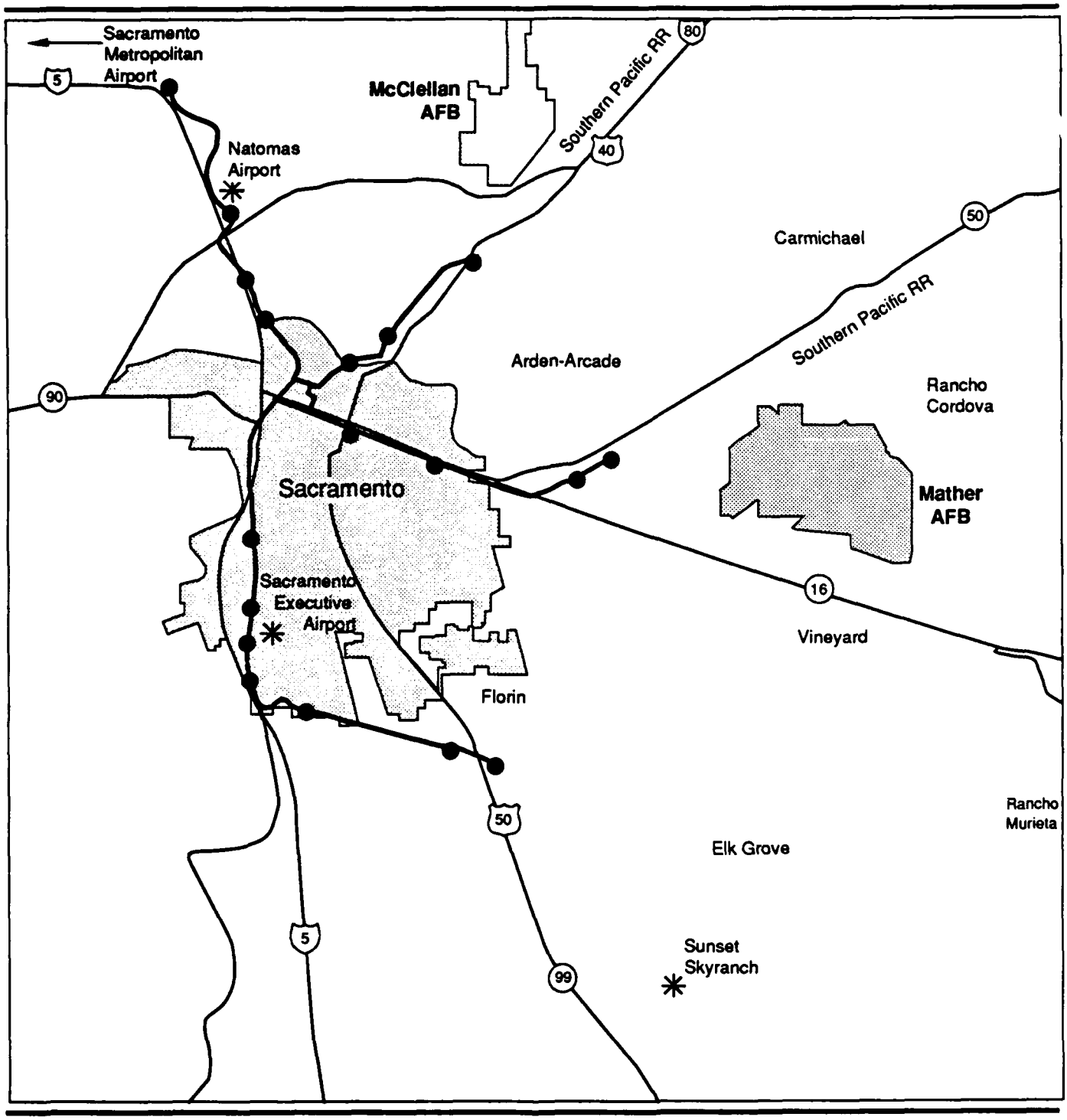
3.2.4.4 Rail. The Sacramento area is served by two major transcontinental railroads: Southern Pacific and Union Pacific (see Figure 3.2-6). A line of the Southern Pacific runs parallel to U.S. Highway 50, about 1 mile north of Mather AFB. A spur-line runs south from the Southern Pacific line just west of the Mather Field Drive crossing under the U.S. Highway 50 freeway and south, parallel to and west of Old Placerville Road. Near the intersection of Lower Placerville Road, on base, the spur runs east into the base for about one-quarter of a mile.

AMTRAK passenger service operates out of the Southern Pacific Depot located between downtown and Old Sacramento, the city's historic area. Two trains per day, each way provided 40,000 passenger trips from the Mather area in fiscal year (FY) 1990 (AMTRAK, 1991). A major freight marshalling yard is located in Roseville, about 15 miles north of Mather AFB.

The Sacramento Regional Transit District (RT) Light Rail System provides public mass transit which currently connects the downtown Capitol Mall area with the suburbs to the east via two routes: the northeasterly route terminates at the intersection of Watt Avenue and I-80, near McClellan AFB (Figure 3.2-14); the southeasterly route ends near the Bradshaw offramp of U.S. 50 (Butterfield Way at Folsom Boulevard), approximately two miles from the Main (Mather Field Road) Gate at Mather AFB. Current system ridership averages approximately 24,000 passengers daily (January to March 1991 Light Rail Transit [LRT] Boarding Counts). The Butterfield station (one of the three most active Metro stations) averages approximately 9 percent (2,200 passengers) of the total daily out- and in-bound stop activity for the RT Metro (Regional Transit Issue Paper, 1991). Regional Transit Bus Route 28 stops 3/8-mile from the Main Gate (Mather Field Drive at Rockingham Place) and provides Metro Connection Service to Butterfield Station, and the Sunrise Mall Bus Transfer Center (Sacramento County Regional Transit Authority, 1991). The origin-destination information collected during a 1988 Omni-Means study included no responses which indicated that transit service was used as a means of travel to and/or from the base (Omni-Means, 1988).

Sacramento Regional Transit District is currently considering extension of the southeasterly route of the RT Metro past Mather AFB towards the city of Folsom, with interim stops in the area of Mather AFB.

Upon closure of Mather AFB there would be some small reduction in use of the RT Light Rail and AMTRAK systems through Sacramento. These reductions would be quickly overcome by the projected population growth in the Sacramento metropolitan area.



EXPLANATION

- Airports
- Highways
- Light Rail Systems
- Bus/Light Rail Station

0 1.5 3 Miles

Sacramento Area Light Rail System

Figure 3.2-14

3.2.5 Utilities

The utility systems addressed in this EIS include the facilities and infrastructure used for:

- Potable water pumping, treatment, storage and distribution
- Wastewater collection and treatment
- Solid waste collection and disposal
- Energy consumption and distribution, including electrical energy and hydrocarbon fuels (e.g. diesel oil, natural gas and propane).

The ROI for utilities includes systems serving Mather AFB as well as the immediately surrounding communities. The major attributes of utility systems in the ROI are processing and distribution capacities, storage capacities, average daily consumption, peak demand, and related factors required in making a determination of the adequacy of such systems to provide service in the future.

3.2.5.1 Water Supply

On Base. Mather AFB currently derives its potable water from 10 wells (California State Department of Health Services [DHS], 1989, 1990) located throughout the main base, housing, and SAC/K-9 areas.

Two non-potable wells provide landscaping water at the golf course and one non-potable well services the firefighting test cell (Campbell, 1991). Two wells (#2 and #4) on the base have been abandoned. Groundwater levels on the base range from 57 feet to 98 feet deep. The wells vary in depth from approximately 250 feet to 585 feet and pumping capacities vary from 55 gallons per minute (gpm) to 2,000 gpm. Total potable water production capacity is 19.3 MGD. Total non-potable water production capacity is 2.4 MGD (DHS, 1986-1990).

The main base, the housing area, and the SAC/K-9 areas create three distinct geographic water distribution areas on Mather AFB. There is an inter-tie between the housing and main-base systems, which is only used in emergencies (Sacramento County Water District, 1990). Water services for the housing area, golf course, K-9, and WSA are gravity feed systems. Water to the main base is booster-pumped from the area's wells through the water distribution lines. In 1989, the Air Force began using a Tesco Control System, a computer monitoring system which operates and monitors well pumps and storage tanks/reservoirs. This system automatically turns on and off well pumps when storage tank/reservoir water levels are not sustained. Systems status in the housing and main-base operations areas are available to operators on a 24-hour basis from system computers (Sacramento County Department of Public Works, 1990).

Water for the housing area travels from the wells, through a treatment process, to storage, and then into the distribution system for use. Housing area water is

treated to remove iron and manganese. The treatment process involves use of potassium permanganate at each well head (water quality varies at each well). A green sand filter is used to remove floatables and solids from the water. The final stage of treatment involves the addition of chlorine and fluoride to the water. After the water is treated, it is stored in an elevated, steel tank with a capacity of 0.50 million gallons. Three 5,000 gallon pressure tanks are used for storage when the elevated tank is out of service (U.S. Air Force, 1991d). The housing area distribution pipe system is constructed of asbestos cement and cast iron. The pipe size ranges from 4 to 6 inches in diameter. The elevated storage tank, in the housing area, helps maintain the distribution system pressure at 54 pounds per square inch (psi) (Sacramento County, 1990).

Water used on the main base travels from the wells, to storage, then to the system for use. Water is stored in a 200,000 gallon ground level reservoir and three booster pumps (50 horsepower [hp]) aid the movement of the water to the distribution system. During storage in the reservoir, the water is chlorinated. Some of the water in the distribution system is pumped (via a 50 hp pump) to an elevated storage tank. This elevated tank has a capacity of 500,000 gallons. The elevated tanks help maintain distribution system pressure. The system operates under a pressure of 60 psi (Sacramento County Department Public Works, 1990). The pipes are constructed of asbestos cement and cast iron. The pipe size ranges from 4 to 6 inches in diameter.

The base has a water demineralizing treatment facility, Building 7078. This process uses reverse osmosis to treat 7,200 gallons of water per day. Demineralized water is stored in a 24,000 gallon tank adjacent to the facility for use in various aircraft operations. The facility is not currently hooked up to the distribution system.

Non-potable water is pumped and used on the golf course and test cell. This water is piped via a 2-inch line, from the housing area.

The average daily water usage for the entire base (1986 through 1990) was 2.3 MGD. The housing area used an average of 1.43 MGD during this 5-year period. The main base area used an average of 0.82 MGD and the golf course and test cell area used an average of 0.05 MGD (DHS, 1986-1990).

Off Base. To date, two local purveyors, Arden-Cordova Water Services and Citizens Utilities Company, have expressed interest in serving the base after closure and disposal (Carson, 1991; Freuer, 1991). Both purveyors have water mains which can be easily accessed in an inter-tie. Water supply and distribution lines of both purveyors are adequate. The distribution systems of both purveyors are in good condition. No infrastructural constraints have been identified that would preclude eventual merging of base water with a local purveyor's system. Due to a county-wide groundwater management program (given the overdraft and drought conditions in the region), future well permits may be harder to obtain than in the past (Sacramento County Water District, 1990). Mather AFB's 10 potable wells would be an asset to the purveyor who is

able to incorporate the base into their service area. Water from groundwater sources continues to meet water needs in the area around Mather; however, alternate supplies need to be found for the future.

In 1984 the Air Force began supplying Camellia-Mather Mobile Home Park, as well as several other residences along Happy Lane and Old Placerville Road with bottled water, due to contamination of several community water wells. In 1986, the Air Force installed a line from the base water system to four residences in the affected area. By May 1989 the Air Force and Citizen's Utilities Company had constructed a waterline down Happy Lane for the area's water consumers (U.S. Air Force, 1990e; also see Section 3.3). This water distribution line will not be affected by base closure.

Current and projected demands (1988 to time of closure) for water are given in Table 3.2-6. The projections assume that water demand rates are proportional to the population being served in the vicinity of the base. Water demand at Mather AFB will decrease slightly as the number of personnel active on the base decreases in anticipation of closure.

Table 3.2-6. Estimated Preclosure and Baseline Utility Demand in the ROI

	1988	1991	1994
Water Demand (MGD)			
Preclosure Forecast	270	290	305
Closure Baseline	270	290	305
Wastewater Generation (MGD)			
Preclosure Forecast	138	144	167
Closure Baseline	138	144	164
Solid Waste Generation (million cubic yards/yr)			
Preclosure Forecast	2.0	2.2	2.3
Closure Baseline	2.0	2.2	2.2
Electricity Demand (MWH/day)			
Preclosure Forecast	20,800	22,300	23,800
Closure Baseline	20,800	22,200	23,400
Natural Gas Demand (thousand therms/day)			
Preclosure Forecast	783	822	862
Closure Baseline	783	819	845

Sources: Based on Sacramento County Water Agency, 1989; Cappola, 1991; Sacramento County Department of Public Works, 1991, California Energy Commission, 1990; Sacramento Municipal Utilities District, 1991; Mattina, 1991.

3.2.5.2 Wastewater

On Base. Prior to mid-1983, Mather AFB operated an on-base wastewater treatment plant, located approximately 1 mile south of the 7000 Area buildings, south of Runway 4R/22L. After treatment, the effluent from this plant was discharged into Morrison Creek. Base wastewater is now conveyed by county

interceptor lines to the regional wastewater treatment plant. Mather AFB and the surrounding communities of Arden-Arcade, Florin, Rancho Cordova, and Sloughhouse are located in the unincorporated county area which is part of County Sanitation District One (CSD-1). CSD-1 is one of three contributing agencies to the Sacramento Regional County Sanitation District (SRCSD) treatment plant (Wong, 1991). The other two agencies are the city of Sacramento and the city of Folsom. The regional treatment plant is located approximately 13 miles southwest of Mather AFB, along the Sacramento River and approximately 6 miles northwest of the community of Laguna Creek.

The base has contracted with SRCSD to treat 0.8 MGD during average dry weather flow (ADWF) and 2.0 MGD during peak wet weather flow (PWWF). During periods of heavy precipitation, Mather AFB far exceeds (by 1.2 MGD) its contracted amounts. Mather Pump House, located in the southwestern corner of the base, only has a design capacity of 2.0 MGD. During peak wet weather periods, the pump house is seriously overburdened and to ease the burden, excessive flow from the base is diverted to two holding ponds at the old wastewater treatment plant where it is temporarily stored until the pump house can adequately handle the excessive flows. These ponds act as temporary storage for 2 MGD of wastewater.

Mather AFB has 3 major subsystems which collect and transport wastewater to the old treatment plant. Here, they are combined and transported 4,500 feet to Mather Outfall and Mather Pump House by an 18-inch pipe. Flow is pumped through a 12 inch force main (Mather Connector) to an interceptor at Kiefer Boulevard/Mayhew Road. One subsystem serves the main base and the 7000 Area buildings. A second serves the residential/housing complex and a third serves the Alert Area, and golf course (Sacramento County Water District, 1990).

The base currently has eight above-ground oil skimmers, six of which are located along the flight line, one at Morrison Creek, and one at the West Ditch. There are 19 underground oil/water separators throughout the base. These systems will need upgrading when pending regulations are passed. These devices manage hydrocarbon spills that potentially could enter the sanitary sewer system. Hydrocarbons (oil, jet fuel, petroleum) are separated from the water and transported to the hazardous materials storage yard. These waste products are sold to contractors who haul the materials off the base for reprocessing and reuse. Overflow water from the systems enters the sanitary sewer lines. The county monitors this waste water each month. No problems exist with this system of skimmers and oil/water separators.

Sewers on the main base range in size from 6 to 24 inches in diameter. The majority of the system is vitrified clay pipe (VCP), with larger mains of cast iron (CI) (U.S. Air Force, 1990h). There are 5 pump stations on the main base, 2 in the former SAC area, one serving the hospital, and two others serving the area north of Lower Placerville Road. The system was constructed toward the end of World War II (the SAC area was constructed in the early 1950s) and is in poor condition. Other concerns with the system include non-watertight joints,

improper sewer/septic tank abandonment, shallow depth of lines, root intrusion, and incorrect slope on lines which result in less-than-adequate flow velocity (1.8 feet per second [fps] compared to the county standard of 2.0 fps), (Sacramento County Department of Public Works, 1990).

The distribution system serving the housing area consists of two 12-inch diameter trunk lines. Pipe within the housing area consists of 6 and 8 inch VCP. The line serving the FAA and golf course is an 8-inch main and is located parallel to Runway 4R/22L (U.S. Air Force, 1990b). All wastewater from the old treatment plant passes through a meter station before flowing through Mather Pump House to the county treatment facility.

Off Base. The Sacramento Regional Wastewater Treatment Plant (SRWTP) is located on 900 acres of a 3,500-acre site near the community of Freeport. The major treatment process at the regional plant includes primary sedimentation, pure oxygen activated sludge, secondary sedimentation, chlorination for disinfection, and dechlorination prior to discharge to the Sacramento River (SRWTP, undated). The system's ADWF is about 150 MGD, which is higher than its design capacity of 136 MGD (Wong, 1992). Capacity is expected to grow to 181 MGD by 1992. During the peak wet season the average flow is approximately 240 MGD. During periods of excessive flow, the treatment site has 80 acres of basins which can store over 200 million gallons (MG) of wastewater for return to the plant when the system can adequately handle the load. These basins are also used if the Sacramento River flow slows to less than 1/2 foot per second. When this situation occurs, effluent is improperly diluted.

The SRWTP currently serves an estimated 1 million residents and is designed for continued growth, and has a modular/phase expansion plan for the future (SRWTP, undated). Current expansion projects are expected to be completed by 1992. The current design capacity of the plant is expected to be adequate for the region until about the year 2000 (Sacramento County Department of Public Works, 1985).

Current and projected (1988 to time of closure) wastewater treatment demands are depicted in Table 3.2-6. The projections assume that wastewater flow rates are proportional to the population being served in the ROI after closure. Wastewater flows at Mather AFB will decrease as the number of personnel active on base decreases in anticipation of closure.

Based on the population forecast in the vicinity of Mather AFB, and the future rates of per capita wastewater treatment demand indicated by the county, the demand would remain about 180 MGD in 1994. This reduction is approximately 1.6 percent lower than the (extrapolated) agency projection for 1994.

3.2.5.3 Solid Waste

On Base. Sunrise Waste Container Service provides private waste hauling for Mather AFB. The Mather contract is their only client (Sunrise is on a non-competition basis contract). The hauler collects an average annual total of 240,000 cubic yards (5,700 tons) per year of solid waste from the base. The material is hauled to Kiefer and L & D landfills. Mather AFB contributes approximately 1 percent of the total waste received at Kiefer Landfill annually.

When Mather AFB closes, Kiefer Landfill will experience a slight reduction in solid waste disposal levels. At that time an estimated 2.28 million cubic yards per year will be generated.

The base also currently operates two natural gas fired incinerators, they are used to burn JP-4 fuel, one is located on the C-Ramp, the other is located near the west gate in the fuel yard. Hospital waste is hauled by a private hauler and incinerated off base.

Off Base. Most solid waste from Mather AFB and the surrounding region is disposed of in Kiefer Landfill. This landfill is owned and operated by the county of Sacramento. Smaller quantities of solid waste are hauled to the privately owned and operated L & D Landfill. Kiefer Landfill is located near Sloughhouse, near the intersection of Grant Line Road and it is a Class III facility, suitable for the disposal of non-hazardous and general municipal waste. Kiefer Landfill does not accept liquids or toxic wastes (Maxfield, 1991). This landfill was first placed into service in 1967 with an area of 655 acres. This landfill is currently permitted through the year 2005, but has a design capacity which extends into 2040.

Current restrictions would permit disposal of large-volume clean demolition material in Kiefer Landfill. This material can contain both inert (e.g., stone and concrete) and non-inert (e.g., wood paper products and plastic) materials, including some asbestos-containing material. Friable asbestos (1 percent by weight) would have to be hauled out of the county to one of three currently utilized landfills (West Contra Costa, Anderson, or Kettleman Hills).

In 1990, total remaining capacity in Kiefer Landfill was approximately 1.3 million cubic yards (813,600 tons); this figure represents 70 percent remaining of the original site capacity, or a site life expectancy of 11 years on currently permitted land. County-owned land adjacent to Kiefer Landfill is expected to be easily incorporated into the existing landfill; this would result in an additional lifespan of 40 years at current disposal rates (Maxfield, 1991). The county is presently encouraging composting, source reduction, and recycling programs which are expected to extend the life expectancy of the area's landfills.

Sludge from the Regional Wastewater Treatment Plant is disposed of on site in Dedicated Land Disposal Sites (DLDS). Skimmings, screenings, and grit are burned in an on-site incinerator and buried in the facility's landfill site. Septage

from the region's septic tanks and grease traps is accepted by the Regional Wastewater treatment plant at one of three sites throughout the region (a fourth site handles only chemical toilets). No sewage or septage materials from the treatment plant are disposed of in Kiefer Landfill, so increased activity is not expected to have an impact on the landfill.

L & D Landfill is located within the city limits of Sacramento and accepts only low moisture, high grade paper, wood and garbage from commercial refuse which has not been mechanically compacted. This 168-acre landfill accepts an average of 316 tons per day. The landfill is expected to close in 1992.

3.2.5.4 Energy

Electricity

On Base. SMUD supplies electricity to Mather AFB and the surrounding communities. In 1987, the base upgraded from a 4 kilovolt (kV) system to a 12.47 kV system (Sacramento County Department of Public Works, 1990). However, due to costs, 13 base facilities were not converted to the 12.47 kV system (U.S. Air Force, 1991d). Currently, the principal base distribution system is a primary/secondary selective system. Electricity is supplied via 69 kV (1,200 ampere) transmission lines terminating at a double transformer substation. In the event one transformer is inoperative, the second backs up the system. This main substation's transformers are rated at 10/12.5/14 megavolt amperes (MVA). This three load capacity is available through the addition of cooling coils and a fan to the system. The substation is located at the northwestern corner of the base, directly behind Mather Hospital. There are numerous transformers on the base which serve the system (U.S. Air Force, 1990d). Six feeder lines emanate from the main substation. These feeder lines supply electricity throughout the base via overhead and underground services.

With the exception of the Wherry Housing area, the on-base substations and distribution system are owned and maintained by the Air Force. The Wherry Housing area's distribution system is owned by PG&E. Maintenance on this portion of the system is performed by Air Force personnel, and the appropriate owner is billed for the work. In September 1989, PG&E researched the possibility of selling this section of the distribution system to the Air Force; however, the Air Force declined the purchase due to the system's poor condition and the need for major capital improvements.

The measured electrical use in 1990 on Mather AFB averaged 5 megawatts (MW) per month (SMUD, 1991). Typically, demand peaks during the summer months of June through September. Data from 1988 through 1990 indicate an average summer month's consumption is approximately 6 MW (U.S. Air Force, 1991).

Maximum demand for electricity in the past 10 years grew to over 12 MVA. Actual electrical demand on base for the past 12 months was less than 9 MVA. The maximum design capacity for the system is 28 MVA (U.S. Air Force, 1991d).

The electrical system is considered to be in satisfactory condition, with the exception of the housing area. Although the announcement of closure halted renovation projects on base, a transformer retrofilling program is ongoing. The program is expected to last 3 years.

The base is part of SMUD's Rancho Cordova District. SMUD meters Mather AFB with one meter which is used for consumption/billing purposes. The base uses additional meters to monitor electrical use throughout the base. Some Morale, Welfare and Recreation (MWR) facilities, the Base Exchange (BX), and the Commissary are individually metered and billed by the Air Force.

Off Base. Rancho Cordova District services the communities surrounding the base. According to SMUD, distribution lines and equipment adequately supply the base (DeSelle, 1991).

Current and future demands (1988 to time of closure) for electrical energy are presented in Table 3.2-6. The projections assume that electrical demand is proportional to the population served on base and in the nearby communities. Electrical demand at Mather AFB will decrease by 373 MWH, as the drawdown of personnel occurs.

Utilizing per capita electricity demand factors developed by the California Energy Commission (1990), electricity demand within the region associated with the base closure was estimated from the projected population. Short-term decreases in electricity demand associated with Mather AFB closure would be rapidly overcome by regional population increases.

Natural Gas

On Base. PG&E provides natural gas to Mather AFB and the surrounding region, through four main meters. The on-base distribution system is owned and maintained by the Air Force, with the exception of Wherry Housing, which has 1,280 individual PG&E meters. Capehart Housing, base operations, and Mather Hospital all have separate master meters. The meter at the hospital is used to calculate on-base core and non-core usage (the hospital has its own heating system run on diesel). The fourth master meter is on the base incinerator which is still in use for combustion of JP-4.

The portion of the on-base distribution system owned by the Air Force consists of black iron pipe which has been assessed as having a corrosion problem (U.S. Air Force, 1989a). A plan to reduce corrosion by cathodic protection has reduced the number of detected leaks, but it is anticipated that much of the existing black iron pipe system would need to be replaced in the future. In

some areas on base, depth and pressure of the lines are inadequate with respect to PG&E standards in these areas. Future users could use the wider diameter black iron piping as a sleeve into which the higher pressure (smaller diameter) plastic piping could be inserted, thereby reducing the replacement cost (Sacramento County Department of Public Works, 1990).

At closure, demand for natural gas on the base will decline. However, population growth in the area will increase the demand thereafter.

Off Base. According to PG&E, communities surrounding the base are adequately supplied. Distribution uses and equipment are in good condition (Mendoza, 1991). PG&E anticipates being able to continue providing regional service, with few limitations, through the company's existing pipeline in the Sacramento Division.

Using per capita demand rates developed by the California Energy Commission (1990), natural gas demand within the ROI was estimated for the projected population in the region without reuse of Mather AFB.

Diesel and Propane. Mather Hospital is steam heated by a diesel oil fired boiler. Service lines consist of 3-inch steam lines and 2.5-inch steam return lines. The system uses (electric/gasoline/diesel) backup generators in case of emergencies. The hospital system consists of one 8,000-gallon underground diesel oil tank, two 42.9-hp generators, three steam valves, and three condensate pumps (U.S. Air Force, 1990d). Concerns with this system include abandonment of the (3) underground tanks and the possible need to standardize the entire area's heating system to natural gas (U.S. Air Force, 1990d).

Less than 5 percent of the base uses propane as a heating fuel. Facilities on the southeastern side of the runway are currently serviced with propane. Propane is used as an alternative heating fuel due to the expense of installing natural gas piping to these remote areas of the base (U.S. Air Force, 1989a).

3.3 HAZARDOUS MATERIALS/HAZARDOUS WASTE MANAGEMENT

Hazardous materials and hazardous waste management activities at Mather AFB are governed by specific environmental regulations. For the purposes of the following analysis, the term hazardous waste or hazardous materials will mean those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC §§9601-9675, and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA), 42 USC §§6901-6992. In general, this includes substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or the environment when released into the environment.

Additionally, U.S. Environmental Protection Agency (EPA) has granted the state of California the authority to promulgate and enforce environmental regulations. The state regulations, which must be at least as stringent as the federal regulations, are outlined in the California Code of Regulations (CCR).

Hazardous materials transportation is regulated by the Federal Department of Transportation (DOT) regulations within Chapter 49 of the CFR.

The ROI encompasses all geographic areas that are exposed to the possibility of a release. Specific geographic areas that are affected by past and current hazardous materials and hazardous waste operations, including cleanup activities, are presented in detail in the following sections. The ROI for the known hazardous waste disposal sites on Mather AFB has extended past the boundaries of the base. Off-base groundwater contamination plumes are associated with IRP sites 7 and 15.

3.3.1 Hazardous Materials Management

Preclosure Reference. Mather AFB receives and stores large quantities of hazardous materials including a variety of flammable and combustible liquids such as aviation fuels; additional hazardous materials utilized by the base include acids, corrosives, compressed gases, hydraulic fluids, solvents, paints, paint thinners, and lubricants. These hazardous materials are delivered to the central receiving area in Building 4200 prior to delivery to the shops or storage areas and warehouses where they are used.

Mather Air Force Base Plan 705 (U.S. Air Force, 1990k) addresses the storage locations of all hazardous materials on the base and the appropriate response to prevent and minimize potential spills or releases. Mather AFB has a program that identifies the hazardous materials that are shipped to the base and utilized in the work place. Any unused, non-expired hazardous materials will be transferred for use at other installations (U.S. Air Force, 1990k). The Mather AFB Environmental Management Office has responsibility for environmental compliance at the base.

Closure Baseline. After base closure, only the DMT will be using hazardous materials. All parties will be responsible for managing these materials in accordance with federal, state, and local regulations to prevent threats to human health and the environment.

The DMT will be responsible for the safe storage and handling of all hazardous materials used in conjunction with all base maintenance operations, such as paint, paint thinner, solvents, pesticides, herbicides, fungicides, and miscellaneous wastes associated with vehicle and machinery maintenance (motor oils/fuels). These materials will be shipped by the DMT in compliance with the Hazardous Materials Transportation Act (HMTA) under 49 CFR.

3.3.2 Hazardous Waste Management

Preclosure Reference. A variety of hazardous wastes are generated as a result of maintenance activities on Mather AFB. These substances include fuel and oil wastes, solvents, strippers, paint wastes, and several other chemical wastes. As required by CCR, Title 22, Section 66493 (b) these hazardous wastes and quantities generated are reported to the California DHS Toxic Substances Control Division.

The Environmental Management Office oversees the management of hazardous wastes at Mather AFB. Mather AFB submitted an RCRA Part B permit application dated October 1, 1989, modified by subsequent amendments dated May 1, 1990. As a result of this submittal, Mather AFB operates as a Treatment Storage and Disposal (TSD) facility under an RCRA Part B permit (CA8570024143) issued by the U.S. EPA Region IX. This permit became effective on December 6, 1990, and remains in effect for 5 years unless revoked and reissued or terminated. A similar permit addressing the same requirements was issued by the state of California on December 15, 1990. These permits address the storage requirements for the base and allow for the storage of hazardous waste for up to 1 year in the Central Storage Facility (see Table 3.3-1). The four hazardous waste accumulation points for 90-day storage are listed in Table 3.3-2. The permits also specify that the corrective actions for releases of hazardous constituents from RCRA solid waste management units will be investigated under CERCLA through the IRP. Permitting information can be found in Appendix I.

Table 3.3-1. Hazardous Waste Central Storage Facility

Location	Maximum Quantity (gal) in Storage Containment
Inside Bldg. 3385	3,300
Inside Bldg. 4304	605
Inside Bldg. 3398 (Zone C)	770
Inside Bldg. 3398 (Zone D)	770
Inside Bldg. 3385	550
Outside Storage for Empties and Solids	5,500
Holding Area	250

Table 3.3-2. Hazardous Waste Accumulation Points

Facility Number	Containment Capacity (gallons)
3336	410
4147	759
4348 (outside behind the building)	No Containment
7026	1,089

Mather AFB has a comprehensive Hazardous Waste Management Plan (U.S. Air Force, 1991b). This plan includes hazardous waste management, contingency planning, spill response, training and environmental education. The sources that currently generate hazardous waste are presented within this plan. Mather AFB achieved a 47-percent reduction in hazardous waste generation, 1988 to 1989, over previous years through a hazardous waste minimization program. Hazardous waste is disposed through the Environmental Management Office in cooperation with the Defense Reutilization and Marketing Office (DRMO) located at McClellan AFB. Hazardous waste cannot be shipped from Mather AFB for storage at DRMO at McClellan AFB since the RCRA permit covers only hazardous waste generated on McClellan AFB. In 1989 approximately 86,500 pounds of hazardous waste were generated by the facility and shipped off site for disposal.

Closure Baseline. At the time of base closure, all of the hazardous waste generated by base functions will have been collected from all accumulation points and disposed of off site, in accordance with RCRA. Hazardous waste generated by the DMT will be tracked to ensure proper identification, storage, transportation, and disposal, as well as implementation of waste minimization programs. The Hazardous Waste Central Storage Facility will close according to requirements contained in RCRA, CCR Title 22, and Mather's RCRA permit.

3.3.3 Installation Restoration Program (IRP)

IRP is a DOD program to identify, characterize, and remediate environmental contamination on military installations. DOD implemented IRP in 1980 to clean up health-threatening sites on its installations. Although legally acceptable at the time, procedures followed prior to the mid-1970s for managing and disposing of many wastes often resulted in contamination of the environment. The program established a process to evaluate past disposal sites, control the migration of contaminants, and control potential hazards to human health and the environment. Section 211 of the Superfund Amendments and Reauthorization Act (SARA), codified as the Defense Environmental Restoration Program (DERP), ensures that DOD has the authority to conduct its own environmental restoration programs.

Prior to passage of SARA and the establishment of the National Contingency Plan (NCP) for hazardous waste sites, Air Force IRP procedures followed DOD policy guidelines mirroring EPA's Superfund Program. Since SARA was passed, most federal facilities have been placed on a federal docket and EPA has been evaluating the facilities' waste sites for inclusion on the National Priorities List (NPL). The Aircraft Control and Warning (AC&W) Site on Mather AFB was included on the NPL in November 1987. The entire base was listed on the NPL in November 1989 due to contamination of a potable aquifer.

On July 21, 1989, the U.S. Air Force entered into a Federal Facility Agreement (FFA) with U.S. EPA Region IX and the state of California. The California DHS was the designated single state agency responsible for the federal programs

carried out under this agreement. Authority now lies with the California EPA, Department of Toxic Substances Control (DTSC). This agreement stipulates that any corrective actions under RCRA shall be considered and managed pursuant to CERCLA. Objectives, responsibilities, procedures and schedules for cleanup were established in the FFA. A representation of the IRP management process under CERCLA is shown in Figure 3.3-1.

The original IRP was divided into four phases, consistent with CERCLA:

- Phase I: Problem Identification and Records Search
- Phase II: Problem Confirmation and Quantification
- Phase III: Technology Base Development
- Phase IV: Corrective Action.

After SARA was passed in 1986, the IRP was realigned to incorporate the terminology used by U.S. EPA and to integrate the new requirements in the NCP. The result was the creation of three action stages:

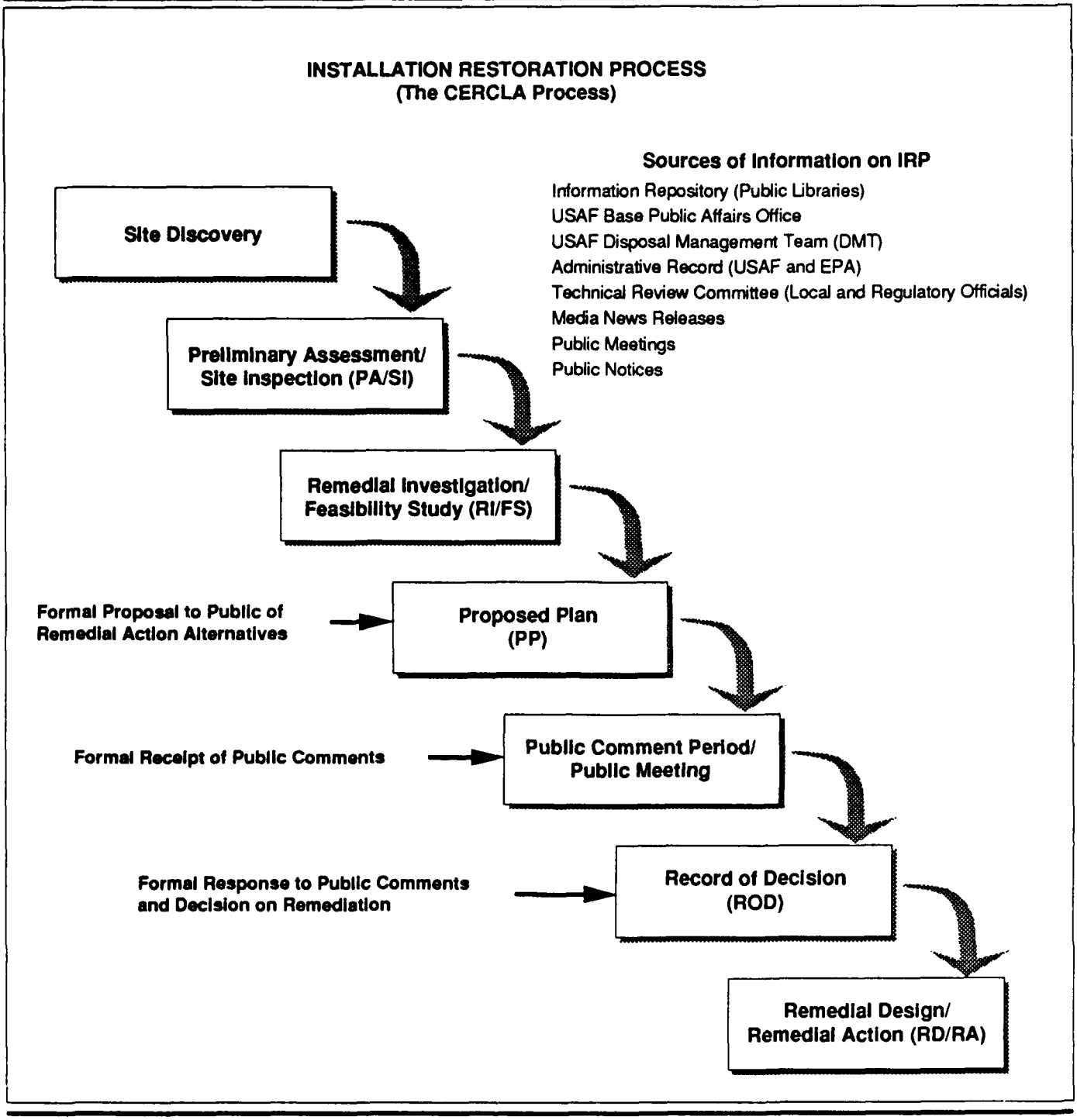
- Preliminary Assessment/Site Inspection (PA/SI)
- Remedial Investigation/Feasibility Study (RI/FS)
- Remedial Design/Remedial Action (RD/RA).

The Preliminary Assessment (PA) portion of the first stage under the NCP is comparable to the original IRP Phase I and consists of a records search and interviews to determine whether potential problems exist. A brief Site Inspection (SI) that may include soil and water sampling is performed to give an initial characterization or confirm the presence of contamination at a potential site.

An Remedial Investigation (RI) is similar to the original Phase II and consists of additional field work and evaluations in order to assess the nature and extent of contamination. It includes a risk assessment and determines the need for site remediation.

The original IRP Phase IV has been replaced by the Feasibility Study (FS) and the Remedial Design (RD). The FS documents the development, evaluation, and selection of remedial action alternatives to clean up the site. The selected alternative is then designed (RD) and implemented (RA). Long-term monitoring is often performed in association with site cleanup to assure future compliance with contaminant standards or achievement of cleanup goals. The Phase II portion of the IRP process is not included in the normal SARA process. Technology Development (TD) under SARA is done under separate processes including the Superfund Innovative Technology Evaluation program. The Air Force has an active TD program in cooperation with the EPA to find solutions to problems common to Air Force facilities.

The closure of Mather AFB will not affect the ongoing IRP activity. These IRP activities will continue in accordance with federal, state and local regulations to



Pictorial Presentation of IRP Process

Figure 3.3-1

protect human health and the environment, regardless of the alternative chosen for reuse. The FFA between the U.S. Air Force, U.S. EPA Region IX, and California EPA assures this joint involvement in IRP.

The potential exists for other responsible parties to be required to contribute to the CERCLA activity at Mather AFB; groundwater contaminants have been found in the northwestern corner of the base (IRP Site 15, described below) that are not consistent with past Air Force activities.

In addition to the mandates of IRP, prior to the transfer of any property at Mather AFB, the Air Force must also comply with the provisions of CERCLA § 120. CERCLA § 120h requires that, before property can be transferred, the United States must provide notice of specific hazardous waste activities on the property and include in the deed a covenant warranting that "all remedial action necessary to protect human health and the environment with respect to any [hazardous] substance remaining on the property has been taken before the date of such transfer." Furthermore, the covenant must also warrant that "any additional remedial action found to be necessary after the date of such transfer shall be conducted by the United States." To ensure that money is available to conduct environmental restoration at military installations scheduled for closure, Congress appropriated $100 million to the Defense Base Closure Account for fiscal year 1991 to be used exclusively for that purpose. It is expected that future authorization acts will continue to fund environmental restoration activities at closing installations.

Again, the public may keep abreast of the IRP at Mather AFB through various sources of information (see Figure 3.3-1). Additionally, the IRP as mandated by CERCLA and the NCP has a public participatory program much like the one in the preparation of the EIS. The Air Force will, with the acceptance of each RI/FS by the regulatory community, prepare a proposed plan for the remediation of a site(s) which will include a discussion of alternatives considered. The proposed plan will be distributed to the public for comment; a public meeting will be held to discuss the proposed plan and comments on the proposed plan will be accepted by the Air Force. The Air Force will then respond to all comments, making those responses part of a public ROD on what the remediation will entail prior to any Remedial Action being taken.

The Air Force is committed to the identification, assessment, and remediation of the contamination from hazardous substances at Mather AFB. This commitment will assure the protection of public health as well as restoration of the environment.

Preclosure Reference. The Air Force began the IRP process at Mather AFB prior to the terminology and procedural changes in the IRP. As a result, both phases and post-SARA terminology are contained in the IRP Administrative Record. The Phase I records search at Mather AFB was summarized in June 1982 (CH2M Hill, 1982). This report indicated the presence of low levels of trichloroethylene (TCE) in the groundwater beneath the base and nearby

off-base sites. Twenty-three sites were identified as having the potential for contamination.

Several field studies have since been performed to determine the existence, nature, and extent of any new and existing contaminated sites on base. To date, 69 sites have been identified (Figure 3.3-2). The initial sources of contamination at the IRP sites were primarily the maintenance and refueling of aircraft and ground support equipment, fire protection training, corrosion control, and past disposal actions. The types of contaminants that have been identified include solvents, petroleum products, and various solid wastes. The IRP sites include landfills, fire training areas, drainage ditches, septic tanks, portions of the sanitary sewer system from the industrial area, chemical disposal areas, fuel spills and leaks, and past underground storage tanks (USTs).

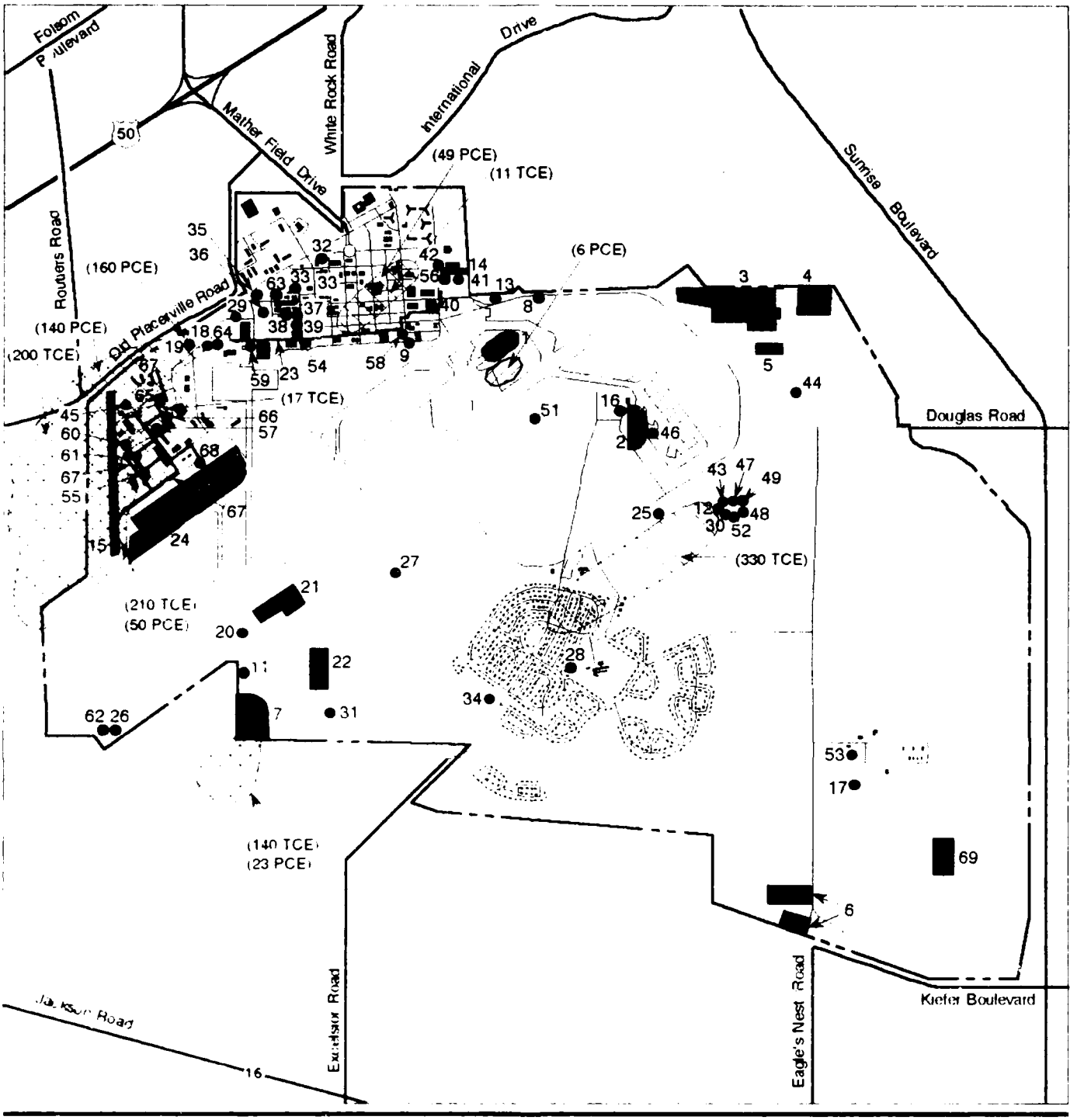
The Phase II Confirmation/Quantification report studied four waste disposal sites: AC&W, 7100 Area, West Ditch, and Site #3 on the northeastern base perimeter (Weston, 1986). A sampling of the base water supply wells was included in this activity. TCE was detected above state action levels in several monitoring wells. An action level is a regulatory limit for concentrations of contaminants above which remediation is required to lower the contaminant concentration in the soil or groundwater. The AC&W site was the confirmed source of TCE and tetrachloroethane (PCE) contamination in the groundwater on base.

The Phase II work was performed and 15 additional sites were investigated. At these 15 sites, 28 groundwater monitoring wells were installed (AeroVironment Inc., 1987). The northeastern corner of the base was found to have PCE contamination above state action levels.

Phase II work further investigated four sites identified in the Phase II report. Thirty-six groundwater monitoring wells were drilled for this report (AeroVironment Inc., 1988). Trace concentrations for trans 1, 2-dichloroethylene (DCE) were identified.

The IRP work has resulted in extensive soil borings and groundwater monitoring wells to delineate the extent of contamination. From January 1, 1991, until March 8, 1991, there were 111 soil borings with an additional 77 soil borings scheduled for later in 1991. Currently, Mather AFB has 179 monitoring wells that are operational.

The draft RI/FS addressing the Group 2 sites is expected to be released in August 1992, and will further delineate the contamination off base. Currently, there are 14 off-base monitoring wells which are being used to characterize the groundwater contamination plume from Site 15. These wells are located as much as approximately 2,500 feet from the base boundary. There are also 13 off-base monitoring wells associated with the groundwater plume from Site 7; they are located up to 1,000 feet west of the base boundary. Based on results from laboratory analysis of groundwater sampled during the fourth quarter of



EXPLANATION

IRP Site (Numbers refer to Table 3.3-3)

Groundwater Plume (TCE)

Groundwater Plume (PCE)

0,000 Maximum Contaminant Concentration detected in Plume (ppb)

0 800 1600 3200 Feet

* Data supplied by Mather AFB DMT

Installation Restoration Program Sites*

Figure 3.3-2

1991, additional off-site monitoring wells may be required to delineate both plumes.

Additional historical information on the activity for the IRP at Mather is given in the *Mather AFB Closure EIS*, Appendix G (U.S. Air Force, 1990g) and the Administrative Record file for Mather AFB that is continually updated and available at the Environmental Management Office. The final IRP reports are available at the Mather AFB Library, Sacramento Central Library, and the Rancho Cordova Community Library. For administrative reasons the base has been separated into three operational sections:

- Group 1 sites, commonly referred to as AC&W
- Group 2 sites
- Group 3 sites.

A current list of all IRP sites is presented in Table 3.3-3.

Aircraft Control and Warning Sites. The AC&W Site 12 allegedly had uncontrolled disposal of waste solvents directly into subsurface soils via a disposal pipe. The disposal pipe has not been located at this site. The hazardous waste disposed of in this location included transformer oil, paints, used motor oils, and cleaning solvents. The contaminants that have been identified in the monitoring wells associated with this site were TCE and low levels of volatile organic compounds. This site was placed on the NPL on July 22, 1987. The AC&W area consists of the IRP site numbers 12, 25, 30, and 47. A brief description of the more important sites is included below.

Open Group 2 Sites. The Group 2 sites consist of the original 34 IRP sites identified in 1989, excluding the AC&W sites. Added to these sites are all of the pre-1984 USTs requiring remediation.

Site 2. The 8150 Area was the main sanitary landfill for the Mather AFB from 1942 to 1950. Since the closure of the Site 2 landfill, a portion of the SAC alert area has been constructed on top of the landfill. Some petroleum, oil, and lubricant (POL) wastes may have been disposed in this landfill.

Site 3. The northeast (N.E.) perimeter sanitary landfill was used for the entire base from 1950 through 1967. The Site 3 landfill used a trench system with the refuse burned and covered on a daily basis. This landfill may have received waste paints, paint thinners, empty pesticide containers, and POL wastes.

Site 4. Located in the N.E. perimeter, adjacent to Site 3, the Site 4 landfill was the main sanitary landfill for the entire base from 1967 through 1971. Operationally, the landfill utilized daily filling, burning, and covering. A POL waste disposal pit is located on the N.E. corner of this site and was in use during the late 1960s. This pit reportedly received POL waste.

Table 3.3-3. IRP Sites at Mather Air Force Base
Page 1 of 2

IRP Site Number	Site Description	Status	Group
1	Runway Overrun Landfill	NFIDD[a]	2
2	"8150" Area Landfill	Open[b]	2
3	NE Perimeter Landfill No. 1	Open	2
4	NE Perimeter Landfill No. 2	Open	2
5	NE Perimeter Landfill No. 3	Open	2
6	Firing Range Landfill Site	Open	2
7	7100 Area Disposal	Open	2
8	Fire Protection Training Area 1	NFIDD	2
9	Fire Protection Training Area 2	NFIDD	2
10	Fire Protection Training Area 3	NFIDD	2
11	Existing Fire Protection Training Area	Open	2
12	AC&W Site NPL-12	Open	1
13	Drainage Ditch No. 1	Open	2
14	Drainage Ditch No. 2	Open	2
15	Drainage Ditch No. 3 (West Ditch)	Open	2
16	Electron Tube Burial Site	NFIDD	2
17	Weapons Storage Septic Tank	NFIDD	2
18	Old Burial Site	Open	2
19	Fuel Tank Sludge Burial Site	Open	2
20	Mogas Spill Site (Sewage Treatment)	Open	2
21	Asphalt Rubble Storage	NFIDD	2
22	Asphalt Rubble Storage	NFIDD	2
23	Sanitary Sewer System	Open	2
24	1983 JP-4 Spill and Refueling Apron	Open	2
25	Bldg. 10100 1 Abandoned UST	Open	1
26	Bldg. 10072 1 Abandoned UST	Open	1
27	Bldg. 10060 1 Abandoned UST	Open	2
28	Fuel Spill at Bldg. 16100	Open	2
29	Fuel Spill at POL Yard No. 4	Open	2
30	Bldg. 10300 1 Abandoned UST	Open	1
31	Bldg. 10090 1 Abandoned UST	Open	2
32	Fuel Spill at AAFES Svc. Sta.	Open	2
33	Bldg. 3308 6 Abandoned USTs	FADD[c]	2
34	Fuel Spill at F.H. Svc. Sta. (5 USTs)	Open	3
35	Bldg. 3226 4 Abandoned USTs	FADD	2
36	Bldg. 3286 4 Abandoned USTs	FADD	2
37	Bldg. 3389 5 Abandoned USTs	FADD	2
38	Bldg. 3388 2 Abandoned USTs	FADD	2
39	Facility 4305 (CSF), 5 Abandoned USTs	Open	2
40	Bldg. 3875 1 Abandoned UST	NFIDD	2
41	Bldg. 2995 2 Abandoned USTs	NFIDD	2
42	Bldg. 2898 1 Abandoned UST	NFIDD	2
43	Bldg. 10150 2 Abandoned USTs	NFIDD	2
44	Bldg. 8540 1 Abandoned UST	NFIDD	2
45	Bldg. 7003 1 Abandoned UST	NFIDD	2

Table 3.3-3. IRP Sites at Mather Air Force Base
Page 2 of 2

IRP Site Number	Site Description	Status	Group
46	Facility 8158 Area 1 Abandoned UST	Open	2
47	UST NW of Bldg. 10400 (AC&W)	Open	2
48	Bldg. 10410, 2 Abandoned	Open	2
49	Bldg. 10450, 1 Abandoned UST	Open	2
50	Bldg. 21030, (Same as Site 34)	Open	2
51	Bldg. 10030, 5 Abandoned USTs	Open	2
52	Bldg. 10400, 1 Abandoned UST	Open	2
53	Bldg. 18051 (WSA), 1 Abandoned UST	Open	2
54	AGE Repair Shop, Facility 4348	Open	3
55	Corr. Control O/W Sep, Fac. 7038	Open	3
56	Old Motor Pool Washrack, Fac. 2989	Open	3
57	AGE Washrack O/W Sep. Fac. 7019	Open	3
58	Army Hel. Washrack O/W Sep. Fac.	Open	3
59	ATC Washrack O/W Sep. Fac. 4251	Open	3
60	Maintenance Dock North O/W Sep. Fac.	Open	3
61	Maintenance Dock South O/W Sep. Fac.	Open	3
62	Jet Engine Test Cell	Open	3
63	Auto Hobby Shop O/W Sep. Fac. 3321	Open	3
64	Fuel Truck Washrack O/W Sep. Fac.	Open	3
65	Old AGE Washrack O/W Sep. Fac. 6910	Open	3
66	Jet Engine Repair O/W Sep. 6915	Open	3
67	Sanitary Sewer System SAC Area	Open	3
68	USTs at Fuel Transfer System	Open	3
69	OBOD Pit	Open	3

Notes:
(a) NFIDD: No Further Investigation Decision Document. No further investigation decision documents have been submitted and approved by Air Training Command for site closure. However, governing regulatory agencies list the sites open until the final ROD is released.
(b) Open: Further action may be required at these sites.
(c) FADD: Further Action Decision Document. Further action decision documents have been submitted to Air Training Command for consideration. These sites may require further remedial work before closure.

Site 5. A landfill site that was in operation during 1971, the Site 5 landfill consisted of one trench that may have received small quantities of POL waste which were placed in a single trench without burning. This activity ceased in 1971.

Site 6. From 1972 through 1974, the Site 6 landfill area was the main sanitary landfill and resulted in the use of three trenches. Reportedly, this landfill may have received drummed paint waste and thinners in addition to small amounts of POL waste.

Site 7. Since 1953, this 7100 Area has been a disposal site. The Site 7 landfill was originally a gravel pit that was excavated in 1953. This disposal pit has received construction rubble and reportedly was a major disposal site for POL waste from 1953

through 1966. This area may have received waste consisting of plating shop sludge, solvents, transformer oils, paint waste, and thinners. TCE was detected in monitoring wells at this location and the concentrations are above the state of California action levels.

Site 11. Fire training exercises have been conducted in the Site 11 area since 1958. Two 1,000 gallon aboveground storage tanks were installed at the site in 1974 to store fuels for training. Since 1978, waste JP-4 fuel has been used for the training exercises.

Site 13. Site 13 is an unlined drainage ditch adjacent to a former aircraft wash rack that was in use from 1960 until 1973. An oil/water separator system was installed in 1968 and the area reportedly received paint stripping waste, waste oils, solvents, and grease.

Site 14. Site 14 is another unlined drainage ditch that may have received waste oils and solvents because of its proximity to the motor pool area.

Site 15. The West Ditch is a possible source of contamination that was detected west of the base in private wells along Happy Lane. This site has TCE and PCE that has been confirmed in several monitoring wells and is above state action levels. The West Ditch is an unlined drainage ditch that received surface water runoff from the entire main base. This system includes an old oil/water skimmer that was installed in 1967 and reportedly received waste oils and solvents. Many of the floor drains in the surrounding shops were formerly connected to the storm sewer system that flowed into this ditch.

Site 18. Adjacent to Building 4120, under the existing parking lot, is a former refuse landfill. The site was used during the late 1940s and may have received containerized waste materials including test gases used in the testing of gas lines. Contamination (TCE and PCE) has been identified in groundwater samples downgradient from Site 18.

Site 19. Located inside a diked area that contains the two main aboveground storage tanks, sludge from fuel tank cleaning that may contain waste from leaded aviation gas was collected in the Site 19 area from the cleaning of the tanks.

Site 20. Site 20 contained a 150-gallon underground tank system that reportedly leaked in 1982. Approximately 700 gallons of fuel for an emergency power generator may have spilled.

Site 23. The sanitary sewer system for the main base may have received industrial wastes and solvents from the shop area. Root intrusion may result in extensive infiltration from the sanitary sewer.

Site 24. The SAC Tanker Ramp is the site of a 1983, 8,000 gallon JP-4 spill. A major rainstorm impeded the clean-up efforts and fuel probably infiltrated under the runway via a drainage culvert.

Site 29. Site 29 has been operated as a POL yard since 1958 and contains a service station. Fuel spills were reported between 1974 and 1975 and in 1986.

Site 32. Prior to 1988, the Army-Air Force Exchange Services service station was located in this main base administration area. The site may have contained an auto hobby shop. Approximately 90 tons of hydrocarbon-contaminated soils were remediated in this location in 1988.

Site 34. A service station operated at Building 21030 from 1968 until 1988. Two USTs failed leak tests in 1988 and a 295-gallon spill occurred in 1982.

Group 3 Sites. The Group 3 sites were added to the IRP process as a result of the RCRA Solid Waste Management Units (SWMUs) identified by DHS in the RCRA Facility Assessment completed in June 1990. The majority of the Group 3 sites consist of inground oil/water separators. The four sites that are not separators are:

Site 62. Jet engine test cell 7009

Site 67. Sanitary sewer system underground in the SAC area

Site 68. Two 2,000 gallon USTs at the fuel transfer area

Site 69. The open burning open detonation (OBOD) area that was utilized for the disposal of ordnance.

Closure Baseline. The IRP remediation activities are planned to extend past the closing date for Mather AFB and the DMT will oversee the coordination of the contractors and assure U.S. EPA and California EPA that their concerns are addressed pursuant to the FFA. The current schedule for future IRP activities is displayed in Table 3.3-4.

3.3.4 Storage Tanks

Regulations. USTs are subject to federal regulations within RCRA (40 CFR Part 280). These regulations were mandated by the Hazardous and Solid Waste Amendments of 1984. The state of California has adopted regulations for USTs under Title 23, Chapter 3 of the CCR. The regulations in California are more stringent than the federal regulations and require secondary containment on both the tank and piping systems. The Sacramento County Environmental Management Department, Hazardous Materials Division, is the regulatory agency for UST compliance at Mather AFB. Aboveground storage tanks are regulated under California Health and Safety Code Division 20, Section 6.67, the Uniform Fire Code, and the National Fire Protection Association regulations.

Table 3.3-4. Mather AFB FFA Schedule

Sites	Document Name	Start	Completion
Aircraft Control and Warning	Remedial Investigation	October 1, 1986	April 14, 1991
	Feasibility Study	October 1, 1986	September 5, 1991
	Record of Decision	November 30, 1991*	June 29, 1992*
	Remedial Design	November 30, 1992**	November 30, 1992
	Remedial Action-Construction[a]	December 1, 1992	December 1, 1993
	Remedial Action-Operation & Maintenance	December 2, 1993	December 1, 2003
Group 2	Remedial Investigation	October 1, 1986	July 28, 1992
	Feasibility Study	October 1, 1986	November 27, 1992
	Record of Decision	March 30, 1993	September 30, 1993
	Remedial Design	March 30, 1993	March 30, 1994
	Remedial Action-Construction	March 30, 1994	March 30, 1995
	Remedial Action-Operation & Maintenance	March 30, 1995	March 30, 2005
Group 3	Remedial Investigation	October 1, 1991	April 17, 1993
	Feasibility Study	October 1, 1991	April 17, 1993
	Record of Decision	December 12, 1993	June 12, 1994
	Remedial Design	December 13, 1993	December 12, 1994
	Remedial Action-Construction	December 13, 1994	December 12, 1995
	Remedial Action-Operation & Maintenance	Not Anticipated	

* Starts after the public comment period for the proposed plan.
** Assumes a 1-year Remedial Design.
ROD Record of Decision
Note: (a) Dates subsequent to Records of Decision are tentative and cannot be determined until remedial actions have been selected.

Preclosure Reference. Mather AFB has an aggressive tank removal program and in excess of 65 USTs have been removed in the last 3 years. USTs are managed on the base and sites that may require remediation or have the potential to affect groundwater are added to the IRP site list and will be investigated via an RI. This will insure that these potential sites receive CERCLA attention.

All active USTs with a capacity of 20,000 gallons or less have passed leak testing. Regulatory uncertainty on the appropriate methodology to test for and monitor leaks in larger tank systems has resulted in Mather AFB applying for a variance to operate their UST systems. The UST variance to use tracer gas technology was initiated by the Mather AFB Environmental Management Office to the Sacramento County Environmental Management Department on May 30, 1989. The leak testing and leak monitoring methodology for tanks greater than 20,000 gallons has not been approved by the Sacramento County Environmental Management Department. Leak detection and monitoring by the U.S. Air Force of these larger tanks is proceeding with the use of a tracer gas leak detection methodology. The use of tracer gases to test the larger UST systems received "interim approval" by the state in January 1991, pending their completion of the final regulations for USTs. Yearly leak detection will be

required on these larger tank systems until appropriate leak detection systems that comply with California regulations can be installed.

There are currently 82 USTs known to exist on Mather AFB. During 1992, 33 tanks are scheduled to be removed (Table 3.3-5). The 46 USTs that will remain active and three inactive but regulated tanks after the 1992 removal activity are listed in Table 3.3-6.

Currently jet fuel is delivered to Mather AFB by a pipeline from the Bradshaw terminal on the Southern Pacific Pipeline. Two large abovegrcund storage tanks receive and store the fuel. The fuel is transferred from the two aboveground storage tanks via underground pipelines to sixteen 50,000 gallon USTs at buildings 7080 and 7090. These large USTs feed a hydrant system with 8 laterals containing 40 hydrant outlets on the SAC ramp. The truck fill stands in the Building 4022 area fill refueling trucks for the flightline. Both gasoline and diesel fuel are stored in two 25,000 gallon tanks at the POL 3 location. The POL 4 facility has four 20,000-gallon USTs.

Closure Baseline. The aboveground storage tanks will be purged to minimize fire hazards at base closure. USTs that meet the California regulations may be left in place to support reuse activities. The USTs that have failed the precision leak test will undergo closure as required by the Central Valley Regional Water Resource Control Board.

3.3.5 Asbestos

Regulations. Asbestos is regulated by the U.S. EPA, Occupational Safety and Health Administration (OSHA), and California EPA. Emissions of asbestos to the ambient air are controlled under Section 112 of the Clean Air Act, which establishes the National Emissions Standards for Hazardous Air Pollutants (NESHAP). There are separate regulations under the Toxic Substances Control Act (TSCA) that address the handling problems of asbestos-containing construction materials used in schools. The Asbestos Hazard Emergency Response Act addresses the management of asbestos in schools from kindergarten through grade 12.

During renovation or demolition of buildings, asbestos may be released into the air. Friable asbestos refers to the ability of asbestos-containing material (ACM) to release fibers into the air as a result of crumbling or breakage from hand pressure. The asbestos fibers can be emitted from various building materials such as pipe and boiler wrap, acoustic ceilings, and various insulating materials.

NESHAP regulates the demolition and renovation of buildings with ACM. EPA and the state of California have policies that address leaving asbestos in place and not disturbing the material if removal and disturbance of ACM would pose a health threat.

Table 3.3-5. Underground Storage Tanks to be Removed in Fiscal Year (FY) 92

	Tank ID Number	Installation Date	Tank Capacity (gallons)	Past Tank Contents	Nearby Facility Location
1	1266	1969	4,000	Diesel	Bldg. 1226
2	3273E	Unknown	550	Waste Oil	Bldg. 3273
3	3320A	Unknown	250	PD-680	Bldg. 3320
4	3320B	Unknown	500	Waste Oil	Bldg. 3320
5	3389A	Unknown	500	Waste Oil	Bldg. 3389
6	3965	1984	550	Diesel	Bldg. 3975
7	4305A	Unknown	25,000	Waste Oil	HWCSF
8	4305B	Unknown	25,000	Waste Oil	HWCSF
9	4305C	Unknown	25,000	AVGAS	HWCSF
10	4305D	Unknown	25,000	AVGAS	HWCSF
11	4305E	Unknown	25,000	AVGAS	HWCSF
12	4305F	Unknown	25,000	AVGAS	HWCSF
13	4305G	Unknown	25,000	AVGAS	HWCSF
14	4305H	Unknown	25,000	Waste	HWCSF
15	4853	Unknown	500	Unknown	Helo WR
16	8158	Unknown	250	Diesel	SAC Alert
17	10030	Unknown	550	Diesel	Behind 22L
18	10015	Unknown	1,000	Unknown	ATC Tower
19	10065	1958	1,000	Unknown	ILS Localizer
20	10120	Unknown	2,000	Diesel	FAA
21	10150	Unknown	50	MOGAS	AC&W Site
22	10400A	1983	4,000	MOGAS	AC&W Site
23	10400B	Unknown	4,000	Unknown	AC&W Site
24	10410A	Unknown	1,000	Lube Oil	AC&W Site
25	10410B	Unknown	1,000	Lube Oil	AC&W Site
26	10450	Unknown	8,500	Unknown	AC&W Site
27	18051	Unknown	250	Diesel	WSF
28	*18051B*L	Unknown	250	Unknown	WSF
29	21030A	1968	10,000	MOGAS	FHSS
30	21030B	1968	10,000	MOGAS	FHSS
31	21030C	1968	10,000	MOGAS	FHSS
32	21030D	Unknown	550	Waste Oil	FHSS
33	21030E	Unknown	500	MOGAS	FHSS

AC&W - Aircraft Control and Warning Site
HWCSF - Hazardous Waste Central Storage Facility
WSF - Weapon Storage Facility
FHSS - Family Housing Service Station
18051B - Tank Unconfirmed
AVGAS - Aviation Fuel
PD-680 - Lubricant
JP-4 - Jet Fuel
MOGAS - Motor gas such as unleaded, regular, etc.
10120 * - to be removed by FAA.

Source: Mather AFB, Environmental Management Office.

Table 3.3-6. Active USTs at Mather Air Force Base

Tank	Capacity (gallons)	Installation Date	Contents	Function
650-A	8,000	1968	Diesel	Heat/Emergency Power
650-B	8,000	1968	Diesel	Heat Emergency Power
650-C	500	1968	Diesel	Emergency Power
2410-D	500	1960	Waste Oil	Waste Management
2595	1,000	1958	Diesel	Emergency Power
3167-A	20,000	1984	Diesel	Vehicle Fuel
3167-B	20,000	1984	MOGAS	Vehicle Fuel
3167-C	20,000	1984	MOGAS	Vehicle Fuel
3167-D	20,000	1984	Diesel	Vehicle Fuel
3273-C	25,000	1949	MOGAS	Bulk Storage
3273-D	25,000	1949	Diesel	Bulk Storage
4015	1,000	1967	Waste Fuel/Etc.	Spill Containment
4225-A	250	Unknown	Waste Fuel/Etc.	Spill Containment
4225-B	150	Unknown	Waste Fuel/Etc.	Spill Containment
4587	1,050	1975	Diesel	Emergency Power
7010	3,300	1978	Diesel	Heat
7022-A	2,000	1962	MOGAS	Vehicle Fuel
7022-B	2,000	1980	Diesel	Vehicle Fuel
7033	2,000	Unknown	Diesel	Heat
7049	1,000	1958	Waste Oil	Waste Management
7080-A	50,000	1958	JP-4	Fuel Storage
7080-B	50,000	1958	JP-4	Fuel Storage
7080-C	50,000	1958	JP-4	Fuel Storage
7080-D	50,000	1958	JP-4	Fuel Storage
7080-E	50,000	1958	JP-4	Fuel Storage
7080-F	50,000	1958	JP-4	Fuel Storage
7080-G	50,000	1958	JP-4	Fuel Storage
7080-H	50,000	1958	JP-4	Fuel Storage
7080-I	2,000	1958	Waste Water/Fuel	Waste Management
7090-A	50,000	1958	JP-4	Fuel Storage
7090-B	50,000	1958	JP-4	Fuel Storage
7090-C	50,000	1958	JP-4	Fuel Storage
7090-D	50,000	1958	JP-4	Fuel Storage
7090-E	50,000	1958	JP-4	Fuel Storage
7090-F	50,000	1958	JP-4	Fuel Storage
7090-G	50,000	1958	JP-4	Fuel Storage
7090-H	50,000	1958	JP-4	Fuel Storage
7090-I	2,000	1958	Waste Water/Fuel	Waste Management
7100	500	Unknown	Waste POL	Waste Management
8150	2,000	1983	Diesel	Heat
8157	1,000	1980	Diesel	Heat
13025-A	1,000	1988	MOGAS	Retail Vehicle Fuel
13025-B	1,000	1988	MOGAS	Retail Vehicle Fuel
13025-C	8,500	1988	MOGAS	Retail Vehicle Fuel
18011	1,000	1980	Diesel	Emergency Power
18015	1,500	1957	Diesel	Heat
2410-E	10,000	Unknown	*Inactive	Retail Fuel Sales
2410-F	10,000	Unknown	*Inactive	Retail Fuel Sales
7022-C	2,000	1962	*Inactive	Vehicle Fuel

*Currently regulated but inactive tanks
AVGAS - Aviation Fuel
PD-680 - Lubricant
JP-4 - Jet Fuel
MOGAS - Motor gas such as unleaded, regular, etc.

Source: Mather AFB, Environmental Management Office.

Preclosure Reference. Asbestos is managed at Mather AFB by the base bioenvironmental engineer. Asbestos storage on Mather AFB is near the central storage facilities in the 4303 area of the main base; an asbestos management plan is in place (U.S. Air Force, 1991a). Contractors removing asbestos materials are required to double-bag and seal the material prior to shipment. Asbestos is classified as a hazardous waste in California, requiring disposal at a Class II landfill. The asbestos waste generated at Mather AFB is transported by a licensed hazardous waste hauler and disposed in accordance with state regulations. A major basewide survey was completed in 1990 (U.S. Air Force, 1991a). An inventory of asbestos in buildings and mitigation measures identified is provided in Appendix J. It is current U.S. Air Force practice to remove or manage asbestos in active facilities when it poses a threat of release of friable ACM.

Closure Baseline. An analysis will be conducted to determine the cost effectiveness of removing ACM versus devaluing the property prior to reuse. ACM will be removed if a building is, or is intended to be, used as a school or child-care facility. Exposed friable asbestos will be removed in accordance with applicable health laws, regulations, and standards, if it is determined by the bioenvironmental engineer that a health hazard exists. The Air Force policy on the management of asbestos at the bases that are closing can be found in Appendix K.

3.3.6 Pesticides and Herbicides

Regulations. The federal regulations that control the use of pesticides and herbicides are promulgated pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Pesticide management activities are regulated by federal regulations contained in 40 CFR 162, 165, 166 , 170, and 171. The state of California implements the federal regulations in the California Code of Regulations Title 3 Chapter 4.

Preclosure Reference. Pesticide management activities at Mather AFB are the responsibility of the entomology shop. Management activities are performed by the entomology shop, golf course maintenance, and the pavement and grounds staff. A new Air Force computer program has been installed to track the inventory, training requirements for the staff involved in these activities, Material Safety Data Sheets (MSDSs) for the chemicals, and the quarterly reporting requirements needed to comply with U.S. Air Force regulations. Pesticides and herbicides are utilized for the following areas of concern:

- Pest control in buildings (ants, roaches, ticks, termites, etc.)
- Golf course with the use of fungicides, herbicides and fertilizers
- Pest control on the base turf and on ornamental vegetation
- Rodent control
- Base housing self-help program
- Herbicide application on the grounds including the flight lines and operational areas.

Pesticides are mixed in Building 3474 and outdoors at the golf course. The location of these materials is included in Table 3.3-7.

Table 3.3-7. Pesticide/Fertilizer Storage Locations at Mather Air Force Base

Building	Description	Materials in Storage
3472	Entomology Shop Controls	Solutions for mixing with pesticides
3473	Entomology Shop Controls	Herbicides
3474	Entomology Shop	Insecticides, rodenticides
8868	Golf Course	Dry form fungicides, herbicides & insecticides
8870	Golf Course	Fertilizer, herbicides, small concentrations of insecticides and fungicides

Closure Baseline. At the time of closure, use of pesticides, herbicides, fungicides, fertilizers, insecticides, and rodenticides will continue on the golf course and other base areas/facilities as required for pest control. The management of these materials will become the responsibility of the DMT.

3.3.7 Polychlorinated Biphenyls

Commercial PCBs are industrial compounds produced by chlorination of biphenyls. PCBs persist in the environment, accumulate in organisms, and concentrate in the food chain. PCBs are used in electrical equipment, primarily in capacitors and transformers, because they are electrically nonconductive and stable at high temperatures.

Regulations. The disposal of these compounds is regulated under the federal TSCA, which banned the manufacture and distribution of PCBs with the exception of PCBs used in enclosed systems. By definition, PCB equipment contains 500 ppm PCBs or more, PCB-contaminated equipment contains PCB concentrations greater than 50 ppm but less than 500 ppm, and PCB items contain from 5 to 49 ppm PCBs. EPA regulates the removal and disposal of all sources of PCBs containing 50 ppm or more; the regulations are more stringent for PCB equipment than for PCB-contaminated equipment.

California regulations under Title 22, Chapter 30 of the CCRs are more stringent than the federal TSCA regulations. Additional state regulations are found in the California Health and Safety Code, Chapter 6.5. Within California, fluids containing 5 ppm PCBs or more are regulated as a hazardous waste.

Preclosure Reference. The management of PCBs is under the direction of the Base Environmental Manager. A PCB survey was conducted during November and December 1989. The active inventory of equipment with any concentration of PCBs identified 657 devices including transformers and capacitors. During April 1991, all of the capacitors and the 19 transformers that were identified as PCB-equipment were removed and disposed in accordance with state and federal regulations. The remaining 87 PCB-contaminated transformers have been retrofilled. Currently, 15 Air Force owned PCB items remain on base,

however, each PCB item will be retrofilled to levels below state requirements by August, 1992. Additionally, PG&E owns and operates 86 transformers, which may contain PCBs.

Closure Baseline. There will be no Air Force owned PCB or PCB-contaminated equipment at closure. PG&E will retain responsibility for management of their equipment.

3.3.8 Radon

Radon is a naturally occurring, colorless and odorless, radioactive gas that occurs as a product of the radioactive decay of naturally occurring uranium. Radon can be found in high concentrations in rocks containing uranium, such as granite, shale, phosphate, and pitchblende. Radon in the outside air is diluted to insignificant concentrations. Radon present in surrounding soil may enter a building through small spaces and openings in the foundations and can accumulate in enclosed areas such as basements. The cancer risk from the potential exposure through the inhalation of radon is currently a topic of concern.

Regulations. There are no federal or state standards regulating radon exposure at the present time. U.S. Air Force policy requires implementation of the Air Force Radon Assessment and Mitigation Program (RAMP) to determine levels of radon exposure of military personnel and their dependents. EPA has made testing recommendations for both residential structures and schools. For residential structures, using a 2- to 7-day charcoal canister test, a level between 4 and 20 picocuries per liter (pCi/l) should lead to additional screening within a few years. For levels of 20 to 200 pCi/l, additional confirmation sampling should be accomplished within a few months. If there is an excess of 200 pCi/l, the structure should be immediately evacuated. Schools are to use a 2-day charcoal canister; readings of 4 to 20 pCi/l require a 9-month school year survey. Table 3.3-8 summarizes the recommended radon surveys and action levels.

Preclosure Reference. The RAMP at Mather AFB is managed by the base bioenvironmental engineer. The U.S. Air Force completed a preliminary assessment phase with 35 monitors in FY 1988. This 3-month initial screen resulted in one of the houses having reported a level of 4 pCi/l. The Air Force Policy has established an action level of 4 pCi/l that requires a detailed radon assessment program. As a result of this one borderline residence, a detailed assessment phase was initiated for 1990 with 1,755 radon monitors being place into residences, schools, day care, and hospital wards on the base. Of the 1,755 monitors that were placed, 1,613 were recovered in February 1991. The results from these monitors show 3 of 1,613 samples approaching 4 pCi/l, the recommended action level for remediation within 5 years. Mather AFB will deploy 220 samples in a 1991 survey of 47 administrative buildings not covered by the prior surveys.

Table 3.3-8. Recommended Radon Surveys and Mitigations

Facility	EPA Action Level	Recommendation
Residential	4 to 20 pCi/l	Additional screening. Expose detector for 1 year.
Residential	20 to 200 pCi/l	Perform follow-up measurements. Expose detectors for no more than 3 months.
Residential	Above 200 pCi/l	Follow-up measurements. Expose detectors for no more than one week. Immediately reduce radon levels.
	Two-Day Weekend Measurement	
School	4 to 20 pCi/l	Confirmatory 9-month survey. Alpha track or ion chamber survey.
School	Greater than 20 pCi/l	Diagnostic survey or mitigation.

Note: Congress has set a national goal for indoor radon concentration of the outdoor ambient levels of from 0.2 to 0.7 pCi/l.
Source: U.S. EPA, 1988.

Closure Baseline. The results of the surveys recommend remediation, within 5 years.

3.3.9 Medical/Biohazardous Waste

Regulations. The state of California currently regulates infectious waste through the California Code of Regulations, Title 22, Article 13. Within the state of California, infectious waste is to be managed by one of four options:

- Incineration in a controlled-air multi-chambered incinerator which provides complete combustion of the waste to carbonized or mineralized ash; rendering infectious waste, non-infectious and disposable as non-hazardous waste.
- Burial at a Class I or Class II landfill
- Discharge to sewage systems with an appropriate permit, if the waste is liquid or semi-liquid
- Sterilization by heating in a steam sterilizer or other sterilization technique approved by the DHS, so it is no longer infectious.

Preclosure Reference. Mather AFB operates a 105 bed hospital at approximately 50-percent capacity. Infectious wastes are double bagged in red plastic bags that are marked as infectious waste. Infectious wastes are generated in the hospital, veterinarian clinic and dental facility. These wastes are then hauled by a DHS licensed hazardous waste hauler to a permitted infectious waste incinerator.

The base hospital does not utilize chemotherapeutic drugs nor is there treatment with radioactive medicines. All silver waste generated on Mather AFB

is processed through silver recovery units (Table 3.3-9) prior to discharge to the local publicly-owned treatment works (POTW) under a discharge permit. The permit was issued in September 1986 and is still in effect. However, the exact expiration date is unknown pending permitting program decisions by Sacramento County. Out-of-date pharmaceuticals are discharged to the POTW under the same sewer permit.

Table 3.3-9. Silver Recovery Locations at Mather Air Force Base

Location	Description	Number of Units
4260	Non-Destruction Inspection	One
650	Hospital, X-ray	Two
650	Dental Facility	One
2890	Base Photographic Shop	One

Closure Baseline. The hospital will continue to operate as an annex to McClellan AFB. Quantities or types of waste generated would be similar to preclosure conditions. All of the infectious and biohazardous waste will be managed, removed, and properly disposed of in accordance with the appropriate federal, state, and local regulations.

3.4 NATURAL ENVIRONMENT

This section describes the affected environment for the following natural resources: soils and geology, water resources, air quality, noise, biological resources, and cultural resources.

3.4.1 Soils and Geology

The ROI for soils and geologic landforms is localized and limited to Mather AFB. For mineral resources, the ROI includes the regional market for sand and gravel resources.

3.4.1.1 Soils. Soils at Mather AFB consist predominantly of gravelly loam and loam developed on undulating valley and stream terrace deposits from the ancestral American River (U.S. Department of Agriculture [USDA], 1954). Soils are generally well developed, moderately to strongly weathered and contain varying amounts of gravel throughout. The soils in general contain varying amounts of clay, with an increase in clay content with depth. These soils are underlain by coarse gravel, and gravel and cobble sediments to depths exceeding 20 feet in most cases. These underlying deposits are known to contain economic deposits of gold.

Near the southwestern edge of the base, the soils are predominantly loams. They have developed on transported mixed rock of the Riverbank and Laguna formations. These soils have strongly developed profiles with clay subsoils and rest on indurated hardpan layers that range from very thin plates to layers 6 to 8 inches thick. The hardpan occurs at depths of 10 to 40 inches below the

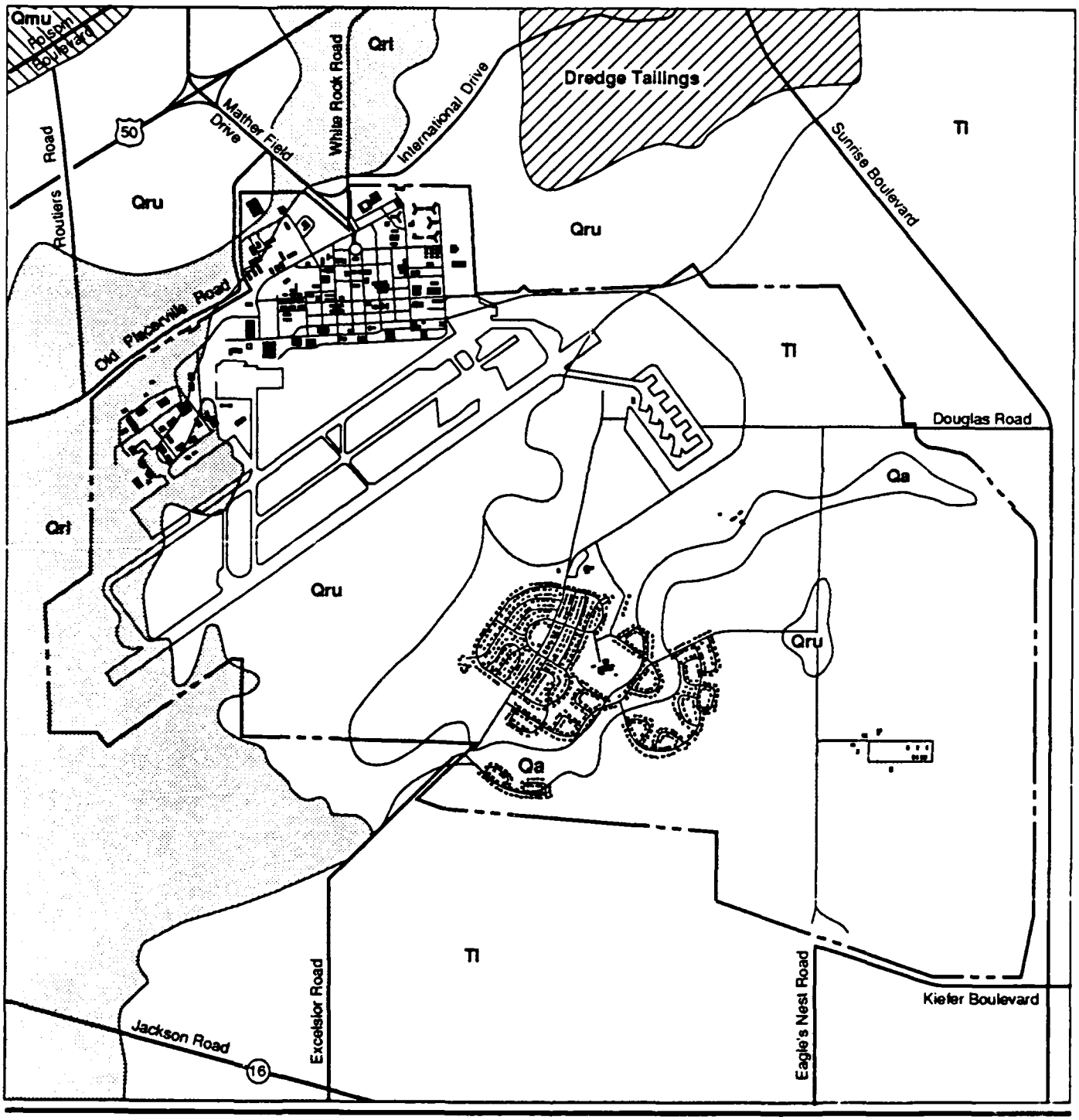
surface but averages about 24 inches (USDA, 1991). This ha ɹ. durated zone contains large amounts of manganese and lime. The hardpans are cemented by materials leached from the soil profile and precipitated on the top of an underlying, somewhat consolidated substratum or in cracks near the surface. In excessively wet years, these impervious hardpans cause water to stand in small ponds. These small pools are called vernal pools and are discussed under Water Resources (Section 3.4.2) and Biological Resources (3.4.5).

The soils in the central and eastern portion of the base generally have moderate to very slow permeability and medium to slow runoff characteristics. Because of the high gravel content the erosion potential for these soils is slight. Soils in the western portion of the base also have slow to moderate permeability and slow to medium runoff potential. The erosion potential for the loamy soils is considered negligible (USDA, 1991).

3.4.1.2 Physiography and Geology. Mather AFB is located in the northeastern section of the Great Valley Geomorphic Province of central California. The topography at Mather AFB (Figure 3.2-2) is characteristic of a relatively flat alluvial plain that has been dissected by tributaries of the Sacramento and American Rivers. The alluvial plain at Mather AFB slopes gently to the southwest toward the Sacramento-San Joaquin River delta that links the drainage of the Great Valley with the San Francisco Bay. Immediately east of the base, rolling foothills provide the transitional topography between the Great Valley and Sierra Nevada Physiographic provinces. Elevations on the base range from a high of approximately 160 feet above MSL on the east-northeastern corner of the base to a low of about 70 feet above MSL on the southwestern end of the runway.

From a regional perspective, the Great Valley is a deep structural trough bounded on the east and west by steep mountain ranges and filled with Cretaceous, Tertiary, and Quaternary age sedimentary rocks. The sedimentary deposits underlying the valley floor consist of older consolidated sedimentary rocks and younger unconsolidated Quaternary age sediments (Helley and Harwood, 1985). The valley fill was first deposited under marine conditions and later under continental type conditions. The continental deposits are a result of erosion of the Sierra Nevada Mountains to the east. The older Cretaceous and Tertiary sediments are exposed only in the foothills of the Sierra Nevada Mountains. These formations dip to the west, toward the center of the valley. Progressively, younger sediments are encountered at the surface westward from the foothills, including older Quaternary age gravelly alluvium and younger age floodplain deposits of sand, silt, and clay adjacent to the American and Sacramento rivers (U.S. Air Force, 1990j).

At Mather AFB, three geologic formations are important: the Mehrten Formation, the Laguna Formation, and the Pleistocene age gravels. The Mehrten Formation beneath Mather AFB extends to a depth of 450 to 700 feet below ground surface and serves as a source of groundwater for the base. The Laguna Formation (Figure 3.4-1) overlies the Mehrten Formation and extends to



EXPLANATION Source: Helley and Harwood, 1985

- Qa Holocene Alluvium
- Qmu Upper Member Modesto
- Qru Upper Member Riverbank Formation
- Qrl Lower Member Riverbank Formation
- Tl Laguna Formation

Surface Geology

0 800 1600 3200 Feet

Figure 3.4-1

a depth of about 200 to 300 feet below ground surface. This unit serves as a principal groundwater aquifer. Pleistocene age gravels overlie the Laguna Formation and are exposed in the central and western portion of the base. These deposits contain significant quantities of high-grade concrete aggregate and possibly placer gold.

The Mehrten Formation consists of Pliocene age volcanic-derived rocks including beds of black sand, brown clay and brown sand with layers of volcanic tuff breccia (mudflow deposits) with thicknesses varying from 180 to almost 1,100 feet. The volcanic sands yield large quantities of water to wells throughout the Sacramento Valley and are an important source of water in the southeastern section of the Sacramento Valley.

The Laguna Formation consists of nonvolcanic, tan to red-brown terrigenous (continental) sediments. These sediments are a heterogeneous assemblage of beds of sand, silt, and clay, with lenticular gravel layers occurring as buried stream channels trending to the southwest. These sediments are typically unconsolidated. The degree of sorting within this unit is highly variable, ranging from clean, well-sorted sands to poorly sorted, silty gravels. The thickness of this unit is approximately 3,000 to 9,000 feet near the center of the valley. Sand layers yield moderate amounts of water to wells; however, deep wells are required for large yields.

The Pleistocene age gravels, including the Modesto and Riverbank formations, and the Arroyo Seco and South Fork gravels, occur as relatively thin gravelly terrace deposits capping the Laguna Formation. They occur in a northeast to southwest trending swath through the base, roughly parallel to the American River. These gravels consist of discontinuous beds and lenses of stream-deposited detritus, including well-rounded gravel, pebbles, and cobbles in a matrix of iron-cemented sandy clay. Hardpans occur in surface soils.

The Riverbank Formation is derived primarily from reworked sediments of the Laguna Formation and consists of interbedded sand, silt, and clay with lenses of stream-channel gravels (U.S. Air Force, 1990j). This formation is characterized by the presence of many intricately braided stream channels, resulting in highly variable grain size distribution and a general lack of continuity. At the base, this unit consists of sand, silt, and clay with a hardpan layer in the surface soil. Minor sand and gravel occurs in buried stream channels. This deposit generally yields little water except where old stream channels are present. Thickness is approximately 90 feet.

Mineral Resources. Mineral resources in the region of Mather AFB include sand and gravel resources from the Pleistocene age gravels deposited from the recent and ancestral American River. Construction aggregates (sand and gravel) are one of the most important basic commodities to any community. Sacramento County faces a severe shortage of high quality deposits of construction aggregate because local deposits are becoming depleted or pre-empted from mining by competing land uses. Historically, consumption of

high-quality aggregate has averaged 10.2 tons per person per year in the ROI (California Department of Conservation, Division of Mines and Geology [CDMG], 1988). Based on this rate of consumption CDMG estimates that reserves of high quality aggregate will be depleted sometime between 1999 and 2009. Preliminary studies by CDMG (1988) and A. Teichert and Son, inc. and Granite Construction Company (1990) indicate that substantial quantities of aggregate suitable for Portland cement concrete (PCC) exist under the majority of the base, particularly in the area around the runway.

Several sand and gravel operations located adjacent to the base have been extracting sand and gravel from these same source deposits for several years. Included with these gravel resources are substantial quantities of gold. North and northeast of the base are gold dredge tailings, evidence of previous attempts at extracting the placer gold from the ancient river deposits. These dredge tailings are evidence of the gold mining activity that existed in the area from the late 1870s to 1962 (CDMG, 1988).

Seismicity. Mather AFB does not lie on any active fault nor does it lie within any zone identified by CDMG as falling within the Alquist-Priolo Special Study Zones (areas considered to have a high potential for seismic activity). Mather AFB does lie within Seismic Zone 3 as defined by the Uniform Building Code and the area is considered to be susceptible to ground shaking from earthquakes generated along nearby faults.

The conforming guidelines followed by Sacramento County do not go beyond those of the Uniform Building Code (UBC). Upgrades to meet current Seismic Codes are required only for major additions or alterations and do not extend to the existing building, as long as the addition or alteration does not cause the existing building or structure to be in violation of any of the provisions of the UBC. In addition, buildings in existence at the time of the adoption of the UBC may continue their existing use or occupancy, if such use or occupancy was legal at the time of the adoption of the UBC.

3.4.2 Water Resources

The ROI for surface water resources is localized and limited to the base. For groundwater resources, the ROI extends beyond the base property to include the hydrologic conditions for water supply districts adjacent to Mather AFB.

3.4.2.1 Surface Water. The American and Sacramento Rivers are the two primary rivers in the region. The American River lies just north of the base and is one of several major rivers that drain the Sierra Nevada Mountains westward to the Pacific Ocean. Morrison Creek is the only prominent natural drainage on base (see Figure 3.2-2). Morrison Creek is a tributary of the Sacramento River that traverses the base from northeast to southwest. It has been dammed in the northeastern corner of the base to form Mather Lake. Mather Lake is a recreational lake fed by runoff through an aqueduct. During the summer months, Mather Lake is fed by water from Folsom Canal to maintain a relatively stable water level.

Natural drainage patterns have been altered by construction of the airfield and numerous buildings on base. In addition, the eastern boundary of the base is bordered by the Folsom Canal, an artificial concrete-lined aqueduct which transports water from the Nimbus Dam to the Rancho Seco power plant. In general, surface flow is to the southwest, parallel to the Morrison Creek drainage.

It has been recorded by the Soil Conservation Service (USDA, 1954) that ponding can occur on certain soil types in the southeastern portion of the base. Areas within these soil types have been identified as vernal pools in some reports and are considered to be wetlands. A total of approximately 147 acres of base land has been identified as known or probable wetlands, 66 acres are identified as vernal pools (McGuire, Eatough, and Fong, Inc., 1990). Vernal pools are temporary ponds filling with winter and spring rains. The pools are underlain by an impermeable soil layer (either a hardpan or a clay layer). The majority of the areas identified as wetlands occur south of the runway, and east and west of the main on-base housing area. (See Biological Resources, Section 3.4.5, for a discussion of wetland habitat).

Morrison Creek is an intermittent stream and the only major drainage on the base. The intermittent streambed of Morrison Creek and existing drainage canals encompass about 12 acres and are considered wetland habitat (McGuire, Eatough, and Fong, Inc., 1990). Morrison Creek crosses the base south of the runway and primarily south of the main housing area. Surface water at Mather AFB is predominantly of the calcium-magnesium bicarbonate type.

One water supply district, Arden-Cordova, currently has and uses surface water entitlements (from off-base sources) as part of its water supply (Table 3.4-1).

Table 3.4-1. Current Surface Water Entitlements Available in the ROI versus Historical Surface Water Usage[a]

District Name	Usage (af/yr)[c]	Entitlement (af/yr)[c]	Year
Arden-Cordova[b]	1,027	10,000	1985
	1,279	10,000	1986
	1,874	10,000	1987
	320	10,000	1988

Notes: (a) Entitlements figures from SCWAWP (1989); usage numbers from the Southern California Company Arden System Master Design (McDonald, 1989).
(b) Arden-Cordova is the only district in the ROI with existing surface water entitlements.
(c) af/yr = acre-feet per year

3.4.2.2 Groundwater Resources. For the purpose of evaluating groundwater resources, the ROI is considered to be the Mather AFB production water well field and the surrounding water districts that serve the adjacent communities. This is a smaller ROI than was applied to water utilities (Section 3.2.4) since, as

will be shown, the effects of groundwater extraction at the base will be localized to a small region around the site. Mather AFB is located on the eastern edge of the Sacramento Valley Groundwater Basin. A primary source of water to the basin is recharge occurring from direct precipitation and runoff in outcrop areas of the Laguna, Mehrten, and pre-Mehrten Formations in the foothills. Another primary source of water is recharge from the channels of major streams, such as the American River, that are lined with permeable alluvium. The natural direction of groundwater flow is from recharge areas at the edge of the valley (on the east) toward the valley center (west) where natural groundwater discharge would occur into the Sacramento River.

Considerable development of groundwater resources has occurred over the south Sacramento Valley during this century. Groundwater withdrawals in excess of recharge have resulted in a general decline in groundwater levels throughout the valley. This decline can be traced as far back as 1850 with the initial development of the valley. After the mid-1940s the average rate of decline was more than 1 foot per year (U.S. Air Force, 1990j). Significant groundwater withdrawals occur in a band along the eastern bank of the Sacramento River from Roseville, south, to Lodi and in a major agricultural pumping center near Elk Grove, south-southwest of Mather AFB. The agricultural pumping center has greatly changed groundwater levels beneath the base. Comparison of 1980 groundwater contours with the 1912 contours indicates that there had been a decline of the water levels of approximately 50 feet since 1912 and that the primary direction of groundwater flow has shifted somewhat from southwesterly to south-southwesterly (U.S. Air Force, 1990j). In addition, the slope of the water table indicates that substantial recharge now takes place through the channel of the American River, which has become a losing stream, feeding the underlying aquifers north and south of the river channel.

Water for the base is supplied from numerous on-base wells. Several distinct hydrogeological units can be distinguished in the subsurface beneath Mather AFB. The base of fresh groundwater at Mather occurs below the Mehrten Formation at a depth of approximately 1,100 to 1,400 feet below ground surface. However, due to the relatively low productivity in this zone, the base of the Mehrten Formation (varying from 450 feet below ground surface on the eastern boundary of the base to 700 feet below ground surface on the western base boundary) is generally taken as the bottom of the useable freshwater-bearing stratigraphic section in this area of the Sacramento Valley.

In the area of Mather AFB, municipal and other large water supply wells generally produce from depths of 200 to 550 feet below ground surface drawing from the Mehrten and Laguna Formations. Current groundwater production for local districts is shown in Table 3.4-2. Groundwater pumpage within these districts has been increasing since their inception, and is projected to continue to increase until a means of distributing the available surface water supplies to users has been established (Sacramento County Water Plan [SCWAWP], 1989).

Table 3.4-2. Groundwater Withdrawals in the Base Vicinity without Reuse of Mather AFB

District Name	Withdrawals (af/yr)	Comments
Arden Cordova	10,105	4 year average
Mather AFB	2,484	5 year average
Sacramento County Water Management District	565	5 year average
Citizen's Suburban	12,766	4 year average
Citizen's Security Park	110	4 year average
Citizen's Rosemont	3,910	4 year average
Total	29,940	4 year average

Although the SCWAWP indicates that the county intends to decrease groundwater pumpage in the next decade, the projections for this study assume the scenario whereby the total water demand remains the same in the vicinity of Mather AFB, but excludes the base, and is met by current groundwater pumpage.

Groundwater Quality. Groundwater from the fresh water column in the vicinity of Mather AFB was analyzed for a set of inorganic parameters by the California Department of Water Resources (CDWR) and has been characterized as calcium-sodium bicarbonate and calcium-magnesium bicarbonate water. Calcium-sodium bicarbonate water is considered typical of shallow wells finished in the Plio-Pleistocene Laguna Formation. Calcium-magnesium bicarbonate water is produced from wells screened in both the Laguna and underlying Mehrten Formations. Based on mineral constituents, the quality of groundwater in the area is characterized by CDWR as excellent. The CDWR analysis of 203 water-well samples indicate that total dissolved solids (TDS) ranged from 173 to 405 ppm, averaging 178 ppm, and that total hardness ranged from 23 to 288 ppm, averaging 95 ppm.

In the summer of 1983, Mather AFB analyzed all 10 base supply wells currently used for drinking water and found that the TDS ranged from 105 to 196 ppm, all within the range found by CDWR. The only parameters exceeding Federal Drinking Water Standards were iron, which exceeded 0.300 milligrams per liter (mg/l) in Main Base well B-1 and in three of the family housing wells, and manganese which exceeded the 0.050 mg/l limit in the K-9 well and all of the family housing wells, ranging from 0.107 to 0.361 mg/l. Treatment systems in the housing area reduced both parameters below the Federal Drinking Water Standards in the finished water. Every quarter, Mather's drinking water is analyzed for 29 compounds, including contaminants which have been detected elsewhere on base (see Section 3.3.3). To date, all drinking water testing results have been below laboratory detection limits, which are well below state action

levels (Raymond Vail and Associates, 1987). All samples are analyzed by a local state-certified laboratory.

In 1981, sampling and analysis by the California Regional Water Quality Control Board (CRWQCB) confirmed TCE-contaminated groundwater above state drinking water standards in several private wells immediately west of Mather AFB along Happy Lane (IRP Site 15, see Section 3.3.3). Since 1981, the CRWQCB has intermittently sampled wells in this area to monitor contaminant migration. Results from this effort identified several shallow domestic wells with TCE-contamination above state drinking water standards. The Air Force connected these individuals to the public water system. The source of the contaminant has not yet been identified. This site is discussed as IRP Site 15 in Section 3.3.3.

3.4.3 Air Quality

Air quality in a given location is described by the concentration of various pollutants in the atmosphere, which are generally expressed in ppm or micrograms per cubic meter ($\mu g/m^3$). Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The significance of a pollutant concentration is determined by comparing it to federal and/or state ambient air quality standards. These standards represent the maximum allowable atmospheric concentrations of various pollutants that may occur and still protect public health and welfare, with a reasonable margin of safety. The federal standards are established by U.S. EPA and termed the National Ambient Air Quality Standards (NAAQS). The state standards are established by the California Air Resources Board (ARB) and are termed the California Ambient Air Quality Standards (CAAQS). The NAAQS and CAAQS are presented in Table 3.4-3.

The main pollutants considered in this EIS are ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_x), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter less than 10 microns in diameter (PM_{10}). NO_x, which includes all oxide species of nitrogen, is considered in the air quality analysis in terms of its potential contribution to ozone formation. Only that portion of total NO_x which is measurable as the species NO_2 is subject to the NAAQS and CAAQS.

The existing air quality of the affected environment is defined by air quality data and emissions information. Air quality data are obtained by examining air quality monitoring records from monitoring stations maintained by the Sacramento Metropolitan Air Quality Management District (SMAQMD) and the ARB. Information on pollutant concentrations measured for short (24 hours or less) and long-term (annual) averaging periods is extracted from the monitoring station data to characterize the existing air quality background of the area. Emission inventory information for the affected environment is obtained from the ARB and from Mather AFB. Inventory data are separated by pollutant and

Table 3.4-3. National anc California Ambient Air Quality Standards

Pollutants	Averaging Time	California Standards[a,c]	National Standards[b] Primary[c,d]	National Standards[b] Secondary[c,e]
Ozone	1-hour	0.09 ppm ($180\ \mu g/m^3$)	0.12 ppm ($235\ \mu g/m^3$)	Same as primary standard
Carbon monoxide	8-hour	9 ppm ($10\ mg/m^3$)	9 ppm ($10\ mg/m^3$)	–
	1-hour	20 ppm ($23\ mg/m^3$)	35 ppm ($40\ mg/m^3$)	–
Nitrogen dioxide	Annual average	–	0.053 ppm ($100\ \mu g/m^3$)	Same as primary standard
	1-hour	0.25 ppm[f] ($470\ \mu g/m^3$)	–	–
Sulfur dioxide	Annual average	–	$80\ \mu g/m^3$ (0.03 ppm)	–
	24-hour	0.05 ppm[f] ($131\ \mu g/m^3$)	$365\ \mu g/m^3$ (0.14 ppm)	–
	3-hour	–	–	$1,300\ \mu g/m^3$ (0.5 ppm)
	1-hour	0.25 ppm ($655\ \mu g/m^3$)	–	–
PM10	Annual	$30\ \mu g/m^3$[g]	$50\ \mu g/m^3$[h]	Same as primary standard
	24-hour	$50\ \mu g/m^3$	$150\ \mu g/m^3$	
Sulfates	24-hour	$25\ \mu g/m^3$	–	–
Lead	30-day	$1.5\ \mu g/m^3$	–	–
	Quarterly	–	$1.5\ \mu g/m^3$	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm ($42\ \mu g/m^3$)	–	–
Vinyl chloride	24-hour	0.010 ppm ($26\ \mu g/m^3$)	–	–
Visibility[i]	8-hour (10 am to 6 pm, PST)	In sufficient amount to produce an extinction coefficient of 0.23 per km due to particles when the relative humidity is less than 70%. ARB Method V.	–	–

Notes:

(a) California standards for ozone, carbon monoxide, sulfur dioxide (1 hour), nitrogen dioxide, and particulate matter - PM 10 are values that are not to be exceeded. The sulfates, lead, hydrogen sulfide, vinyl chloride, and visibility reducing particles standards are not to be equaled or exceeded.

(b) National standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calender year, with maximum hourly average concentrations above the standard, is equal to or less than 1.

(c) Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based on a reference temperature of 25° C and a reference pressure of 760 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25° C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

(d) National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the EPA.

(e) National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.

(f) At locations where the state standards for ozone and/or suspended particulate matter are violated. National standards apply elsewhere.

(g) Calculated as geometric mean.

(h) Calculated as arithmetic mean.

(i) This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range when relative humidity is less than 70 percent.

reported in tons per year or tons per day to describe the baseline conditions of pollutant emissions in the area.

Identifying the ROI for an air quality assessment requires knowledge of the pollutant types, source emission rates and release parameters, the proximity relationships of project emission sources to other emission sources, and local and regional meteorological conditions. For inert pollutants (all pollutants other than ozone and its precursors), the ROI is generally limited to an area within a few miles downwind from a source.

The ROI for ozone may extend much farther downwind than the ROI for inert pollutants. Ozone is a secondary pollutant formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors. Ozone precursors are mainly reactive organic gases (ROG) and NO_x. In the presence of solar radiation, the maximum effect of precursor emissions on ozone levels usually occurs several hours after they are emitted and, in many cases, miles from the source. Ozone and its precursors transported from other regions can also combine with local emissions to produce high local ozone concentrations. Ozone concentrations are generally the highest during the summer months and coincide with the period of maximum insolation. Maximum ozone concentrations tend to be regionally distributed, because the precursor emissions are homogeneously dispersed in the atmosphere.

For the purpose of air quality analysis, the ROI for emissions of ozone precursors from the project's construction and operational activities will be the existing airshed surrounding Mather AFB. This airshed is the Sacramento Valley Air Basin (SVAB). The SVAB includes Shasta, Tehama, Glenn, Butte, Colusa, Sutter, Yuba, Yolo, and Sacramento Counties, as well as portions of Placer and Solano Counties. Project emissions of ROG and NO_x are compared to emissions generated within the SVAB. The ROI for emissions of inert pollutants (CO, SO_2, and PM_{10}) is limited to the more immediate area of Mather AFB. Project-related emissions of inert pollutants are, therefore, compared to emissions from the Sacramento County portion of the SVAB as a means of assessing potential changes in air quality.

Regulations. The Federal Clean Air Act, as amended in August 1977 and November 1990, dictates that project emission sources must comply with the air quality standards and regulations that have been established by federal, state and county regulatory agencies. These standards and regulations focus on (1) the maximum allowable ambient pollutant concentrations resulting from project emissions, both separately and combined with other surrounding sources, and (2) the maximum allowable emissions from the project. A summary of relevant air quality regulations is provided in Table 1.7-1.

3.4.3.1 Regional Air Quality. According to EPA guidelines, an area with air quality better than the NAAQS is designated as being in attainment; areas with worse air quality are classified as nonattainment areas. A nonattainment designation is given to a region if the primary NAAQS for any criteria pollutant is

exceeded at any point in the region for more than 3 days, during a 3-year period. Pollutants in an area may be designated as unclassified when there is a lack of data for EPA to form a basis of attainment status. The ARB also designates areas of the state as either in attainment or nonattainment of the CAAQS. An area is in nonattainment for a pollutant if the CAAQS has been exceeded more than once in 3 years. Sacramento County is (1) in non-attainment of the federal and state standards for O_3 and CO, and the state standards for PM_{10}; (2) in attainment of the federal and state standards for NO_2 and the state standards for SO_2; and (3) unclassified for the federal PM_{10} and SO_2 standards (ARB, 1991a).

Preclosure Reference. The SMAQMD currently operates air quality monitoring stations throughout Sacramento County. Stations located in the vicinity of Mather AFB include Del Paso Manor, El Camino/Watt, and Branch Center. Del Paso monitors levels of CO, O_3, NO_x, SO_2, and PM_{10}. El Camino monitors CO and lead. Branch Center monitors PM_{10}. During the time period 1988-1990, the NAAQS and CAAQS for CO were exceeded less than 2 percent of the time for the 8-hour averaging period, whereas standards for the 1-hour averaging period were not exceeded. The NAAQS for O_3 was exceeded less than 1 percent of the time at the Del Paso station, but the more stringent CAAQS was exceeded up to 2.5 percent of the time (refer to Table 3.4-4). Requirements for the state 24-hour standards for PM_{10} were exceeded in each of the years 1988 to 1990 at the Branch Center monitoring station, whereas the annual standard was exceeded only in 1988 and 1989. The annual NAAQS for PM_{10} were not exceeded during the 3-year time period, and the 24-hour NAAQS was exceeded only in 1990.

The main sources of air pollutants in the area of Mather AFB are mining (particulates) and motor vehicles (hydrocarbons, NO_x, and CO). However, additional air quality problems can be associated with pollutant transport from sources located outside the area. Because Sacramento County is located near the San Joaquin Valley and San Francisco Bay Area Air basins, air quality in and around Mather AFB is at times affected by transport from these areas (ARB, 1989b). Because of the time lag between pollutant release and ozone formation, ozone concentrations tend to have greater regional significance than other pollutants and its impact can be detected many miles from the source of emissions. In 1988, the Del Paso air-quality monitoring station, located about six miles northwest of Mather AFB, recorded 220 hours on 63 days when the O_3 NAAQS were exceeded. Some of these exceedances may have been influenced by transport from the San Joaquin Valley or San Francisco Bay Area Air Basins.

Closure Baseline. It can be reasonably assumed that pollutant concentrations after base closure would be similar to, or somewhat less than, concentrations experienced under preclosure conditions. The basis for this assumption is that numerous emission sources that contribute to the background air quality would be eliminated or reduced by closure of the base (e.g., aircraft operations and

Table 3.4-4. Existing Air Quality in Area of Mather AFB

Pollutant	Monitoring Station	Averaging Period	Limiting Standard[a]	Number of Times Federal Standard Exceeded			Number of Times California Standard Exceeded			Maximum Concentration		
				1988	1989	1990	1988	1989	1990	1988	1989	1990
Carbon Monoxide (ppm)	Del Paso	8-hour	9	1	13	4	1	13	4	9.7	13.0	11.3
	El Camino			7	20	16	7	20	16	11.6	15.9	14.0
	Del Paso	1-hour	20	0	0	0	0	0	0	12.0	15.0	12.0
	El Camino			0	0	0	0	0	0	15.0	18.0	15.0
Nitrogen Dioxide (ppm)	Del Paso	Annual	0.053	0	0	0	NA	NA	NA	0.18[b]	0.021[b]	0.017
	Del Paso	1-hour	0.25	NA	NA	NA	0	0	0	0.10[b]	0.13[b]	0.09
Ozone (ppm)	Del Paso	1-hour	0.09	45	0	6	220	16	65	0.13	0.12	0.15
Sulfur Dioxide (ppm)	Del Paso	Annual	0.03	0	0	0	NA	NA	NA	0.001	0.002[b]	0.001
	Del Paso	24-hour	0.05	0	0	0	0	0	0	0.013	0.012[b]	0.014
	Del Paso	1-hour	0.25	NA	NA	NA	0	0	0	0.05	0.04[b]	0.04
PM_{10} ($\mu g/m^3$)	Del Paso	Annual	30	NA	NA	NA	1	1	0	30.3[b]	33.2[b]	28.6
	Branch Cnt.	(geometric)		NA	NA	NA	ND	1	0	ND	36.5	29.9[b]
	Del Paso	Annual	50	0	0	0	NA	NA	NA	36.3[b]	40.3[b]	37.6
	Branch Cnt.	(arithemetic)		ND	0	0	NA	NA	NA	ND	42.5	35.3[b]
	Del Paso	24-hour	50	0	0	1	14	12	13	127	142	187
	Branch Cnt.			ND	0	0	ND	15	10	ND	120	113
Lead ($\mu g/m^3$)	El Camino	Cal.qtr.	1.5	0	0	0	NA	NA	NA	0.09	0.08	0.07[b]
	El Camino	30-day	1.5	NA	NA	NA	0	0	0	0.14	0.10	0.07

Notes: NA = Not applicable
ND = No data
(a) Limiting standard is the more stringent of the NAAQS and CAAQS, as shown in Table 3.4-3.
(b) Data presented are valid, but incomplete in that an insufficient number of valid data points were collected to meet EPA and/or ARB criteria for representatives.

Sources: ARB, 1989a, 1990, 1991b.

aerospace ground equipment). The base closure would also reduce the number of motor vehicles operating in the surrounding area.

3.4.3.2 Air Pollutant Emission Sources

Preclosure Reference. The most recent emission inventories for Mather AFB, Sacramento County, and the SVAB are presented in Table 3.4-5. The emission inventory for Mather AFB is representative of year 1987 preclosure conditions. The inventories for the SVAB and the Sacramento County portion of the SVAB represent 1989 data. The primary emission sources at the base include motor vehicles, aerospace ground equipment, and aircraft flying operations. Surface coatings and fuel evaporation contribute greatly to the total hydrocarbon emissions. In addition, aircraft ground operations, fire training operations, and heating/power production add a small portion to the total inventory.

Table 3.4-5. Preclosure Emission Inventory

Pollutant	Annual Sacramento County Emissions[a] (tons)	Annual Sacramento Valley Air Basin Emissions(b) (tons)	Mather AFB[c] Annual Emissions (tons)	Mather AFB[c] Percent of Sacramento Co. Annual Emissions	Mather AFB[c] Percent of Sacramento Valley Air Basin Annual Emissions
NO_x	32,120	98,550	428	1.3	0.4
ROG	36,500	102,200	1,058	2.9	1.0
PM_{10}	47,450	175,200	48	0.1	0.03
CO	175,200	547,500	2,060	1.2	0.4
SO_2	2,847	8,760	28	1.0	0.3

Notes: (a) Emissions Inventory 1989 (ARB, 1991c).
(b) Final EIS for the Closure of Mather AFB (U.S. Air Force, 1990g).

Closure Baseline. The emission inventory for Mather AFB at closure can be estimated by assuming that emissions other than those associated with aircraft, aerospace ground equipment, fire fighting, and heating/power generation are proportional to the change in on-base population. The ratio of the preclosure base population (including military personnel, military dependents, and civilian employees) to the base population at closure is applied to estimate future emissions. Closure baseline emissions are presented in Table 3.4-6.

The year 1994 emissions for Sacramento County shown in Table 3.4-6 are based on projections contained in the 1991 Air Quality Attainment Plan (AQAP) for the county (SMAQMD, 1991a) and the Trends Report Emissions Inventory for the SVAB (SMAQMD, 1989). The baseline emissions for the SVAB in 1994 are assumed to remain approximately the same at the time of closure as shown previously for 1989 (see Table 3.4-5). An alternative to this assumption would be to assume that the basin emissions change proportionally to the Sacramento County emissions. In this case, the basin emissions of NO_x, and SO_2 would be less than what is shown in Table 3.4-6 and the ROG and CO emissions would be somewhat greater.

Table 3.4-6. Closure Emission Inventory

Pollutant	Annual Sacramento County Emissions[a] (tons)	Annual Sacramento Valley Air Basin Emissions[b] (tons)	Mather AFB[c] Annual Emissions (tons)	Mather AFB[c] Percent of Sacramento Co. Annual Emissions	Mather AFB[c] Percent of Sacramento Valley Air Basin Annual Emissions
NO_x	29,200	98,550	2.0	<0.01	0.002
ROG	37,230	102,200	4.9	0.01	0.005
PM_{10}	47,450	175,200	0.2	<0.01	<0.001
CO	220,460	547,500	9.6	<0.01	0.002
SO_2	2,740	8,760	0.1	<0.01	0.001

Notes: (a) Emissions based on data in the Sacramento Air Quality Attainment Plan (SMAQMD, 1991a) and the Sacramento Valley Air Basin Trends Report Scenario TND 85CS985, (SMAQMD, 1989).
(b) Emissions Inventory 1989 (ARB, 1991c).
(c) Emissions are based on data from Table 3.4-5 and a year 1994 base closure population of 50 persons.

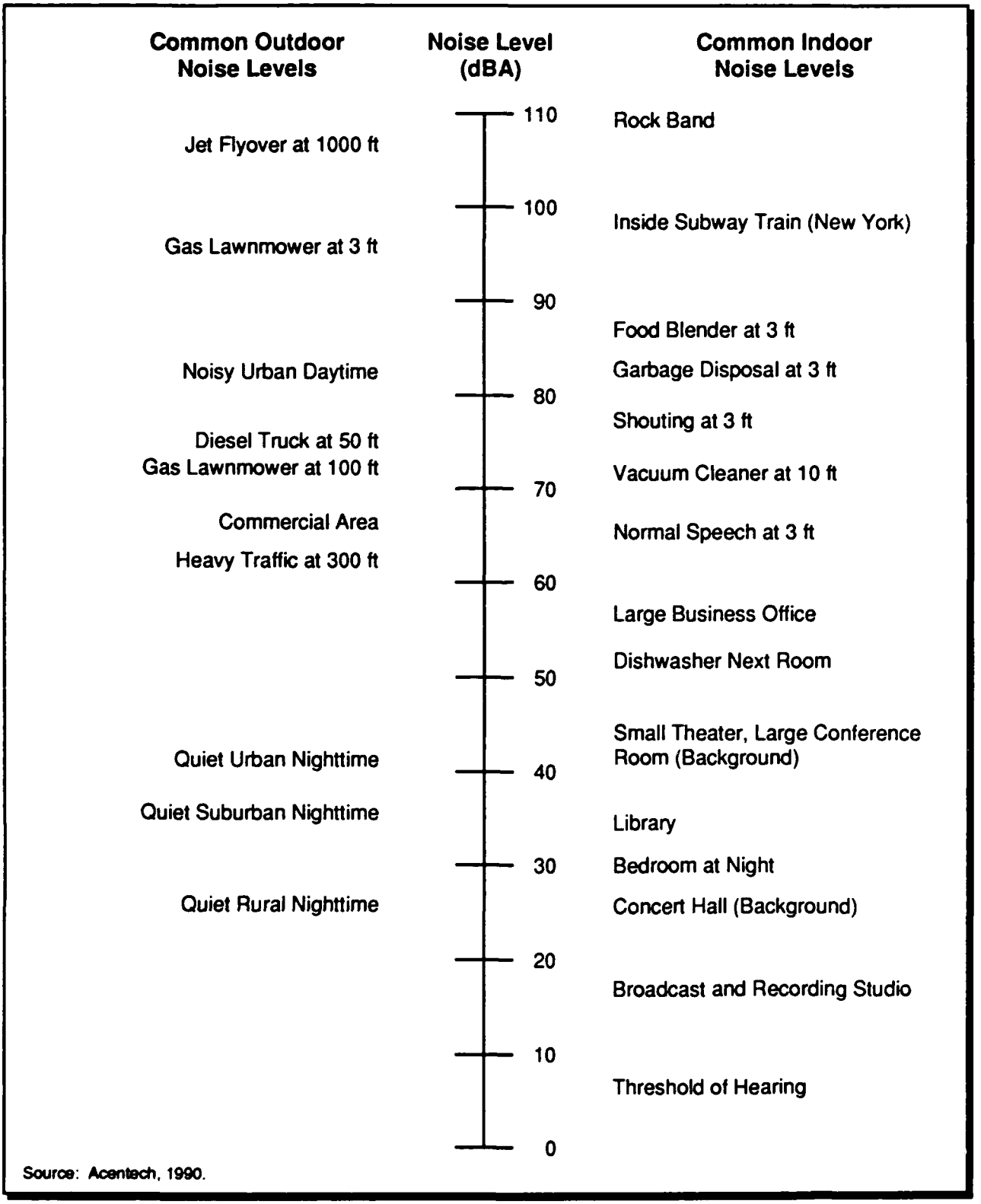
3.4.4 Noise

The ROI for noise sources at Mather AFB is limited to the air base itself and central Sacramento County, California. The noise environment affected by base closure and reuse depends on operational parameters and will be determined by modeling the major noise sources to determine its extent.

The characteristics of sound include parameters such as amplitude, frequency, and duration with an extremely large range of amplitudes. The decibel (dB), a logarithmic unit that accounts for the large variations in amplitude, is the accepted standard unit measurement of sound. Sound also varies with frequency or pitch. When measuring sound to determine its effects on a human population, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. A-weighted sound levels represent the sound level according to a prescribed frequency response established by the American National Standards Institute (ANSI S1.4-1983).

Noise is usually defined as sound that is undesirable because it interferes with speech communication and hearing, it is intense enough to damage hearing, or it is otherwise annoying (unwanted sound). Table 3.4-7 presents examples of typical sound levels. Noise levels often change with time. To compare levels over different time periods, several descriptors were developed that take into account this time-varying nature. These descriptors are used to assess and correlate the various effects of noise on humans and animals, including land use compatibility, sleep interference, annoyance, hearing loss, speech interference, and startle effects. One descriptor used to describe time-varying sound is the Sound Exposure Level (SEL). The SEL value represents the A-weighted sound level integrated over the entire duration of the noise event and referenced to a duration of one second. When an event lasts longer than one second, the SEL value will be higher than the highest sound level during the event.

Table 3.4-7. Typical Sound Levels



Source: Acentech, 1990.

The DNL was developed to evaluate the total community noise environment. The DNL (sometimes abbreviated as Ldn) is the average A-weighted acoustical energy during a 24-hour period with a 10 dB adjustment added to the nighttime levels (between 10 p.m. and 7 a.m.). This adjustment is an effort to account for the increased sensitivity to nighttime noise events. The DNL was developed by the EPA and is mandated by the HUD, FAA, and DOD. The noise descriptors used in this report are the DNL and SEL.

The DNL is an accepted unit for quantifying human annoyance to general environmental noise, which includes aircraft noise. The Federal Interagency Committee on Urban Noise developed land use compatibility guidelines for noise in terms of DNL (U.S. Department of Transportation, 1980). Table 3.4-8 provides FAA-recommended DNL ranges for various land use categories based upon the committee's guidelines.

Appendix L provides additional information about the measurement and prediction of noise. This appendix also provides more information on the units used in describing noise as well as information about the effects of noise, such as annoyance, sleep interference, speech interference, health effects, and effects on animals.

3.4.4.1 Existing Noise Levels. Typical noise sources in and around airfields usually include aircraft, surface traffic, and other human activities. Military aircraft operations and surface traffic on local streets and highways are the existing primary sources of noise in the vicinity of Mather AFB. In airport analyses, areas with DNL above 65 dBA are often considered in land use compatibility planning and impact assessment; therefore, the contours of DNL greater than 65 dBA are of particular interest.

Preclosure Reference. Aircraft noise at Mather AFB occurs during aircraft engine warmup, maintenance and testing, taxiings, takeoffs, approaches, and landings. The preclosure noise contours for aircraft noise at Mather AFB are shown in Figure 3.4-2. These contours were contained in the *Final Environmental Impact Statement* (FEIS) *for the Closure of Mather AFB* and were computed using the USAF's *Noise Exposure Model (NOISEMAP). NOISEMAP* is used by DOD in determining noise exposure resulting from military and civilian aircraft operations and is an FAA-approved model. Input data to the model include information on aircraft types; runway use; runup locations; takeoff and landing flight tracks; aircraft altitude, speeds, and engine power settings; and number of daytime (7 a.m. to 10 p.m.) and nighttime (10 p.m. to 7 a.m.) operations. Only those contours equal to or above DNL 65 are shown. Surface vehicle traffic noise levels for roadways in the vicinity of Mather AFB were analyzed using the Federal Highway Administration (FHWA) Highway Noise Model (*FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108, December 1978*). This model incorporates vehicle mix, traffic volume projections, and speed to generate DNL values. The noise levels are then presented as a function of distance from the centerline of the nearest road. The

Table 3.4-8. Land Use Compatibility Guidelines in Aircraft Noise Exposure Areas

The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under federal, state, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Land Use	DNL 65-70	DNL 70-75	DNL 75 and above
RESIDENTIAL			
Residential, other than mobile homes/transient lodgings	NLR required[a]	NLR required[a]	Incompatible
Mobile home parks	Incompatible	Incompatible	Incompatible
Transient lodgings	NLR required[a]	NLR required[a]	Incompatible
PUBLIC USE			
Schools, hospitals, and nursing homes	NLR required[a]	Incompatible	Incompatible
Churches, auditoriums, and concert halls	NLR required[a]	NLR required	Incompatible
Governmental services	Compatible	NLR required	NLR required
Transportation	Compatible	Compatible[b]	Compatible[b]
Parking	Compatible	Compatible[b]	Compatible[b]
COMMERCIAL USE			
Offices, business and professional	Compatible	NLR required	NLR required
Wholesale and retail - building materials, hardware, and farm equipment	Compatible	Compatible[b]	Compatible[b]
Retail trade - general	Compatible	NLR required	NLR required
Utilities	Compatible	Compatible[b]	Compatible[b]
Communication	Compatible	NLR required[a]	NLR required[a]
MANUFACTURING AND PRODUCTION			
Manufacturing, general	Compatible	Compatible[b]	Compatible[b]
Photographic and optical	Compatible	NLR required	NLR required
Agriculture (except livestock) and forestry	Compatible	Compatible	Compatible
Livestock farming and breeding	Compatible	Compatible	Incompatible
Mining and fishing, resource production and extraction	Compatible	Compatible	Compatible
RECREATIONAL			
Outdoor sports arenas and spectator sports	Compatible	Compatible	Incompatible
Outdoor music shells, amphitheaters	Incompatible	Incompatible	Incompatible
Nature exhibits and zoos	Compatible	Incompatible	Incompatible
Amusements, parks, resorts, and camps	Compatible	Compatible	Incompatible
Golf courses, riding stables, and water recreation	Compatible	Compatible	Incompatible

DNL: Day-night sound level in decibels.

Compatible: Generally, no special noise attenuating materials are required to achieve an interior noise level of DNL 45 in habitable spaces, or the activity (whether indoors or outdoors) would not be subject to a significant adverse effect by the outdoor noise level.

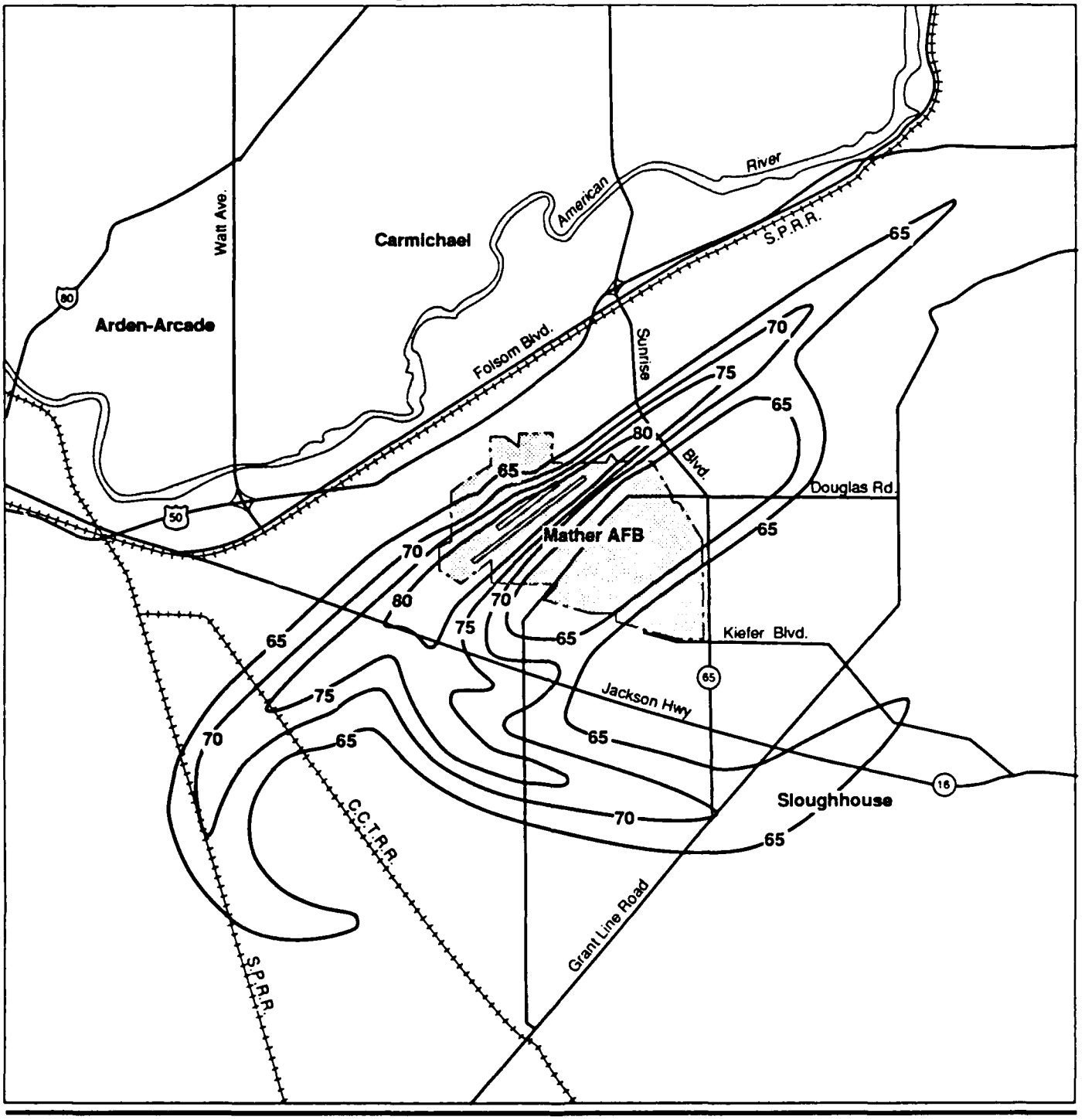
NLR: Noise Level Reduction. NLR is used to denote the total amount of noise transmission loss in decibels required to reduce an exterior noise level in habitable interior spaces to DNL 45. In most places, typical building construction automatically provides an NLR of 20 decibels. Therefore, if a structure is located in an area exposed to aircraft noise of DNL 70, the interior level of noise would be about DNL 45. If the structure is located in an area exposed to aircraft noise of DNL 70, the interior level of noise would be about DNL 50, so an additional NLR of 5 decibels would be required if not afforded by the normal construction. This NLR can be achieved through the use of noise attenuating materials in the construction of the structure.

Incompatible: Generally, the land use, whether in a structure or an outdoor activity, is considered to be incompatible with the outdoor noise exposure, even if special attenuating materials were to be used in the construction of the building.

(a) The land use is generally incompatible and should only be permitted in areas of infill in existing neighborhoods or where the community determines that the use must be allowed.

(b) NLR required in offices or other areas with noise sensitive activities.

Source: Derived from the U.S. Department of Transportation, Federal Aviation Administration, Federal Aviation Regulations (FAR) Part 150, "Airport Noise Compatibility Planning," Code of Federal Regulations, Title 14, Chapter 1, Subchapter 1, Part 150, Table 1, (January 18, 1985, revised October 25, 1989).



EXPLANATION

—65— Contours of Aircraft Noise in dB (DNL)

Preclosure Noise Contours

0 .5 1 2 Miles

Figure 3.4-2

results of the modeling for surface traffic are presented in Table 3.4-9. The actual distances to the DNLs may be less than those presented in Table 3.4-9 because the model does not account for the screening effects of intervening buildings, terrain, and walls. Appendix L contains the data used in the surface traffic analyses. This data includes surface traffic, AADTs, mix, and speed.

Table 3.4-9. Distance to DNL from Roadway Centerline for the Preclosure Reference and Closure Baseline

Roadway	Distance (feet) DNL 65	DNL 70	DNL 75
Preclosure			
Mather Field Drive	210	70	*
Old Placerville Rd. North	90	*	*
Old Placerville Rd. South	170	60	*
Excelsior Rd.	*	*	*
Sunrise Rd. North	110	40	40
Sunrise Rd. South	110	40	*
Closure			
Mather Field Drive	*	*	*
Old Placerville Rd. North	60	*	*
Old Placerville Rd. South	70	40	*
Excelsior Rd.	*	*	*
Sunrise Rd. North	100	40	40
Sunrise Rd. South	100	40	*

*Contained within the roadway.

Closure Baseline. The projected noise levels for the closure baseline were calculated using the traffic projections at base closure (Appendix L). The results of the modeling for the roadways analyzed are presented in Table 3.4-9. Again, the actual distances to the DNLs may be less than those presented in the table because the model does not account for screening effects of intervening buildings, terrain, and walls. At closure, it is assumed that there would be no aircraft operations.

3.4.4.2 Noise-Sensitive Areas. The preclosure ROI for Mather AFB includes noise-sensitive receptors such as residential units, hospitals, classrooms, and parks which are within the DNL 65 dB contour. The results of the modeling indicate that there are approximately 29,200 acres exposed to DNL 65 or greater in the area around Mather AFB. This includes approximately 5,790 residences with approximately 15,600 people. Section 3.2.3, Land Use and Aesthetics, describes land uses on and near the base.

3.4.5 Biological Resources

Biological resources include the native and naturalized plants and animals in the project area. For discussion purposes, they are divided into vegetation, wildlife

(including aquatic biota), threatened and endangered species, and sensitive habitats.

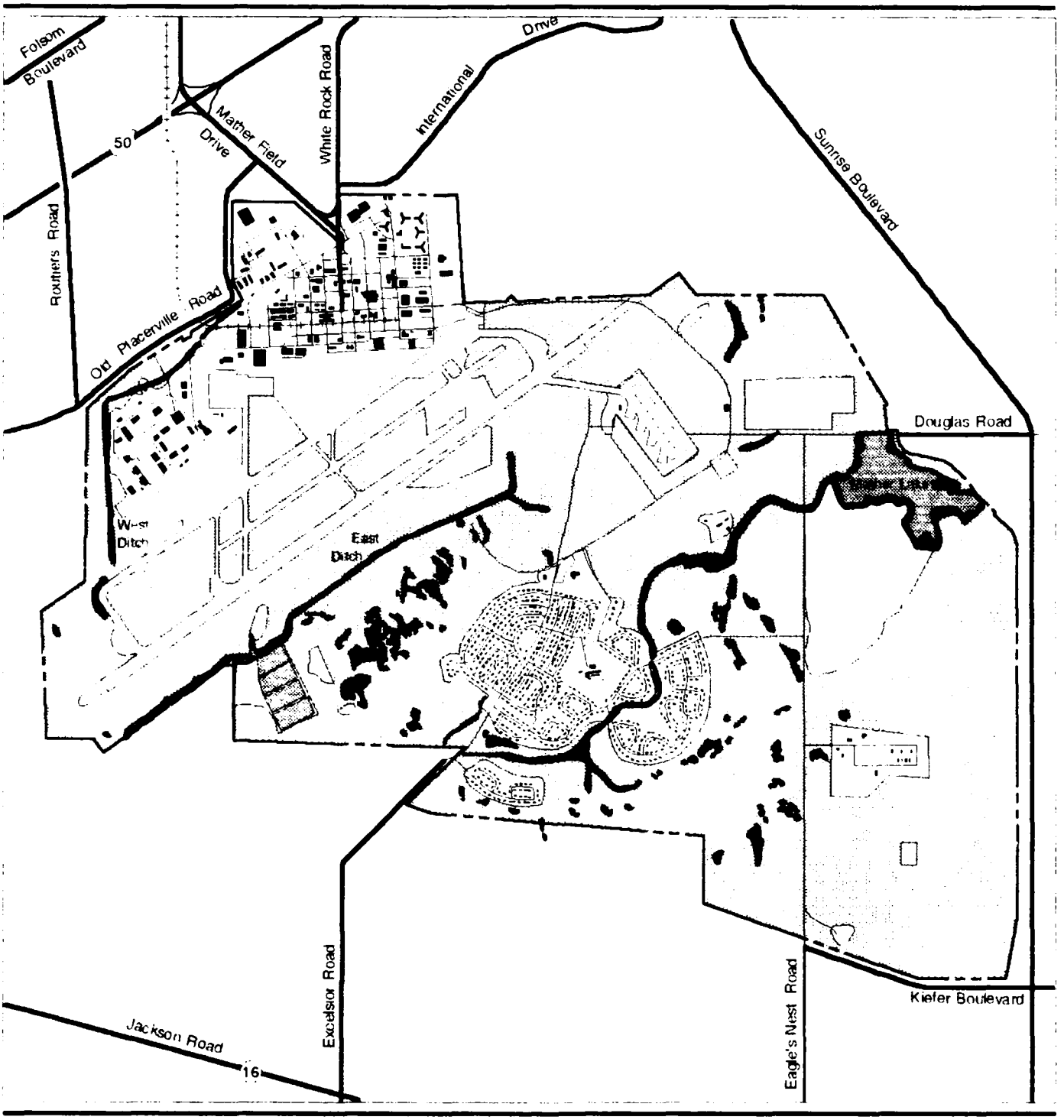
The ROI for discussions of the biological resources and potential impacts on these resources is the base and surrounding area within about 5 miles of the base. This includes the area within which potential impacts could occur and provides a basis for evaluating the level of impact.

The following descriptions are based on field visits to the base in March and October 1991, secondary sources of information for the area, data from the California Natural Diversity Database (NDDB), contacts with Federal and State Agencies, and aerial photographs. Response to the inquiry to the U.S. Fish and Wildlife Service (USFWS) is contained in Appendix M.

3.4.5.1 Vegetation. Mather AFB occupies 5,716 acres on a grassy alluvial terrace that varies in elevation from approximately 75 to 125 feet above sea level. All of the base lands have been at least partially altered. Landscape and ornamental species dominate 663 acres in the golf course, residential, and industrial use areas, and require intense maintenance; 1,175 acres are semi-improved and periodically maintained. The remaining 3,035 acres are unimproved and not mowed more than once a year. No vegetation remains on 974 acres that have been disturbed in the past by construction of buildings, runways, roads, and other facilities. Though riparian and wetland vegetation occurs in and around Mather Lake, in vernal pools, and along intermittent drainage channels, the predominant vegetative community on the base is grassland (Figure 3.4-3).

Historically the land occupied by the base was dominated by native perennial bunchgrasses. However, these species have been superseded in the unimproved and semi-improved areas by common introduced grassland species such as wild oats (*Avena* spp.), bromegrass (*Bromus* spp.), filaree (*Erodium botrys*), dandelion (*Taraxacum officinale*), and thistle (*Cirsium* spp.). Mustard (*Brassica geniculatus*) and star thistle (*Centaurea solstitialis*) are also conspicuous herbaceous species. Coyote brush (*Baccharis pilularis*) is an occasional native shrub, and gum trees (*Eucalyptus* spp.) occur at scattered locations within the grassland.

Construction has changed drainage patterns on the base, resulting in several constructed ditches in addition to the naturally occurring intermittent creeks and swales. The largest of these are the West Ditch and the portion of Drainage Ditch No. 2 (East Ditch) that parallels the runways. Surface flow from the ditches is channeled into Morrison Creek (the base's largest natural surface drainage course), which enters in the northeast corner of the base and flows through on a southwest trend. Wetland and riparian vegetation occurs occasionally along these intermittent drainage channels, and generally consists of tree species such as cottonwood (*Populus fremontii*) and willow (*Salix* spp.), and emergent and herbaceous species such as cattail (*Typha latifolia*), rushes



EXPLANATION

- Open Water
- Stream Wetlands
- Developed
- Grassland
- Base Boundary
- Vernal Pool Wetlands

0 800 1600 3200 Feet

Vegetation and Wetlands/ Vernal Pools

Figure 3.4-3

(*Juncus* spp.), chufa (*Cyperus esculentus*), rabbit's foot (*Polypogon monspieliensis*), and water smartweed (*Polygonum hydropiperoides*).

Mather Lake is a 64-acre artificial (impoundment) lake in the northeastern corner of the base that was created by damming Morrison Creek. Water level is maintained during the dry season by inflow from the Folsom South Canal. Its shoreline and shallower depths support approximately 17 acres of wetland and riparian vegetation. Common shoreline tree species are Fremont cottonwood and arroyo willow (*Salix lasiolepis*). Emergent species include rushes, spikerushes (*Eleocharis* spp.), hard-stem bulrush (*Scirpus acutus*), and cattail. Pondweed (*Potamogeton* sp.) and milfoil (*Myriophyllum* sp.) are common aquatic species.

Scattered throughout the base grasslands are 66 acres of vernal pools. Vernal pools often support a unique flora that is adapted to the seasonally ephemeral status of their water supply. Terrestrial annual species are predominant and tend to bloom in conspicuous concentric rings as the pools dry up in spring. Surveys at Mather AFB have found numerous plant species frequently associated with the onsite vernal pools, including a high percentage of natives. Common hydrophytic species include Vassey's coyote thistle (*Eryngium vaseyi*), creeping spikerush (*Eleocharis palustris*), dwarf woolly heads (*Psilocarphus brevissimus*), and slender popcorn flower (*Plagiobothrys stipitatus*). Species generally associated with upland habitats often occurring in and around vernal pools at Mather include Fitch's spikeweed (*Hemizonia fitchii*), dove weed (*Eremocarpus segiterus*), wild barley (*Hordeum depressum*), and the non-native cat's ear (*Hypochoeris glabra*). Mather's vernal pools may also harbor several sensitive plant species. Field surveys conducted in 1991 failed to identify these species at the site; they could exist, but not be apparent due to dry conditions this year.

Diverse species have been planted in the improved areas of the base. Grassy areas are common, and generally consist of Kentucky bluegrass (*Poa pratensis*), red top (*Agrostis alba*), and creeping red fescue (*Festuca rubra*). Various shrub species have been planted, including juniper (*Juniperus* sp.) and oleander (*Nerium oleander*). Landscape trees are common in the residential area and around other base facilities. Frequent trees include ash species (*Fraxinus* spp.), gum trees (*Eucalyptus* spp.), poplars (*Populus* spp.), fan palms (*Washingtonia filifera*), cedars (*Cedrus* sp.), and several pine species (*Pinus* spp). Several oak trees (*Quercus* sp.) are present in the southwestern part of the base. One group was planted along the south side of Woodring Road to the east of base housing. Others occur along a small drainage south of Woodring Road and west of Eagle's Nest Road.

3.4.5.2 Wildlife Resources. Wildlife occurring at Mather AFB include numerous species associated with grasslands, wetlands, and urbanized areas. These habitats support a wide range of species including several that are considered sensitive by state and federal governments.

Approximately 20 species of mammals inhabit the base (Crowl, 1985). Species common throughout the base (except in heavily human-influenced areas) include the black-tailed jackrabbit (*Lepus californicus*), Audobon's cottontail (*Sylvilagus audoboni*), raccoon (*Procyon lotor*), and California ground squirrel (*Spermophilus beecheyi*). The coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), and badger (*Taxidea taxus*) also reside on the base. Smaller mammals that are common throughout include Botta's pocket gopher (*Thomomys bottae*), broad-footed mole (*Scapanus latimanus*), California meadow vole (*Microtus californicus*), western harvest mouse (*Reithrodontomys megalotis*), and deer mouse (*Peromyscus maniculatus*). Bat species that may inhabit the base include the California bat (*Myotis californicus*), guano bat (*Tadarida brasiliensis*), and western pipistrelle (*Pipistrellus hesperus*).

Various bird species are known to make use of the base, many as year-round residents and many as winter residents and transient visitors. Raptors on the base are generally transient rather than resident due to the lack of suitable nesting sites. The red-tailed hawk (*Buteo jamaicensis*), the red-shouldered hawk (*Buteo lineatus*), sharpshinned hawk (*Accipiter striatus*), northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), barn owl (*Tyto alba*), great-horned owl (*Bubo virginianus*), and short-eared owl (*Asio flammeus*) are frequent visitors and possibly residents. Prairie falcons (*Falco mexicanus*) may occasionally hunt on the base. The burrowing owl (*Athene cunicularia*), a state-designated species of special concern, is known to nest in open areas of the base. Several have been sighted northeast of the runways near Old Placerville Road. One golden eagle (*Aquila chrysaetos*), another state-designated species of special concern, was recently noted near Eagle's Nest Road. The black-shouldered kite (*Elanus caeruleus*), a fully protected species in California, hunts over grasslands and has been observed just south of the base (Sugnet and Associates, 1990).

Mather Lake and the other base wetlands attract numerous waterfowl species, including mallards (*Anas platyrhynchos*), teals (*Anas* spp.), American coots (*Fulica americana*), and mergansers (common, *Mergus merganser*; hooded, *Lophodytes cucullatus*). Wading birds such as the great blue heron (*Ardea herodias*) are attracted to the lake's shallow shoreline and abundant prey. The belted kingfisher (*Ceryle alcyon*) also preys on the lake's fish. Birds that inhabit the base grasslands include the western meadowlark (*Sternella neglecta*), Brewer's blackbird (*Euphagus cyanocephalus*), yellow-billed magpie (*Pica nuttalli*), California quail (*Callipepla californica*), and mourning dove (*Zenaida macroura*). Also common on grasslands is the ring-necked pheasant (*Phasianus colchicus*), an introduced game species that is regularly released on the base during hunting season. Many birds that are well-adapted to urban environments inhabit the base residential and landscaped areas. These species include the house sparrow (*Passer domesticus*), barn swallow (*Hirundo rustica*), American robin (*Turdus migratorius*), European starling (*Sturnus*

vulgaris), house finch (*Carpodacus mexicanus*), and rock dove (*Columba livia*). The American crow (*Corvus brachyrhyncos*) is common throughout the base.

Snakes assumed to be present in and around the base include the California kingsnake (*Lampropeltus getulus*), Pacific gopher snake (*Pituophis melanoleucus*), western rattlesnake (*Crotalus viridis*), and western yellow-bellied racer (*Coluber constrictor*). The northwestern pond turtle (*Clemmys marmorata marmorata*) is expected to occur in Mather Lake and probably occurs in Morrison Creek during wet periods. The coast horned lizard (*Phrynosoma coronatum*), southern alligator lizard (*Gerrhonotus multicarinatus*), and western fence lizard (*Sceloporus occidentalis*) are expected to occur throughout the base grasslands.

Amphibians expected to be present in and around the base wetlands include the spadefoot toad (*Scaphiopus hammondii*), western toad (*Bufo boreas*), Pacific treefrog (*Hyla regilla*), and bullfrog (*Rana catesbeiana*). All of these are native except the bullfrog.

Mather Lake has been stocked with a variety of fish species that have established populations in the lake, including largemouth bass (*Salmoides micropterus*), bluegill (*Lepomis macrochirus*), and redear sunfish (*Lepomis microlophus*). Black crappie (*Pomoxis nigromaculatus*), green sunfish (*Lepomis chanellus*), golden shiner (*Notemigonus chrysoleucas*), and mosquitofish (*Gambusia affinis*) are also present (Vanicek, 1986). Channel catfish (*Ictalurus punctatus*) in the one to one-and-a-half pound range are stocked each spring to augment natural production. Rainbow trout (*Oncorhynchus mykiss*) of about one-half to three-quarter pound are stocked each fall for harvest by fishing. The habitat is unsuitable for natural reproduction, and warm summer water temperatures limit survival. Other aquatic biota present in Mather Lake include algae and invertebrates typical of warm water lakes (e.g., midge larvae, aquatic beetles, dragonfly and damselfly nymphs, and filamentous green algae).

Vernal pools are inhabited by aquatic invertebrates that can complete their life cycle during the short periods in which water is present. Crustaceans belonging to the orders Branchipoda and Ostracoda, and various insects are common. Fairy shrimp have been collected in vernal pools just south of the base (Sugnet and Associates, 1990).

3.4.5.3 Threatened and Endangered Species. The California NDDB, USFWS, California Department of Fish and Game (CDFG), and published literature were consulted for information on rare and protected species. In addition, a letter requesting a species list for the project area was sent to the USFWS in compliance with the federal Endangered Species Act, as amended. In response, the USFWS (Appendix M) indicated that the valley elderberry longhorn beetle is the only federally listed species in the project area. No elderberry trees (*Sambucus mexicana*), the habitat of valley elderberry longhorn beetles occur on the base. The following species that are candidates for federal

listing or are state listed may be present: California tiger salamander, western spadefoot toad, vernal pool fairy shrimp, conservancy fairy shrimp, California linderiella, vernal pool tadpole shrimp, Swainson's hawk, tricolored blackbird, long-billed curlew, Bogg's lake hedge hyssop, Green's legenere, Sacramento orcutt grass, and slender orcutt grass. In addition, the giant garter snake was proposed for listing by the USFWS during December 1991.

Based upon known habitat requirements and distribution, a number of state and federally listed threatened, endangered, and candidate species may occur at Mather AFB. Appendix N summarizes information on listed and candidate species.

3.4.5.4 Sensitive Habitats. Sensitive habitats include wetlands, plant communities that are unusual or of limited distribution, and important seasonal use areas for wildlife (e.g., migration routes, breeding areas, or crucial summer/winter habitat). Sensitive habitats at Mather AFB consist of the wetlands associated with vernal pools, Mather Lake, and intermittent drainage channels (see Figure 3.4-3).

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Federal Interagency Committee for Wetland Delineation, 1989). Three criteria (hydrophytic vegetation, hydric soils, and wetland hydrology) must be met for an area to be a jurisdictional wetland subject to Section 404 of the Federal Clean Water Act.

A 1990 survey delineated 147 acres of wetlands at Mather AFB. This acreage includes 66 acres of vernal pools, 64 acres of wetlands along intermittent streams and drainage canals, and 17 acres surrounding Mather Lake. The majority of the vernal pools at the base (see Figure 3.4-3) occupy a horseshoe-shaped area around the western, southern, and eastern edges of the base residential area (McGuire, Eatough, and Fong, Inc., 1990).

3.4.6 Cultural Resources

Cultural resources consist of prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, religious, traditional, or other reasons. For the purposes of this EIS, paleontological remains are also included within the cultural resources category.

The ROI for the analysis of cultural resources includes, minimally, all areas within Mather AFB boundaries, whether or not certain parcels would be subject to ground disturbance, the activity most likely to disturb cultural resources. The potential conveyance of federal property to a private party or non-federal agency constitutes an undertaking, or a project that falls under the requirements of cultural resource legislative mandates, because any historic properties located on that property would cease to be protected by federal law.

Data used to compile information about cultural resources on Mather AFB have been obtained from existing environmental documents; from material on file at Base Civil Engineering at Mather AFB; from maps, site forms, and reports on file at the North Central Information Center at California State University in Sacramento (CSUS); from interviews with individuals familiar with the archaeology and paleontology of the Sacramento area; and from an on-site visit.

In compliance with the NHPA, the Air Force consulted with the California State Historic Preservation Officer (SHPO) as required under the Section 106 review process. In the letter of response dated July 2, 1991 (Appendix K), SHPO stated that since Mather AFB property did not contain historic properties, the disposal and reuse would not impact cultural resources. (Section 106 does not address any requirements regarding paleontological resources.)

3.4.6.1 Archaeological Resources. During both prehistoric and historic periods, human settlement in the vicinity of Mather AFB was focused toward the banks of the American River. The grasslands found on Mather AFB may have attracted some hunting and collecting by prehistoric Native Americans and were used for ranching and fruit growing in the 19th century. However, there is r record that Native American villages or historic ranch buildings ever existed on the base.

A Phase I archaeological survey of Mather AFB was completed in 1985 by archaeologists from the Archaeological Study Center of CSUS (McIvers, 1985). This was an intensive systematic surface survey of all open land on the base, including developed and restricted areas. The survey team took particular care to inspect ground along drainages, near vernal pools, and near stands of oak trees, because these areas are considered likely to contain archaeological sites. Exposed soil was periodically tested for the presence of carbonates, which sometimes correlate with the presence of archaeological deposits. No subsurface survey was conducted.

The survey report (McIvers, 1985) states that no archaeological resources are located within the boundaries of Mather AFB. Although previous disturbance may have destroyed any visible surface remains, the absence of cultural resources is most likely due to the fact that the interior grasslands located away from major drainages were rarely occupied or used by prehistoric Native Americans. A review of survey and excavation reports for various projects in the vicinity of Mather AFB showed that prehistoric archaeological sites have never been found more than a mile from the banks of the American River, even along stream courses or near vernal pools.

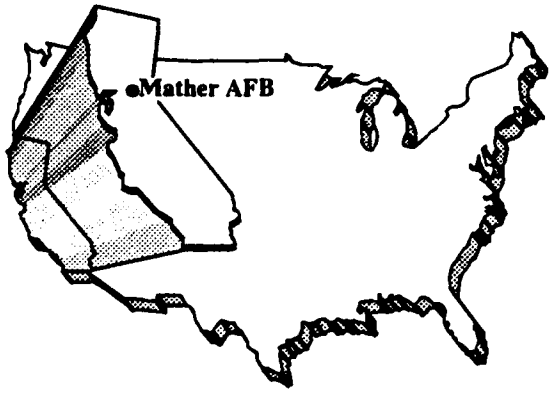
3.4.6.2 Historic Structures and Resources. Although Mather AFB was established in 1918, there are no historic structures or resources (military or pre-military era) that are considered historic properties (i.e., eligible for listing on the National Register of Historic Places [NRHP]). A 1979 review for architecturally significant properties by the State Office of Historic Preservation yielded negative results. Responding to a 1980 Air Force recommendation

regarding temporary World War II buildings, the SHPO concurred that these structures on Mather AFB lacked integrity and, therefore, were not eligible for the National Register.

3.4.6.3 Native American Resources. Consultation was initiated with the Native American Heritage Commission to ascertain whether or not any Native American group or individual has concern with or can identify sacred areas within the Mather AFB environs. No response was received in response to this inquiry. Therefore, it is assumed that no area of interest to Native Americans exists within the ROI.

3.4.6.4 Paleontological Resources. Late Pleistocene fossils have been located in the Tiechert gravel beds south of Highway 16 and south of Mather AFB. These fossils are approximately 100,000 years old and include terrestrial vertebrates ranging from mammoths to moles, shrews, and mice. It is possible that similar fossils would be found in clay and sandy interbeds in the gravel deposits underlying Mather AFB.

THIS PAGE INTENTIONALLY LEFT BLANK



CHAPTER 4

4.0 ENVIRONMENTAL IMPACTS

4.1 INTRODUCTION

This chapter discusses the potential environmental impacts associated with the Proposed Action, alternatives, (including the No-Action Alternative) and independent concepts, federal transfers and conveyances. To provide the context in which potential environmental impacts may occur, discussions of potential changes to the local communities, including population, land use and aesthetics, transportation, and community and public utility services are included. In addition, issues related to current and future management of hazardous materials and wastes are discussed. Impacts to the physical and natural environment are evaluated for geology and soils, water resources, air quality, noise, biological resources, and cultural resources. These impacts may occur as a direct result of disposal and reuse activities or as an indirect result caused by changes within the local communities. Cumulative impacts and possible mitigation measures designed to minimize or eliminate the adverse environmental impacts are also presented.

Cumulative impacts result from "the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time" (Council on Environmental Quality, 1978). Cumulative impacts are discussed by resource in this chapter.

Means of mitigating adverse environmental impacts that may result from implementation of the Proposed Action or the alternatives are discussed as required by NEPA. Potential mitigation measures depend upon the particular resource affected. In general, however, mitigation measures are defined in the CEQ regulations as actions which:

- Avoid the impact altogether by not taking an action or a certain aspect of the action.
- Minimize impacts by limiting the degree or magnitude of the action and its implementation.
- Rectify the impact by repairing, rehabilitating, or restoring the affected environment.
- Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action.
- Compensate for the impact by replacing or providing substitute resources or environments.

A discussion of the effectiveness of mitigation measures is included for those resource areas where it is applicable, as in the case of replacement of wildlife habitat, for example. Where appropriate, an addition to the text regarding the probability of success associated with a particular mitigation has been made.

4.2 LOCAL COMMUNITY

4.2.1 Community Setting

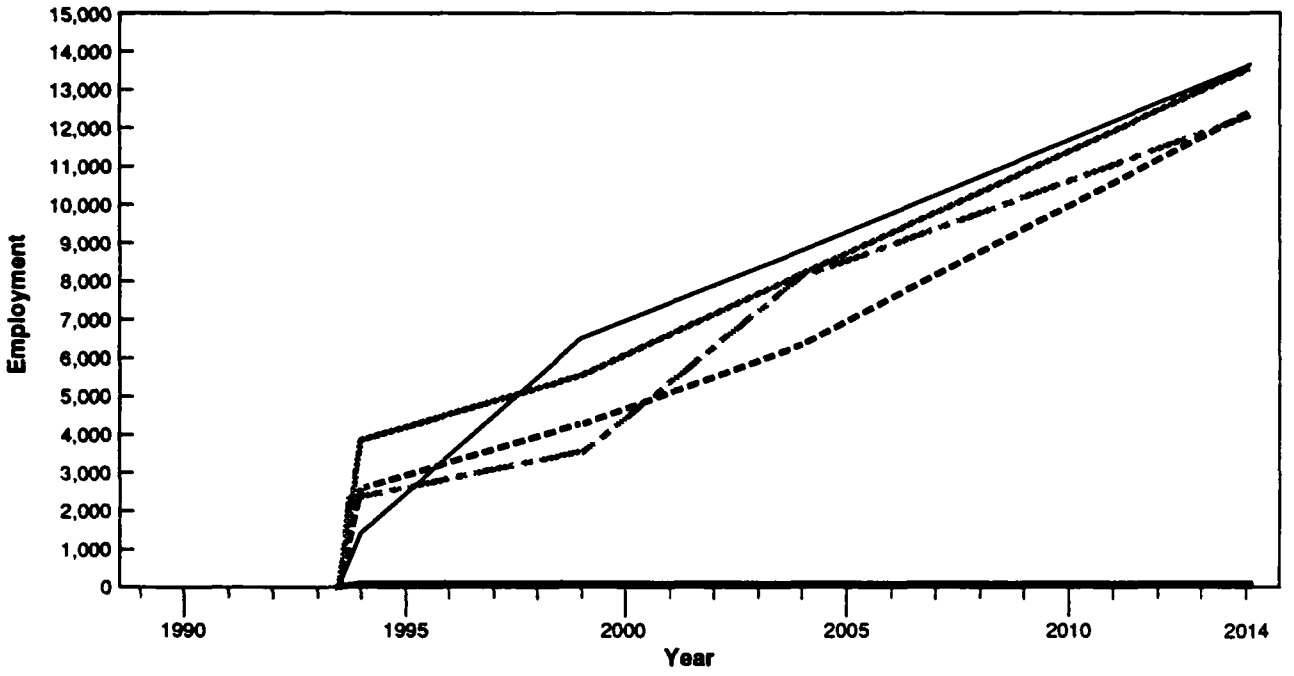
Socioeconomic effects will be addressed only to the extent that they pertain to the biophysical environment. A complete assessment of socioeconomic effects is presented in the *Socioeconomic Impact Analysis Study*. Employment and population generated by implementation of the Proposed Action and each alternative are discussed herein. The closure baseline projects employment levels of 50 direct and 17 indirect jobs for the year 1994 to remain constant through 2014 for the No-Action Alternative. Total ROI population estimates for the closure baseline and post-closure are 1,581,600 for 1994 and 2,289,500 for 2014. This represents an increase of approximately 707,900, or 44.7 percent.

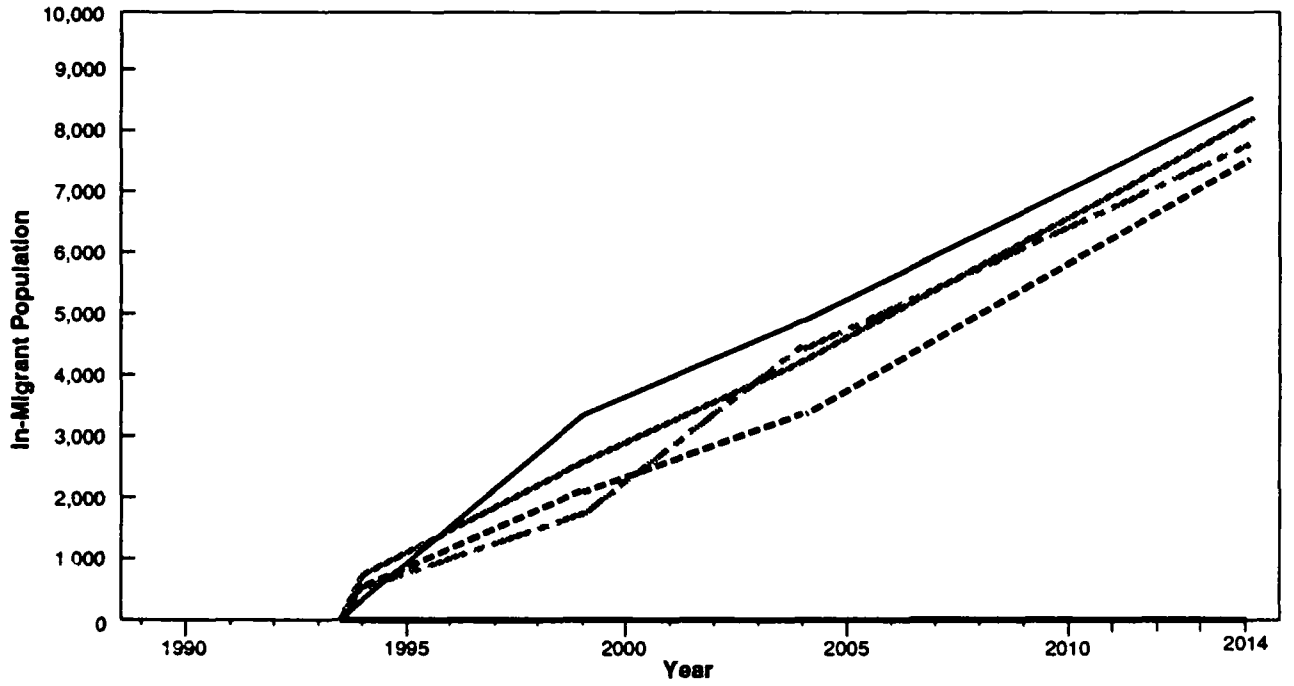
This analysis recognizes the potential for community impacts arising from "announcement effects" stemming from information regarding the base's closure or reuse. Such announcements may impact the affected communities' perceptions and, in turn, could have important local economic effects. An example would be the in-migration of people anticipating employment under one of the reuse options. If it were later announced that the No-Action Alternative was chosen, many of the newcomers would leave the area to seek employment elsewhere. Such an effect could, therefore, result in an initial, temporary increase in population followed by a decline in population as people leave the area.

4.2.1.1 Proposed Action. Conversion of Mather AFB property for civilian use is estimated to occur over approximately 20 years. The redevelopment of the property into civilian aviation-related, industrial, and commercial uses would cause many changes in the local communities.

It is estimated that the redevelopment activities at Mather AFB under the Proposed Action would generate approximately 7,020 direct and 5,170 indirect jobs by the year 2014. Figure 4.2-1 provides a comparison of total employment as a result of implementation of the Proposed Action and alternatives. Direct jobs would be located on the base property upon disposition of Mather AFB, whereas secondary jobs would be located throughout the four-county ROI.

Population in the ROI would increase as a result of new civilian jobs. Population impacts in the Sacramento area under the Proposed Action are estimated to reach 7,830 in 2014. The long-term population change associated with the Proposed Action represents a 1.1 percent share of projected ROI population increase estimates. Figure 4.2-1 also provides a comparison of population





EXPLANATION

- Proposed Action
- Non-Aviation with Mixed-Density Residential
- General Aviation with Aircraft Maintenance
- Non-Aviation with Low-Density Residential
- No Action/Post Closure

Comparison of Alternatives- Increases in Regional Population and Employment Opportunities Due to Site Reuse

Figure 4.2-1

impacts under the Proposed Action and alternatives. The majority of in-migrants are expected to locate in Sacramento County. The communities likely to experience the largest increases in population are Sacramento, Folsom, Rancho Cordova, Florin, and Elk Grove. Base redevelopment as a result of the Proposed Action would generate positive economic benefits of increased employment and earnings in the region.

4.2.1.2 Non-Aviation with Mixed-Density Residential Alternative. It is estimated that the redevelopment activities at Mather AFB under this alternative would generate approximately 7,100 direct and 5,260 indirect jobs by the year 2014.

Population in the ROI would similarly increase as a result of new civilian jobs. Population impacts in the Sacramento area under this alternative are estimated to reach 7,550 in 2014. The long-term population change associated with the Non-Aviation with Mixed-Density Residential Alternative represents a 1.1 percent share of projected ROI population increase.

4.2.1.3 General Aviation with Aircraft Maintenance Alternative. It is estimated that the redevelopment activities at Mather AFB under this alternative would generate approximately 7,590 direct and 6,130 indirect jobs by the year 2014. This alternative generates the greatest total and indirect employment effect of all the reuse scenarios.

The General Aviation with Aircraft Maintenance Alternative in the ROI is projected to result in a population increase of 8,480 in the ROI by 2014 and generate the largest population in-migration of all the alternatives analyzed. The long-term population change associated with this alternative represents a 1.2 percent share of projected ROI population increase.

4.2.1.4 Non-Aviation with Low-Density Residential Alternative. It is estimated that the redevelopment activities at Mather AFB under this alternative would generate approximately 7,690 direct and 5,940 indirect jobs by the year 2014. This alternative projects the largest number of direct employment possibilities of all alternatives analyzed.

Population impacts in the Sacramento area under this alternative are estimated to reach 8,080 in 2014. The long-term population change associated with this alternative represents a 1.1 percent share of projected ROI population increase.

4.2.1.5 Other Land Use Concepts. In addition to the alternatives discussed above, other proposals have been received which do not fully utilize the base property. Full conversion of Mather AFB property for civilian use will not occur through implementation of the proposed federal property transfers and independent land use concepts. These transfers and conveyances could be initiated on an individual basis and not as part of any integrated reuse alternatives. The potential effects of federal transfers/conveyances and

independent concepts will be discussed in relation to their effects on the Proposed Action and/or other reuse alternatives. Only alternatives for which impacts exist are cited; the remainder have insignificant or no impacts.

Caltrans Research and Development Center. The proposed center could directly employ 4,000 persons. This proposal would increase total direct employment if implemented in conjunction with either the Proposed Action or any other alternative. The Caltrans southern site placement was assessed in association with the Proposed Action and the General Aviation Alternative such that airfield operations and activities would not be disrupted. For both of these alternatives, the proposed center would displace recreation lands. If this proposal was developed in the northern site in combination with the non-aviation alternatives, it would displace proposed residential development. As portions of the residential lands are also comprised of TODs there exists potential for commercial and office development to be displaced, thereby resulting in a smaller overall contribution to total employment.

Theme Park. The proposed theme park could directly employ 3,500 persons. If this proposal were developed in conjunction with the Proposed Action and the General Aviation Alternative it would displace lands designated for aviation support, residential and recreational activities. In addition, portions of the residential lands are TODs, creating potential for commercial and office development to be displaced, resulting in a smaller overall contribution to total employment. This proposal would likely increase total employment if it were implemented in combination with the non-aviation alternatives as it would be located in the vicinity of the existing airfield, designated for residential development under these reuse scenarios. However, portions of the affected lands are comprised of TODs creating potential for commercial and office development to be displaced, possibly resulting in a smaller overall contribution to total employment.

4.2.1.6 No-Action Alternative. It is estimated that activities at Mather AFB under the No-Action Alternative would generate approximately 50 direct and 17 indirect caretaker jobs annually throughout the period of study.

4.2.2 Land Use and Aesthetics

This section discusses the Proposed Action and alternatives relative to land use and zoning to determine potential impacts in terms of land use and aesthetics. Projected population and employment effects on land uses in communities within the ROI are discussed in the *Socioeconomic Impact Analysis Study*. Land use compatibility with aircraft noise is discussed in Section 4.4.4.

Figures are included in this section that depict the impacted land uses for the Proposed Action and the alternatives. Table 4.2-1 presents the number of residences and the residential population affected by air traffic noise, by each

representative year, for the Proposed Action and General Aviation with Aircraft Maintenance Alternative.

Table 4.2-1. Residential Noise Exposure for the Mather AFB Aviation Reuse Plans

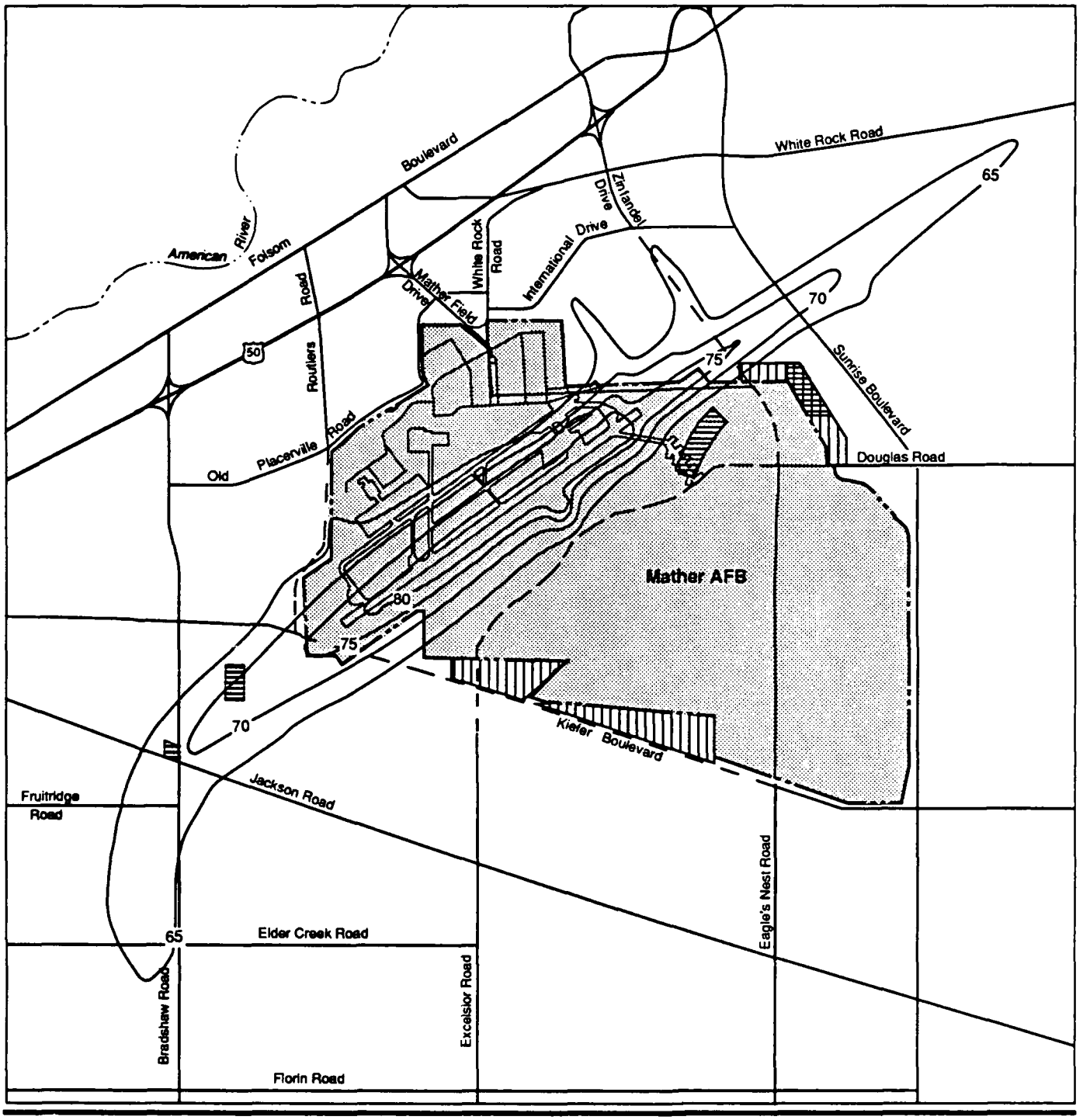
Year	Proposed Action and Alternatives	Approximate Population* Exposed 65 DNL Range
1994	Proposed Action	60-70
	General Aviation with Aircraft Maintenance	60-70
1999	Proposed Action	60-70
	General Aviation with Aircraft Maintenance	60-70
2004	Proposed Action	60-70
	General Aviation with Aircraft Maintenance	60-70
2014	Proposed Action	60-70
	General Aviation with Aircraft Maintenance	60-70

* Current population under projected footprints.

4.2.2.1 Proposed Action

Land Use. The land uses associated with the Proposed Action are generally consistent with the surrounding land uses in Sacramento County with two exceptions. The proposed residential land use in the northeastern corner of the base would be incompatible with the industrial development adjacent to the northeast base boundary (Figure 4.2-2). The major off-base land use impact would be the possible alteration of the CLUP surrounding Mather AFB which could ultimately make more land available for residential development. A reduction in the projected noise footprint (as compared to the existing footprint) would reduce areas of potential incompatibility between residential uses and airfield-related noise. A small residential area located about 1 mile southwest of the west end of the runway would continue to be incompatible with the aviation operations.

When the airport is transferred to non-military ownership, the current AICUZ will no longer apply, and activities will be governed by FAA criteria in terms of noise and safety. Off-base residential uses pose the greatest potential land use conflicts to future aviation operations. Residential areas are considered incompatible in areas with noise levels above DNL of 65 dB. Under the Proposed Action the amount of land and number of existing residences contained within the 65 dB noise contour would be reduced from that currently identified in the CLUP and the potential impacts upon residential areas and other noise sensitive receptors would be correspondingly reduced. (see Noise, Section 4.4.4, for a detailed description of noise impacts.)



EXPLANATION

- Poor Compatibility Between Existing Land Use and Proposed Use of Adjacent Land
- Poor Compatibility Between Existing Zoning and Proposed Use of Adjacent Land
- Base Boundary
- Proposed Roads
- Noise Contour (DNL in dBA)

Land Use Conflicts- Proposed Action (2014)

0 .25 .5 1 Mile

Figure 4.2-2

The Air Force will comply with CERCLA Section 120h(1) and 40 CFR Sections 373.2, 373.3, and 373.4 (55 CFR 14212, April 16, 1990) regarding disclosures required when the United States government transfers property on which hazardous substances (in a CERCLA reportable quantity) were stored for one year, released, or disposed of.

Interim aggregate mining uses could produce noise, air quality, traffic and safety impacts that could adversely affect existing housing in the central section of the base and recreational activities at Mather Lake. Reclaimed mining areas will be used for parks, residential, airfield, aviation support, commercial and office areas.

Proposed aviation-support uses are adjacent to proposed low-density residential areas on the northeastern portion of the base and may produce incompatibilities due to noise, traffic, safety, and air quality.

In relationship to the adjacent unincorporated communities of Rancho Cordova, Cosumnes, and Vineyard, Mather AFB currently exists as an enclave separate from these communities. Pursuant to the Proposed Action, the land which comprises Mather AFB will become more integrated with surrounding areas and be seen as less of a separate entity. Existing on-base land uses are generally compatible with uses in the immediate base area, with office/light industrial, commercial, and institutional uses to the northwest and open space to the east, southeast, and south. Existing surface mining off base to the northeast and southwest is generally compatible with airfield uses. *The Proposed Action* continues the overall land use trend, but intensifies uses in the central portion of the base, south and east of the airfield and surrounding the existing family housing area.

Zoning. The Proposed Action is generally consistent with the zoning presently in place in Sacramento County that regulates the area surrounding Mather AFB property, with two exceptions. The zoning northeast of the base is industrial whereas the on-base zoning would be residential. The area to the south of the base and north of Kiefer Boulevard is zoned M-1 (manufacture), industrial-reserve with surface mining (IR [SM]), and industrial reserve (IR), and the adjacent on-base uses would again be residential.

The base is bordered on the east by the Folsom Canal and by off-base areas designated by the existing General Plan Map (June 1990) as Agricultural Cropland and by the proposed *General Plan Public Review Draft Land Use Diagram* (February 1991) as Agriculture/80 acres with a Resource Conservation overlay.

The Proposed Action includes the public sports complex located southwest of Mather Field Drive, inside the main gate, in the vicinity of the existing running track and ball fields. This location borders an area designated as a Neighborhood Preservation Area on the Cordova Community Plan Map,

indicating use for a neighborhood-oriented park, recreation, or public use. Commercial, residential and industrial uses are also located in the vicinity. Depending on the future development and use of the sports complex, traffic increases and parking demand could have an adverse impact on the surrounding area unless incorporated into planning for the area.

General Plans. Proposed uses in the Sacramento County General Plan are generally compatible with the Proposed Action; however, areas of potential incompatibility include the northeastern and southern-most housing areas which are adjacent to off-base areas designated for both heavy and light industrial use in the Cordova Community Plan Map (revised through January 30, 1991) and off-base areas designated as M-1 and M-2 land use according to the Vineyard Community Land Use/Zoning Map (revised through January 30, 1991).

The Sacramento County General Plan is currently under revision. The Public Review Draft being circulated does not address specific reuse alternatives for Mather AFB but it does acknowledge that closure will occur. Once a reuse alternative is selected, the Sacramento County General Plan and zoning map (i.e., for areas within Mather AFB and for any affected areas off-base) will be amended, as necessary, to be compatible with the proposed uses.

The Proposed Action could result in the permanent conversion of up to approximately 2,870 acres of potential agricultural land. Because this acreage is not prime, unique, or statewide or locally important farmland, the land is not subject to protection under the FPPA. The conversion of this land to nonagricultural uses does not signify a major environmental impact.

Aesthetics. The Proposed Action would result in several aesthetic effects as outlined below.

The conversion of existing open space to developed uses would eliminate the natural character of the southeastern section of the base. During aggregate mining the visibility of open pits, spoil piles, and heavy equipment used for extended periods of time in areas near existing residential and recreation uses could produce an adverse effect.

The retention of airfield and support uses would prevent the area from becoming fully integrated with the surrounding community, since portions of the base will still retain an industrial appearance unique to an airfield; however, reuse of the base would diminish some of the effect of Mather AFB as a visually separate enclave as fenced boundaries and gates are eliminated and road access to and through the base is improved. Depending upon design, screening, and buffering, the two aviation support areas to be developed adjacent to low-density residential areas west of Zinfandel Drive could have an adverse visual impact.

Open space areas and public management and access, which would be provided by the designation of preserved natural habitat and parks, could have a beneficial effect.

Based on plans for the surrounding area, proposed changes in land use on Mather AFB do not appear to conflict with the existing visual character, or the potential visual character, of the immediate off-base area.

Cumulative Impacts. There would be no cumulative impacts to land use and aesthetics.

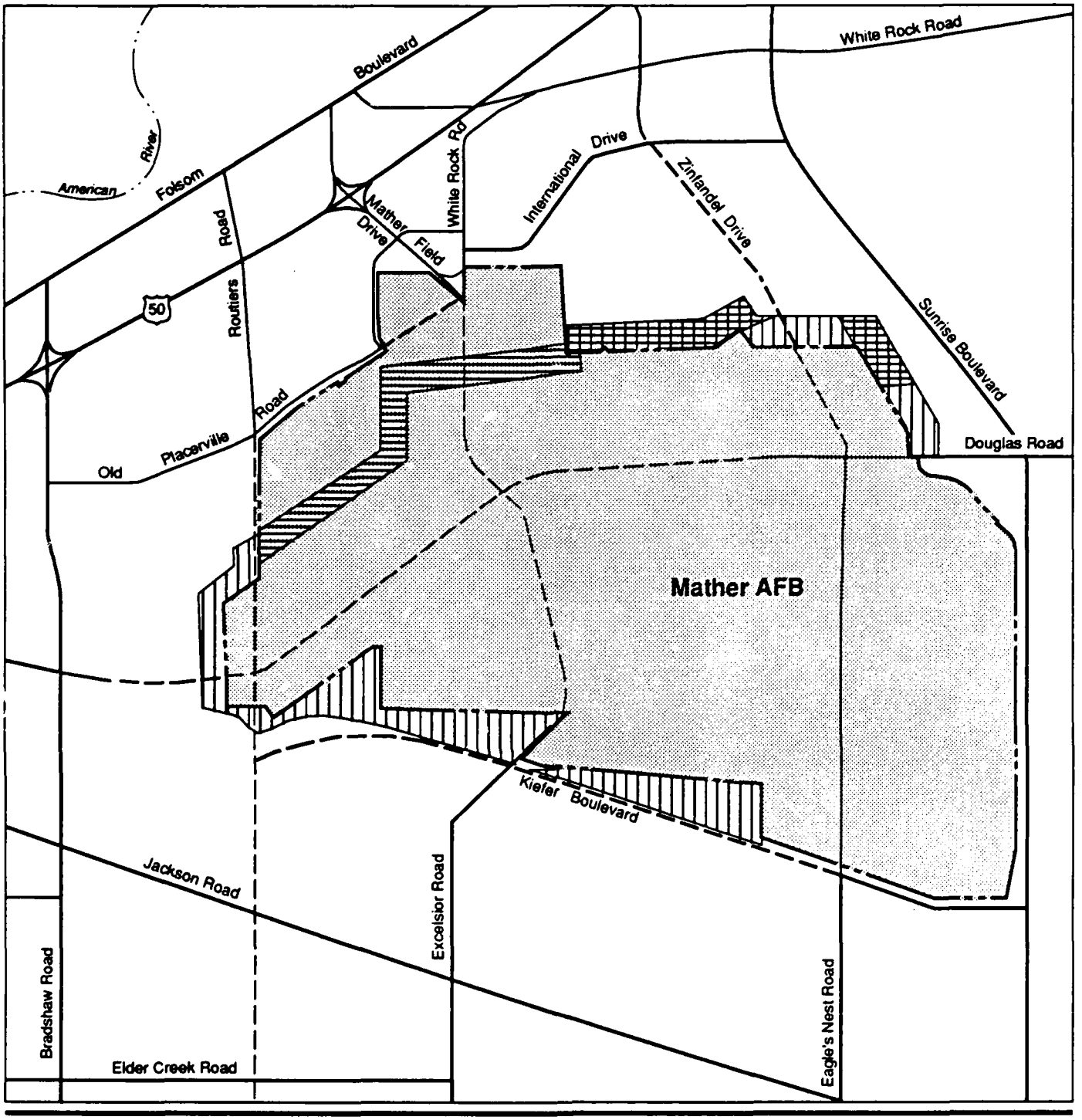
Mitigation Measures. Mitigations to be considered for the potential land use/aesthetics impacts identified for the Proposed Action would include the developer providing buffer zones (greenbelts) or landscaping (screening) to separate residential and recreational uses from adjacent industrial development that may potentially be incompatible (i.e., aggregate mining and aviation support). These mitigations could also be considered for conflicting land uses along the northeast and southern boundaries of the base.

Adequate screening consisting of plant materials and walls or fences would need to be installed to ensure elimination of visual impacts. Such mitigation would ultimately be 100 percent effective in eliminating visual impacts, but depending on the size of plant materials installed, the screening may or may not be completely effective initially.

4.2.2.2 Non-Aviation with Mixed-Density Residential Alternative.

Land Use. The Non-Aviation with Mixed-Density Residential Alternative proposes no airfield, airfield support or military uses. This alternative replaces the airfield and open areas on the central base with housing and five mixed-use commercial, office, housing, and park centers. The on-base land uses would be compatible except where the residential uses would be adjacent to both industrial and commercial uses proposed for the current main base area (Figure 4.2-3). This would include light industrial uses (light manufacturing, research and development, and assembly activities) proposed in the former 7000 Area and the commercial reuses proposed due south of White Rock Road.

The major off-base land use impact involves the possibility of alterations to the CLUP and to the existing zoning surrounding Mather AFB, once airfield-related noise is eliminated (i.e., as a result of the implementation of this non-aviation alternative). This could, in turn, allow increased residential development in the surrounding areas, with associated traffic, air quality, and noise impact, depending upon the extent of the development. Changes to the CLUP and zoning would not occur automatically and would require actions by Sacramento County. There would be incompatibilities between proposed residential areas on base and adjacent off-base areas designated for heavy and light industrial use on the northeastern and southwestern sides of the base.



EXPLANATION

- Poor Compatibility Between Existing Land Use and Proposed Use of Adjacent Land
- Poor Compatibility Between Existing Zoning and Proposed Use of Adjacent Land
- Base Boundary
- Proposed Roads

0 1000 2000 4000 Feet

Land Use Conflicts-Non-Aviation with Mixed-Density Residential Alternative (2014)

Figure 4.2-3

Zoning. The Non-Aviation with Mixed-Density Residential Alternative would be inconsistent with zoning to the northeast/south and southwest of the base. The land would be used for residences on base whereas the adjacent off-base zoning is M-1, M-2, and IR (SM).

General Plans. The proposed uses of the Non-Aviation with Mixed-Density Residential Alternative would be inconsistent with the Sacramento County General Plan. The areas adjacent to the north, northeast, southwest, and south of Mather are proposed for industrial uses, whereas the adjacent areas on base are proposed for residential uses. This same inconsistency would also exist for the Rancho Cordova and Vineyard Community Plans.

This alternative could result in the conversion of up to 2,487 acres of potential agricultural land, but this land is not protected by the FPPA.

Aesthetics. This alternative would eliminate airfield-related and military uses, except for the hospital, on the base and replace the airfield with residential development. In addition, the area proposed for aggregate mining is slightly less than that projected for the Proposed Action. The potential for visual impacts from mining on residential development appears to be approximately the same or slightly less than for the Proposed Action. Residential development north of the aggregate-mined area may be markedly affected.

Light industrial uses would replace military uses in the 7000 Area and could have an adverse visual impact on proposed low-density residential development to the south depending upon design and landscaping.

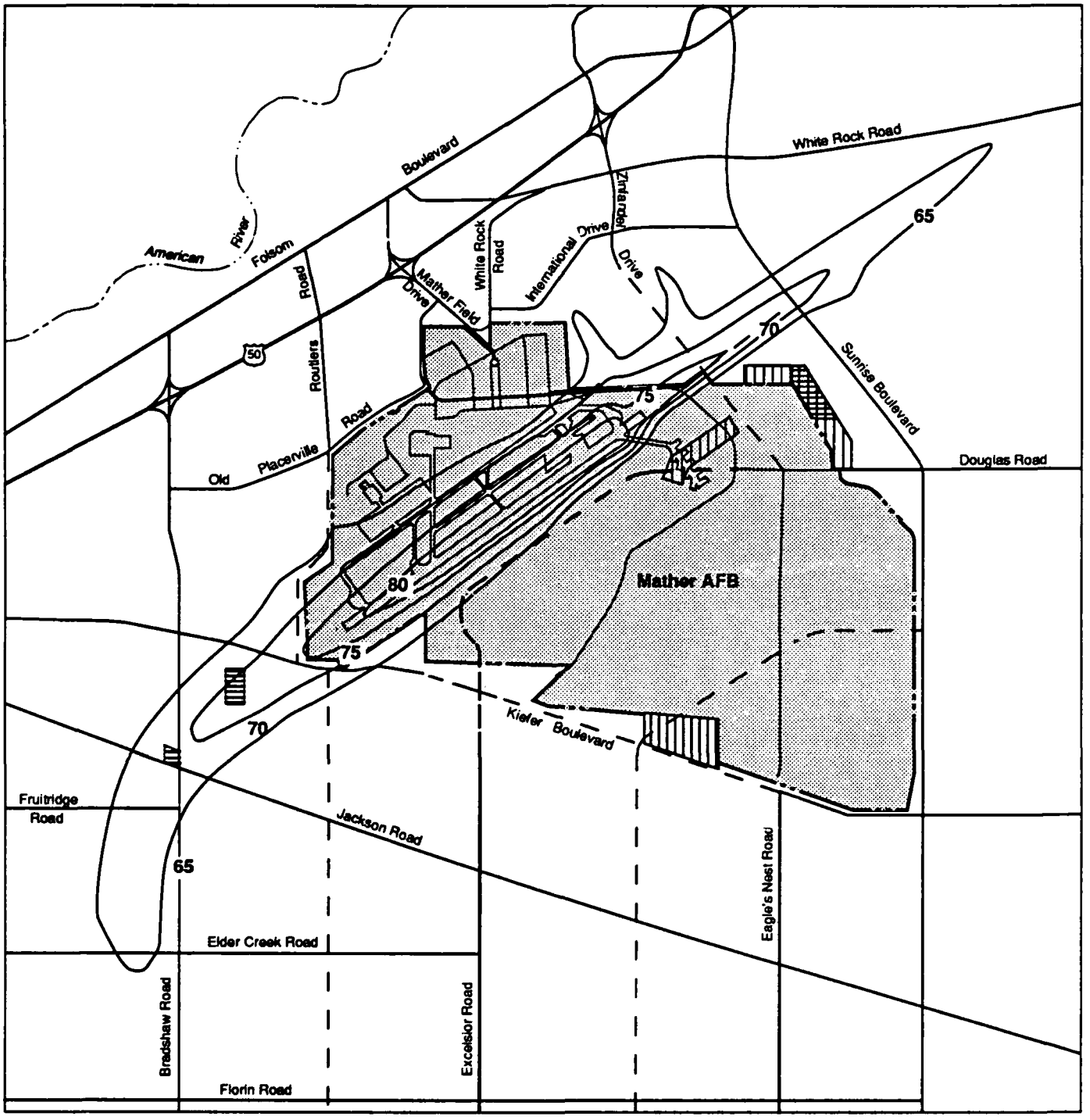
The amount of parks, recreation, and preserved natural habitat is similar to that projected for the Proposed Action and impacts would be the same as noted in Section 4.2.2.1 (Aesthetics).

Cumulative Impacts. There would be no cumulative impacts to land use and aesthetics.

Mitigation Measures. The same mitigation measures involving developer provided buffer zones (greenbelts) or landscaping (screening) described for the Proposed Action could be considered for the Non-Aviation with Mixed-Density Residential Alternative. The effectiveness of these mitigations would be the same as described for the Proposed Action.

4.2.2.3 General Aviation with Aircraft Maintenance Alternative

Land Use. The land uses associated with the General Aviation with Aircraft Maintenance Alternative are generally consistent with the surrounding land uses in Sacramento County with one exception. The proposed residential land use in the northeastern corner of the base would be incompatible with the industrial development adjacent to the northeast boundary (Figure 4.2-4). The major



EXPLANATION

- Land Uses
- Zoning and General Plans
- Base Boundary
- Noise Contour (DNL in dBA)
- Proposed Roads

0 .25 .5 1Mile

Land Use Conflicts-General Aviation with Aircraft Maintenance Alternative (2014)

Figure 4.2-4

off-base land use impact would be the possible alteration of the CLUP surrounding Mather AFB which could ultimately make more land available for residential development if rezoning occurred. A reduction in the projected noise footprint would reduce areas of potential incompatibility between residential uses and airfield-related noise (see Table 4.2-1).

Proposed industrial uses are adjacent to a proposed low-density residential area on the northeastern portion of the base and may produce incompatibilities due to noise, traffic, safety, and air quality.

Zoning. The General Aviation with Aircraft Maintenance Alternative is generally consistent with the zoning presently in place in Sacramento County regulating areas surrounding Mather AFB property, with two exceptions. The zoning to the northeast of the base is M-1, M-2, and M-2 (SM) whereas the on-base development would be residential. The area to the south of the base and north of Kiefer Boulevard between Eagles Nest Road and Excelsior Road is zoned M-1, and the on-base development would be residential.

General Plans. Proposed uses in the Sacramento County General Plan are generally compatible with the General Aviation with Aircraft Maintenance Alternative; however, areas of potential incompatibility include the northeastern and southern-most housing areas which are adjacent to off-base areas designated for both M-2 and M-1 in the Cordova Community Plan Map (revised through January 30, 1991) and off-base areas designated as M-1 and M-2 land use according to the Vineyard Community Land Use/Zoning Map (revised through January 30, 1991).

This alternative could result in the conversion of up to 2,183 acres of potential agricultural land, but this land is not protected by the FPPA.

Aesthetics. The decrease in the combined amount of proposed parks, recreation, and preserved habitat for this alternative is substantial, (almost one-third), when compared to the Proposed Action and the Non-Aviation with Mixed-Density Residential Alternative. Visually along Sunrise and Kiefer boulevards the views of the base property would consist of urbanized residential development where open space presently exists or park land is proposed in the two previous plans.

The alert apron would be eliminated and light industrial uses would be adjacent to single-family residential uses in this vicinity. This may result in adverse visual impacts, depending upon design and buffering.

The proposed aggregate mining area is similar to the Proposed Action and Non-Aviation with Mixed-Density Residential Alternative, and would produce a lesser adverse visual effect due to demolition of housing and mining predating new residential development. Demolition of existing military family housing is a feature unique to this alternative. The areas of demolition and mining would be

buffered from other proposed residential areas by natural habitat and Mather Lake, reducing the potential for visual impacts.

Cumulative Impacts. There would be no cumulative impacts to land use and aesthetics.

Mitigation Measures. The same mitigation measures by the developer involving buffer zones (greenbelts) or landscaping (screening) described for the Proposed Action could be considered for the General Aviation with Aircraft Maintenance Alternative. This would be applicable at the northeastern corner of the base where on-base residential uses are adjacent to existing industrial uses. Also a landscape buffer could be considered to mitigate the traffic noise from the on-base residential uses in the southeast corner of the base adjacent to Sunrise and Kiefer boulevards. The effectiveness of these mitigations would be the same as described for the Proposed Action.

4.2.2.4 Non-Aviation with Low-Density Residential Alternative

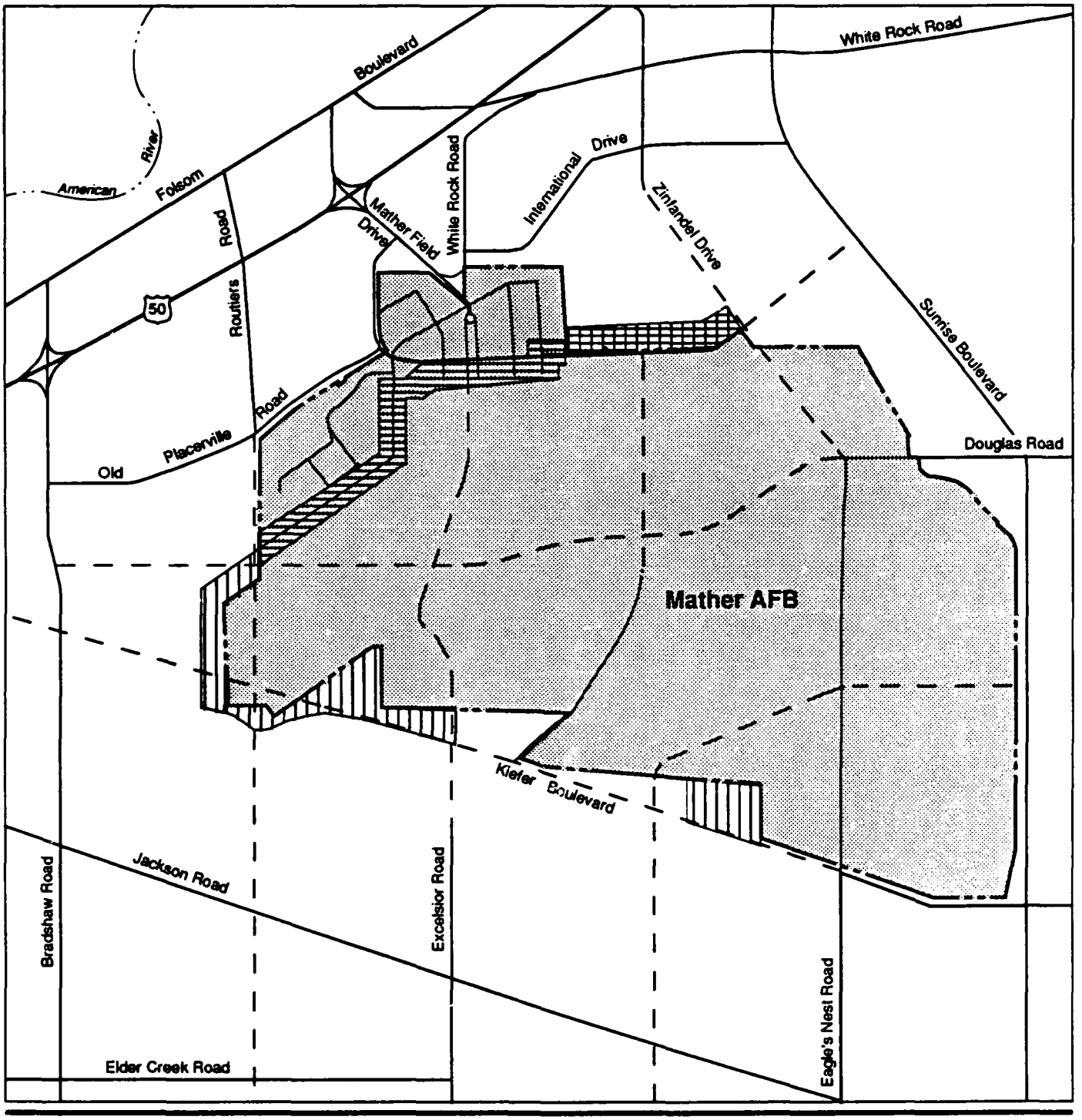
Land Use. Potential land use impacts include the adjacency of off-base light industrial and on-base single family residential areas in the north portion of the base. The on-base land uses would be compatible except where the residential uses would be adjacent to both industrial and commercial uses proposed for the current main base area (Figure 4.2-5). In addition there is the potential for traffic, noise, and air quality impacts to residential areas and Mather Lake from proposed aggregate mining activities. Elimination of the noise footprint associated with aircraft operations at Mather AFB could eliminate any potential incompatibility with future off-base residential development and with existing residences.

Zoning. The Non-Aviation with Low-Density Residential Alternative would be inconsistent with the zoning on the north side of the base west of the main base area and the southwest portions of the base. The proposed on-base land use is residential whereas the adjacent off-base zoning is M-1, M-2, IR, and IR (SM).

General Plans. The proposed uses of the Non-Aviation with Low-Density Residential Alternative would be inconsistent with the Sacramento County General Plan. The areas adjacent to the north, southwest, and south of Mather are proposed for industrial uses, whereas the adjacent areas on base are proposed for residential uses. This alternative could result in the permanent conversion of up to 2,126 acres of potential agricultural land, but this land is not protected by the FPPA.

Aesthetics. Aggregate mining could have adverse visual impacts on residential areas in the vicinity and upon recreational use of Mather Lake.

Proposed light industrial and single-family residential uses would be adjacent to each other and may result in incompatibility from traffic, noise, and air quality.



EXPLANATION

- Poor Compatibility Between Existing Land Use and Proposed Use of Adjacent Land
- Poor Compatibility Between Existing Zoning and Proposed Use of Adjacent Land
- Base Boundary
- Proposed Road

0 1000 2000 4000 Feet

Land Use Conflicts-Non-Aviation with Low-Density Residential Alternative (2014)

Figure 4.2-5

Cumulative Impacts. There would be no cumulative impacts to land use and aesthetics.

Mitigation Measures. The same mitigation provided by the developer involving buffer zones (greenbelts) or landscaping (screening) described for the Proposed Action could be considered for the Non-Aviation with Low-Density Residential Alternative. The effectiveness of these mitigations would be the same as described for the Proposed Action.

4.2.2.5 Other Land Use Concepts

Caltrans R&D Center

Land Use and Zoning. For the Proposed Action, placement of the Caltrans facilities on the southern portion of base land would primarily displace recreation areas, including portions of the proposed regional park; depending upon resulting noise, traffic, and safety conditions it could be incompatible with existing Capehart and Wherry housing areas as well as remaining portions of the proposed regional park.

For the Non-Aviation with Mixed-Density Residential Alternative, placement of the facilities on the northern portion of base land would primarily displace existing low-density housing areas and, depending upon resulting noise, traffic, and safety conditions, could be incompatible with proposed low-density housing in the vicinity.

For the General Aviation with Aircraft Maintenance Alternative, placement of the facilities on the southern portion of base land would primarily displace low-density residential uses, parks, preserved habitat, and recreation land uses. It would result in potentially adverse impacts on recreation areas including the golf course, Mather Lake and proposed parks and low-density residential uses in the vicinity.

For the Non-Aviation with Low-Density Residential Alternative, placement of the proposed Caltrans facilities on the northern portion of base land would primarily displace low-density residential and some light industrial uses, and could be incompatible with the remaining proposed low-density residential areas nearby.

Aesthetics. Depending upon the visibility and appearance of the test track, observation tower, laboratory, and related R&D facilities, there could be potentially adverse visual impacts to existing Capehart and Wherry housing areas in the Proposed Action, to proposed low-density residential areas in the other alternatives, and to proposed parks from the General Aviation with Aircraft Maintenance Alternative.

Cumulative Impacts. There would be no cumulative impacts to land use and aesthetics.

Mitigation Measures. The same mitigation for buffer zones (greenbelts) or landscaping (screening) described for the Proposed Action could be considered for the Caltrans R&D Center overlay when proposed in combination with the Proposed Action and each of the alternatives. The effectiveness of these mitigations would be the same as described for the Proposed Action.

Theme Park

Land Use and Zoning. For the Proposed Action, the theme park would displace proposed low-density housing, parks, preserved habitat, and recreation areas, and could have potentially adverse impacts on the existing Capehart and Wherry housing areas to the west, depending upon traffic and noise from up to 25,000 daily visitors. Other potential impacts include interruption of the proposed strip park at Douglas Road which would inhibit a link to the Mather Lake area. There could be safety impacts from the airfield due to the proposed high-density attendance at the park.

For the Non-Aviation with Mixed-Density Residential Alternative, the theme park would primarily displace proposed low-density housing areas as well as the three TODs on the eastern side of the base, and would interrupt the park strip that would otherwise extend to Mather Lake, and could produce traffic and noise impacts on existing and proposed adjacent residential areas.

For the General Aviation with Aircraft Maintenance Alternative, low-density housing and preserved habitat would be the primary uses displaced. Traffic and noise could affect existing and proposed residential areas north and west of the theme park location.

For the Non-Aviation with Low-Density Residential Alternative, light industrial and low-density residential areas would be the primary uses displaced. Traffic and noise impacts could affect low-density residential areas to the south.

Aesthetics. For the Proposed Action and each of the alternatives above, the theme park could have potential visual impacts on existing or proposed residential areas adjacent to the site, depending upon visibility, landscaping, and design of the park facilities.

Cumulative Impacts. There would be no cumulative impacts to land use and aesthetics.

Mitigation Measures. The same mitigation for buffer zones (greenbelts) or landscaping (screening) described for the Proposed Action could be considered for the Theme Park when proposed in combination with the Proposed Action and each of the alternatives. The initial effectiveness of these mitigations would depend on the size of the plant materials installed. In addition, for the Proposed Action and the Non-Aviation with Mixed-Density Residential Alternative, consideration should be given to designing the theme

park so that the continuous strip park that would connect with Mather Lake is not interrupted. For the Proposed Action only, compatible land uses may mitigate any potential safety impacts on the theme park.

Other Transfers and Conveyances

To determine land use impacts of the other federal transfers, each of these uses was overlaid upon the land uses designated for the Proposed Action and the alternatives and their compatibility was evaluated. Conveyances for which a potential for incompatibility was identified are listed below, including the land use designations with which the transfer may be incompatible. Because precise locations for some of the transfers are not known, some locations overlay several land uses. In these cases, it was assumed that the transfers would be located within the area of compatibility and that parcel size was adequate to accommodate the transfers.

- Sacramento County Sheriff's Department Auto Bureau, State of California Department of Justices, Sacramento County Sheriff's Department, BLM and U.S. Forest Service, California Department of Forestry, U.S. Army and State of California National Guard Bureau - Proposed airfield-related uses would not be compatible with the non-aviation alternatives.
- California State Fire Marshall - For the Proposed Action and Alternatives, the proposed explosive storage area and fire training range are in areas that are designated residential or natural habitat, rather than in areas that have industrial uses.
- California State University, Sacramento - The proposed move of the planetarium to Mather Park is shown as overlaying low-density residential uses under the General Aviation with Aircraft Maintenance Alternative and non-aviation alternatives.

4.2.2.6 No-Action Alternative. Because the federal government would retain ownership of the base under the No-Action Alternative, the property would remain outside the jurisdiction of the local communities and the county. As long as the base remained unused, there would be no apparent conflict with local zoning or land use plans. Permanent base closure, however, would be inconsistent with local reuse plans.

The No-Action Alternative would have beneficial effects with respect to on-base land use. Residential areas which are currently exposed to high noise levels from airfield activities would no longer experience noise impacts.

Land Use. The No-Action Alternative would cause no physical changes to on-base land use. Functionally, there would be no use of base land or facilities. Personnel would continue to maintain the buildings and grounds. The No-Action Alternative would not affect the ultimate requirement to remediate hazardous waste sites on base.

Aesthetics. The No-Action Alternative is not expected to significantly affect the visual and aesthetic quality of the base or the surrounding area. Some landscaped portions of the base would receive less intensive maintenance. The absence of human activity on the base would enhance and accelerate the return to natural conditions in some areas.

Cumulative Impacts. There would be no cumulative impacts to land use and aesthetics.

Mitigation Measures. No mitigations are identified for the No-Action Alternative.

4.2.3 Transportation

For the Proposed Action and the Non-Aviation with Mixed-Density Residential Alternative, Mather AFB is intended to be developed under the TOD concept adopted by Sacramento County. The purpose of the TOD concept is to reduce automobile trip generation expected under conventional development. This would be accomplished by placing higher-density residential areas near enough to shopping/job core areas to encourage walking and the use of bicycles. Further, a transit network would be overlaid on the community that would encourage use of public transit from the core areas.

Traffic. Project-generated effects of road traffic for the various alternatives are assessed by estimating the number of trips generated from on-site employment and residents for each land use alternative and distributing them onto base access roads. Appendix E further develops this methodology. For the Proposed Action and the Non-Aviation with Mixed-Density Residential Alternative, the effect of the TOD planning concept upon traffic generation and, hence LOS, is assessed assuming trip reduction discount rates ranging from zero percent, to 5, 10, 15, and 20 percent. A range of rates is considered because of the uncertainty regarding the impact the TOD concept will have on reducing project-generated traffic. The discount percentages used here were determined after discussions with Sacramento County Public Works and Planning Department staffs.

The county of Sacramento is currently updating its regional transportation model which will address the capacity of the existing roadway system both on and off base. The model will project future highway and transit needs so that a complete assessment of transportation facilities can be accomplished. The model will reveal appropriate future capacity requirements for existing and new roadways in the vicinity of the project area based upon potential traffic generated by on-base development as well as other potential development off base. The transportation analysis presented here provides data on potential traffic generated by each of the reuse alternatives that could be used in that model.

Construction and renovation of on-site facilities are projected to take place throughout the study period. Effects of construction worker traffic have been added to the effects of traffic generated by potential workers located on-base and visitors to the base area. Table 4.2-2 summarizes the total daily trips on key

Table 4.2-2. Daily Trips Generated by the Proposed Action and Alternatives, Including Construction Workers

	1999	2004	2014
Proposed Action	35,092	54,203	85,849
Non-Aviation with Mixed-Density Residential	96,072	119,515	163,775
General Aviation with Aircraft Maintenance	36,573	55,392	93,120
Non-Aviation with Low-Density Residential	114,718	142,897	194,045
No-Action	180	180	180

community roadways which would be generated by each alternative for each of the reference years (1999, 2004, and 2014). The data in the table include both operations and construction workers, but do not assume any discount for possible traffic reductions attributable to implementation of the TOD concept. These discounts are discussed under each alternative.

Air and Rail Traffic. Because none of the alternatives assume development of local air passenger service or intercity railroad passenger service, changes in use of local railroads and passenger air travel service are assumed to be proportional to changes in Sacramento County population induced by each of the alternatives as well as post-closure population.

Public light rail and bus transit would be affected by the Proposed Action and alternatives to the extent that they are developed in the project area. Use of the TOD concept incorporates such development and will to some extent reduce the use of automobiles which will encourage use of public transit.

Airspace/Air Traffic. Aviation activities associated with the Proposed Action and the alternatives are considered to determine the potential effects they could have on civil and military airspace use in the ROI. The reuse activities are evaluated against the conditions of airspace utilization, flight operations, air traffic control procedures, and airspace standards in effect prior to base closure. Potential effects are assessed, based on the extent to which activities associated with the Proposed Action or alternatives (1) restrict, limit, or otherwise delay other air traffic in the region; (2) encroach on airspace designated for special use in the area; or (3) require modifications to air traffic control systems and/or facilities. The impact analyses also consider the relationship of the projected aircraft operations to the operational capacity of the airport.

The FAA is ultimately responsible for evaluating the specific effects which the use of an airport will have on the safe and efficient use of navigable airspace by aircraft. Such an evaluation is based on details contained on an Airport Layout Plan. Once this evaluation is complete, the FAA determines the actual requirements for facilities, terminal and enroute airspace, and instrument flight procedures.

4.2.3.1 Proposed Action

Roadways. Residential uses would generate over 37,800 daily trips by the year 2014. Other major traffic-generating land uses include commercial (about 24,400 trips), and office (about 5,200 trips). These three land uses would generate about 67,400 daily trips of the approximately 85,800 trips generated by all land uses by the year 2014 including construction workers. Table 4.2-3 shows total daily projected trips generated by each of the proposed land uses and by construction workers for each of the key study years. In the early years following base closure, up to 1999, traffic generated by construction workers would decrease from about 10 percent to only about 2.9 percent.

Table 4.2-3. Daily Trips Generated by Each Proposed Land Use and Construction Workers - Proposed Action

Land Use	1999	2004	2014
Airport	4,791	4,791	4,791
Aviation Industrial	900	3,027	3,027
Commercial	4,780	11,009	24,411
Office	414	2,016	5,170
Hospital	1,601	1,601	1,601
Educational Complex	3,989	3,989	3,989
Public Schools	2,063	2,346	2,826
Parks/Recreation	0	1,409	1,409
Residential	15,929	22,898	37,872
Construction Workers	1,029	1,117	753
Total Trips	35,496	54,203	85,849

Effects of Project-Generated Traffic on Key Community Roads. Table 4.2-4 shows the distribution of the AADT generated under the Proposed Action by operations and construction workers on each of the key community roads for each of the three study years. The number of trips generated by construction workers is derived by assuming that each construction worker would generate 3.5 daily trips.

The most important key community roads would be Zinfandel Drive which would carry about 17,800 daily project-related trips by the year 2014, and Excelsior Road which would receive about 14,500 daily trips. By the year 2014

Table 4.2-4. AADT on Key Community Roadways - Proposed Action

Key Roadway	1999	2004	2014
Zinfandel Drive	7,264	11,220	17,771
Excelsior Road North	5,931	9,160	14,508
Mather Field Drive	5,053	7,805	12,362
Old Placerville Road	4,878	7,534	11,933
Douglas Boulevard	4,527	6,992	11,074
Kiefer Boulevard West	3,965	6,125	9,701
Routiers Road North	3,579	5,529	8,757

Note: Data do not total to 100 percent of total trips generated because only those roads that would have at least 10 percent of the project-generated traffic are included.

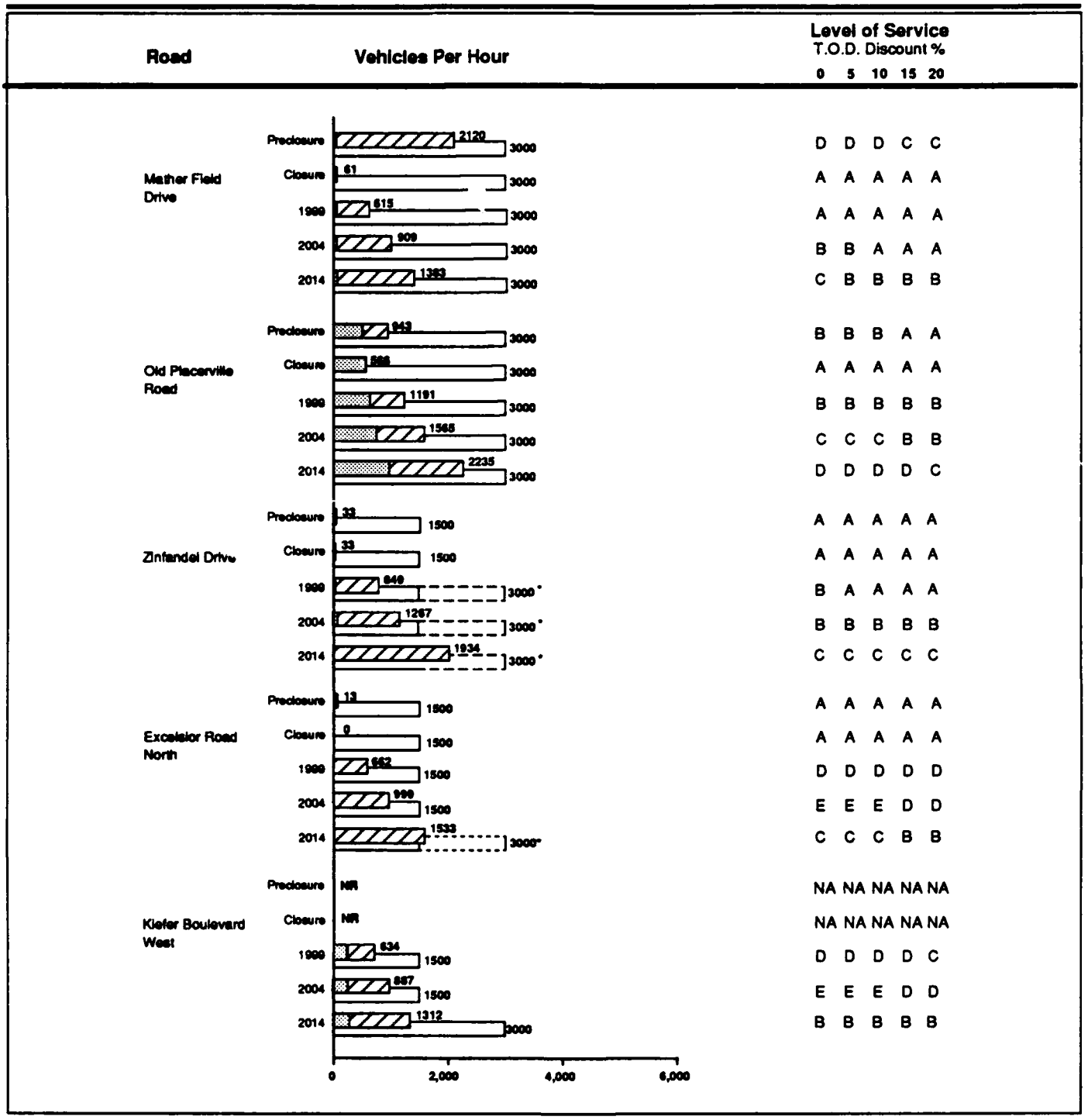
the Proposed Action would generate about 85,800 trips daily (including construction workers), or about 2.5 times the approximately 33,700 trips generated by the base in 1988 (Omni-Means, Ltd., 1988).

Figure 4.2-6 shows project-generated peak-hour traffic for the years 1990 (preclosure), 1994 (closure), 1999, 2004, and 2014 for each of the seven key community roads. Zinfandel Drive would realize the greatest project generated peak-hour traffic load of about 1,900 vehicles by the year 2014. Excelsior Road North would have the next highest project-induced, peak-hour volume with about 1,500 vehicles.

Effects of Community Growth Traffic on Key Community Roads. Figure 4.2-6 also sets forth post-closure (non-project generated) peak-hour traffic volumes for each of the key community roads, for each of the project study years through 2014. Post-closure traffic is projected to increase in proportion to the projected population growth in Sacramento County for this alternative (about 1.84 percent per year).

Summary of Effects on Key Community Roads. Figure 4.2-6 also shows the projected LOS for each key community road, for each study year, and for five TOD discount rates (including zero percent). It is assumed that the key community roads will be widened when necessary, to the capacity needed to keep the LOS from dropping to F. Such widening is indicated by the capacity bar shown in Figure 4.2-6. Roadways requiring widening would be: Zinfandel Drive to four lanes by 1999, Excelsior Road North to four lanes by 2014, Kiefer Boulevard to four lanes by 2014, and Routiers Road North to four lanes by 2004.

When Zinfandel Drive is constructed south to the base it would relieve traffic on all of the key community roads that provide access to the north (Old Placerville Road North, Mather Field Drive, and Sunrise Boulevard). The southward extension of Zinfandel Drive is anticipated (see Section 2.2, Project Description), however the year of its construction is unknown (presumably not before the



EXPLANATION

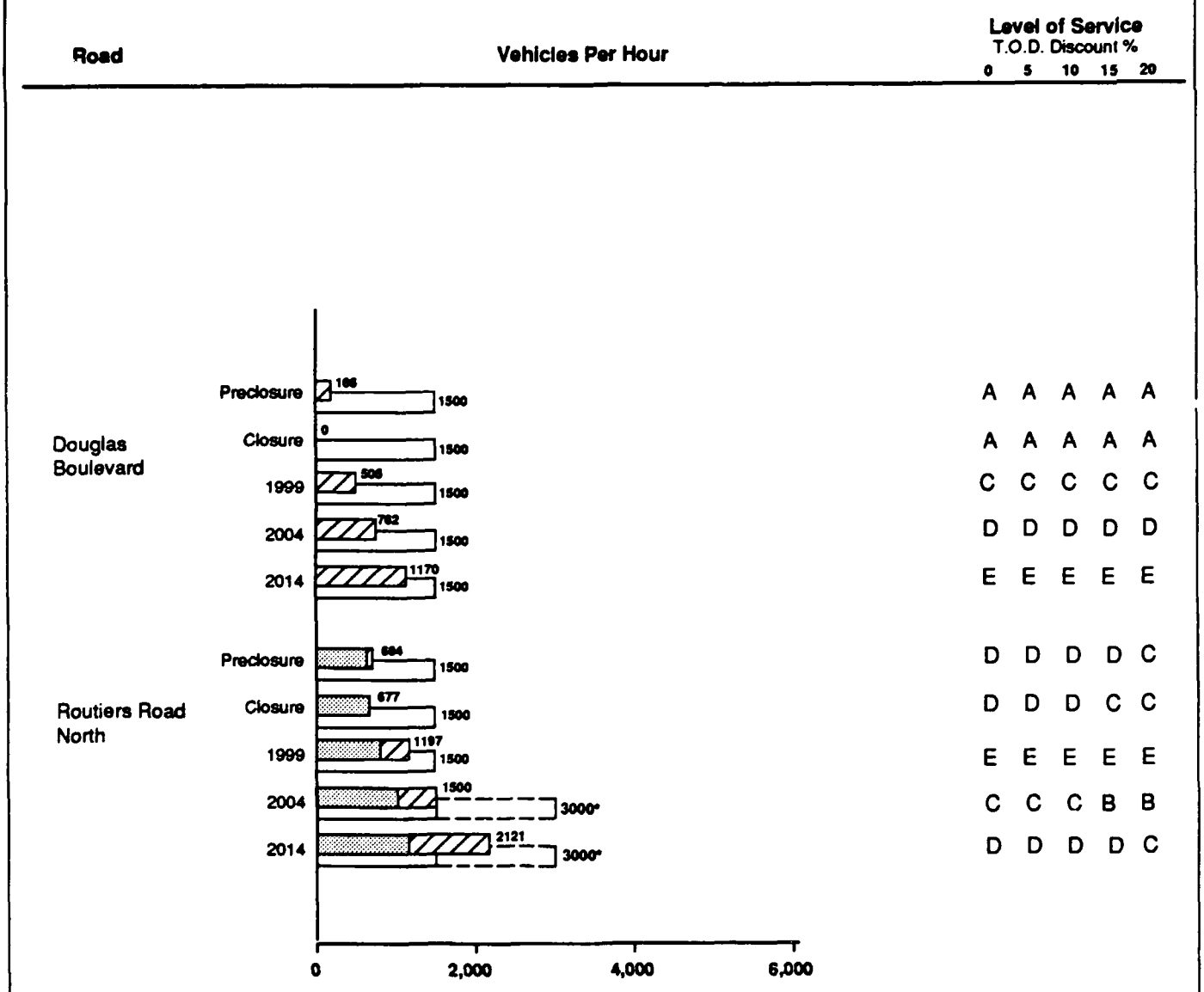
- Non-Project Generated Traffic
- Project Generated Traffic
- Capacity
- Future Capacity

*Roadway capacities have been increased in certain years to assure that traffic conditions will not drop to LOS F.

NA = Not Applicable, No Road

Peak-Hour Traffic Volume-Proposed Action

Figure 4.2-6



EXPLANATION

- Non-Project Generated Traffic
- Project Generated Traffic
- Capacity
- Future Capacity

*Roadway capacities have been increased in certain years to assure that traffic conditions will not drop to LOS F.

Peak-Hour Traffic Volume-Proposed Action

Figure 4.2-6 (continued)

land, where the road would be constructed, is developed). Like Mather Field Drive and Sunrise Boulevard it would provide direct access to U.S. Highway 50. It is assumed that it will be constructed to four lanes by 1999.

Effects on Key On-base Roads. Although the present LOS on all on-base roads is reported to be A (Omni-Means, Ltd., 1988), the Proposed Action would generate about three times more traffic than is currently generated on the base. Much of it, however, would be generated in the area southeast of the airfield where there is little traffic generation at the present time. Consequently, with some exceptions, on-base roads should be able to accommodate projected traffic increases.

One exception is Mather Boulevard (easterly extension of E and G avenues), which is, as are all other on-base roadways, a two-lane road. Mather Boulevard is the only roadway which provides access from the north side of the airfield to the south side. Although much of the Proposed Action traffic generated south of the airfield would use existing gate roadways, and planned additional roadways, Mather Boulevard's present capacity of approximately 1,500 peak-hour vehicles would have to be increased to accommodate peak-hour traffic upon buildout of the Proposed Action. Mather Boulevard would provide the only east-west roadway between the extension of Mather Field Drive and Sunrise Boulevard, south of International Drive (about 1 mile to the north). Widening of this road was recommended in the Mather AFB Comprehensive Plan Traffic Element (Omni-Means, Ltd., 1988).

All roadways leading to the present access gates (Eknes Street, 6th Street, Airmen Way, G Avenue, and Douglas Road) would all have to be widened to four lanes or be provided with controlled access to reduce side friction (caused by driveways and frequent intersections). One on-base intersection, Mather Boulevard and E Avenue, is already operating at an overall nighttime LOS of D, and a worst-case level of E (Omni-Means, Ltd., 1988). Under the Proposed Action this intersection would realize increased congestion unless both streets are improved (such as four lanes with signalization).

If the present roadways are accepted into the county road system, they will require upgrading to comply with county road construction standards (to assure minimum maintenance) and possible widening to maintain adequate carrying capacity.

Airspace/Air Traffic. The Proposed Action provides that future aviation activity will be accommodated by the existing system of runways, taxiways, and aircraft parking facilities. In future years, an aircraft apron and other aircraft service and storage facilities may be constructed on the south side of Runway 04R/22L. Except for the possibility of these new aircraft ground terminal facilities, no new airport development is proposed for the civil reuse of Mather AFB.

The Proposed Action includes, in addition to the projected civil aviation activity, continued use of Mather AFB by the California Army National Guard, transient military aircraft and by based non-military governmental agency aircraft. For airspace planning purposes, it is assumed that the existing navigational aids and instrument approach procedures will be retained to support these military and non-military governmental aircraft operations. It is also assumed that currently available FAA radar approach control services will continue to be furnished to Mather AFB. Three scenarios are possible relative to an ATCT at Mather AFB: (1) the FAA could assume operation of the existing ATCT on a full-time basis; (2) if initial aircraft operations levels do not justify an FAA-operated ATCT, the airport owner/operator could provide a non-federally operated ATCT on a full or part-time basis or; (3) the ATCT could be permanently closed.

Airport traffic patterns for VFR operations at Mather presently include separate and distinct patterns to the northwest for Runway 04L/22R and to the southeast for Runway 04R/22L (see Appendix H). In as much as the projected aircraft fleet mix for the Proposed Action has the same general operating characteristics as the aircraft now operating at Mather there should not be any requirements to significantly alter the VFR traffic patterns or the airport-related ATC procedures related to each of the runways. Since the aviation forecast does not include operations by tactical type aircraft, it can be assumed that the 360-degree overhead traffic patterns which now exist on both parallel runways would be discontinued.

The conversion of Mather AFB to civilian use does not create air traffic operational conditions that would change the traffic pattern flow associated with IFR landings and takeoffs at the airport. The 1,000-foot runway centerline separation distance between the existing runways is less than the minimum runway separation distance required for simultaneous IFR landings and takeoffs. Either runway can be used for individual aircraft operations, however, IFR arrivals and departures will continue to be controlled on the basis of a single runway configuration. The existing IFR aircraft traffic patterns would continue to be used for IFR aircraft operations.

The existing ILS is compatible with civil aircraft instrumentation and could be retained to maintain precision approach capability. A very high frequency omni-directional range (VOR) navigational aid with distance measuring equipment (DME) would be needed to supplement the TACAN system, which is not compatible with civil airborne equipment. This VOR/DME navigational aid would give civil aircraft that are not equipped with the more sophisticated ILS the capability to conduct non-precision instrument approaches to Mather. The decision to install this navigational aid system would depend on operational needs and availability of funds, as determined by the FAA and the airport proponent.

The Proposed Action would not encroach upon the defense-related Military Operation Areas (MOAs), Alert Area, or Military Training Routes (MTRs) presently scheduled or controlled by Mather AFB. The MOAs and MTRs may be transferred in whole or in part to other military organizations for their use. One or more of these areas or routes could be discontinued if cessation of the present Mather AFB missions negates the requirements for any further use of these airspace areas. Regardless of the disposition of the MOAs and MTRs, these areas are not within the ROI associated with any proposed aviation-related reuse of Mather AFB.

Airport Capacity. The FAA methodology for determining airport capacity for long-range planning purposes (FAA Advisory Circular 150/5060-5, Airport Capacity and Delay, 9-23-83) is used to determine the Annual Service Volume (ASV) for the Mather airfield. The ASV is essentially the number of annual unconstrained aircraft operations that a runway system can accommodate. Calculation of the ASV considers such factors as runway use, aircraft mix and weather conditions, and acceptable delay levels that would typically be encountered over a 1-year period. The projected aircraft operations are compared to the ASV to determine if the airport can accommodate the future demand.

With respect to the existing runway configuration, the projected fleet mix (see Table 2.2-2), and the other factors used to determine capacity, the ASV for Mather was calculated to range from 285,000 operations in 1994 to 355,000 operations by 1999, and then decline to 275,000 operations in the year 2014. The decline in the ASV in the long-range planning period is a result of the high percentage of large aircraft that are projected to occur relative to the total operations by all aircraft types.

Table 4.2-5 provides a comparison of the Proposed Action aviation demand forecasts with the annual service volumes for each planning period. The forecast of aircraft operations exceed the ASV only in the long-range planning period (2014) and then by less than 10 percent. As previously noted, the ASV represents the unconstrained annual capacity. The airport could serve aircraft operations in excess of the ASV. However, extensive delays begin to occur when the ASV is exceeded. Thus, aircraft inbound to or departing from Mather will begin to experience delays when the level of aircraft operations approaches and surpasses the ASV.

In summary, the Proposed Action should have no impacts upon the terminal area airspace or upon the airspace areas needed for VFR and IFR landings and takeoffs at Mather AFB. To provide non-precision instrument approach capability for civil aircraft, a navigational aid that is compatible with civil aircraft airborne equipment will be needed at Mather. The civil and military aviation demand projected for Mather under the Proposed Action will exceed the long range ASV for the airport resulting in increased delays to aircraft operations.

Table 4.2-5. Proposed Action - Aircraft Operations versus Annual Service Volume

Forecast Year	Forecast Operations	Annual Service Volume
1994	11,725	285,000
1999	214,191	355,000
2004	247,847	355,000
2014	302,867	275,000

Air Transportation. At a minimum, use of the Sacramento Metropolitan Airport can be expected to increase in proportion to the projected population growth in Sacramento County. For the Proposed Action, that population is projected to increase by about 54.5 percent between 1990 and 2014 (average annual rate, about 1.84 percent per year). Assuming the same per capita use as in 1990, the Sacramento Metropolitan Airport will grow from about 3.8 million annual passengers (MAP) in 1990 to about 5.89 by 2014. This is about 0.24 percent more passengers than projected for 2014 with the No-Action Alternative. Per capita use of air passenger service continues to increase, however, and the usage in 2014 will most likely be greater than 5.89 MAP.

Development of general aviation at Mather AFB will, to the extent convenient to private aircraft owners, relieve some pressure for based aircraft usage in the region. It will also provide an additional private aircraft base for the growing population.

Railroad Transportation. As with air transportation, ridership at the Sacramento AMTRAK station can be expected to increase in proportion to the projected population growth in the area. Assuming the same per capita ridership as in 1990, the ridership at the Sacramento AMTRAK station will increase from about 40,000 in 1990 to about 61,800 in 2014. This is about 0.24 percent more passengers than projected for 2014 with the No-Action Alternative.

With the use of the TOD land development concept, a transit network would overlay the base development area which would encourage greater use of both bus and light rail than could be expected with conventional development. The extent of the use of such transit facilities would be similar to the extent that daily automobile trips would be reduced with the use of the TOD concept (i.e., somewhere between zero and 20 percent). The percentage of commuters and others that would use public transit is not known, but if vehicle traffic is reduced by 10 percent, transit ridership would be about 10,700 for the Proposed Action (assuming 1.25 passengers per automobile).

Cumulative Impacts. There are no cumulative impacts to airspace and railways.

Sunrise Boulevard is the only nearby road that would be affected by known future development in the area. The Douglas-Sunrise residential development located at the southeast quadrant of the intersection of Douglas Road and Sunrise Boulevard could generate as many as 10,800 daily trips on Sunrise Boulevard (240 acres x 6 dwelling units per acre x 7.5 trips per dwelling unit). These trips would be added to the approximately 3,300 trips projected to be generated by the Proposed Action by the year 2014. These approximately 14,100 daily trips can be easily handled by the four-lane Sunrise Boulevard.

Mitigation Measures. With the road widening assumptions made for this project, no mitigations would be required to prevent roadways from dropping to LOS F.

With respect to aircraft operations, the impact analyses for the Proposed Action indicates that the long range forecast of aircraft operations at Mather will exceed the airport ASV. In the earliest years of civil use, the demand levels would not exceed capacity. However, as operations increase, the airport planning process will have to identify means of providing additional runway capacity. Alternatively, a redistribution of demand might occur. If there is adequate runway capacity throughout the Sacramento area, owners might relocate their aircraft to another facility as delays at Mather increase. A third possibility is that additional capacity could be achieved at Mather by constructing a third parallel runway on the airport. An Airport Master Plan prepared to accompany conversion of Mather AFB to civil use should determine the feasibility of developing an expanded runway system.

4.2.3.2 Non-Aviation with Mixed-Density Residential Alternative

Roadways. As with the Proposed Action, Mather AFB is intended to be developed under the TOD concept.

The land use that would generate the most traffic would be the residential land use which would generate about 116,000 daily trips by the year 2014. Other major traffic-generating land uses include commercial (about 16,800 trips), and office (about 11,700 trips). These three land uses would generate about 144,500 of the approximately 163,800 total daily trips generated by all land uses projected to the year 2014, including construction workers. Table 4.2.6 shows projected total daily traffic generated by each of the proposed land uses and construction workers for each of the key study years. In the early years following base closure, traffic generated by construction workers would decrease from approximately 17 percent of the total to approximately 6 percent by 1999.

Effects of Project-Generated Traffic on Key Community Roads. Table 4.2-7 shows the distribution of the daily trips generated under the Non-Aviation with Mixed-Density Residential Alternative by operations and construction workers on each of the key community roads and for each of the three study years.

Table 4.2-6. Daily Trips Generated by Each Proposed Land Use and Construction Workers - Non-Aviation with Mixed-Density Residential Alternative

Land Use	1999	2004	2014
Industrial	550	1,008	2,656
Commercial	3,049	6,605	16,768
Office	2,131	4,617	11,720
Hospital	1,931	1,931	1,931
Educational Complex	473	473	473
Public Schools	6,892	8,108	10,135
Parks/Recreation	1,391	1,391	1,391
Residential	77,733	92,816	116,020
Construction Workers	1,922	2,566	2,681
Total Trips	96,072	119,515	163,775

Table 4.2-7. AADT on Key Community Roadways - Non-Aviation with Mixed-Density Residential Alternative[a]

Key Roadway	1999	2004	2014
Mather Field Drive	21,616	26,891	36,849
International Drive	13,450	16,732	22,928
Routiers Road South	11,720	14,581	19,981
Kiefer Boulevard West	11,144	13,864	18,998
Routiers Road North	10,184	12,669	17,360
Excelsior Road North	9,895	12,310	16,869
Zinfandel Drive	9,799	11,654	16,705

(a) Includes trips generated by both construction workers and operations activities.

The most important key community road would be Mather Field Drive which would carry about 36,800 daily trips generated by this alternative in the year 2014. International Drive would receive about 22,900 daily trips, and Routiers Road South about 20,000 daily trips. By the year 2014 this alternative is projected to generate about 163,800 trips daily (including construction workers), or about 4.4 times the approximately 33,700 trips generated by the base in 1988.

Figure 4.2-7 shows project-generated peak-hour traffic for the study years. Mather Field Drive would realize the greatest project-generated peak-hour traffic load of about 3,800 vehicles by the year 2014. International Drive would have the next highest project-induced peak-hour volume with about 2,400 vehicles.

Effects of Community Growth Traffic on Key Community Roads. Figure 4.2-7 also sets forth post-closure (non-project generated) peak-hour traffic volumes for each of the key community roads, for each of the project study years through 2014. Post-closure traffic is projected to increase in

proportion to the projected population growth in Sacramento County for this alternative (about 1.85 percent per year).

Summary of Effects on Key Community Roads. Figure 4.2-7 also shows the projected LOS for each key community road, for each study year, and for five TOD discount rates (including zero percent). It is assumed that the key community roads will be widened when necessary to the capacity needed to assure that the LOS will not drop to Level F. Roadways requiring widening would be Zinfandel to four lanes by 1999, Excelsior Road North and Kiefer Boulevard to four lanes by 2014, and Routiers Road North to four lanes by 2004.

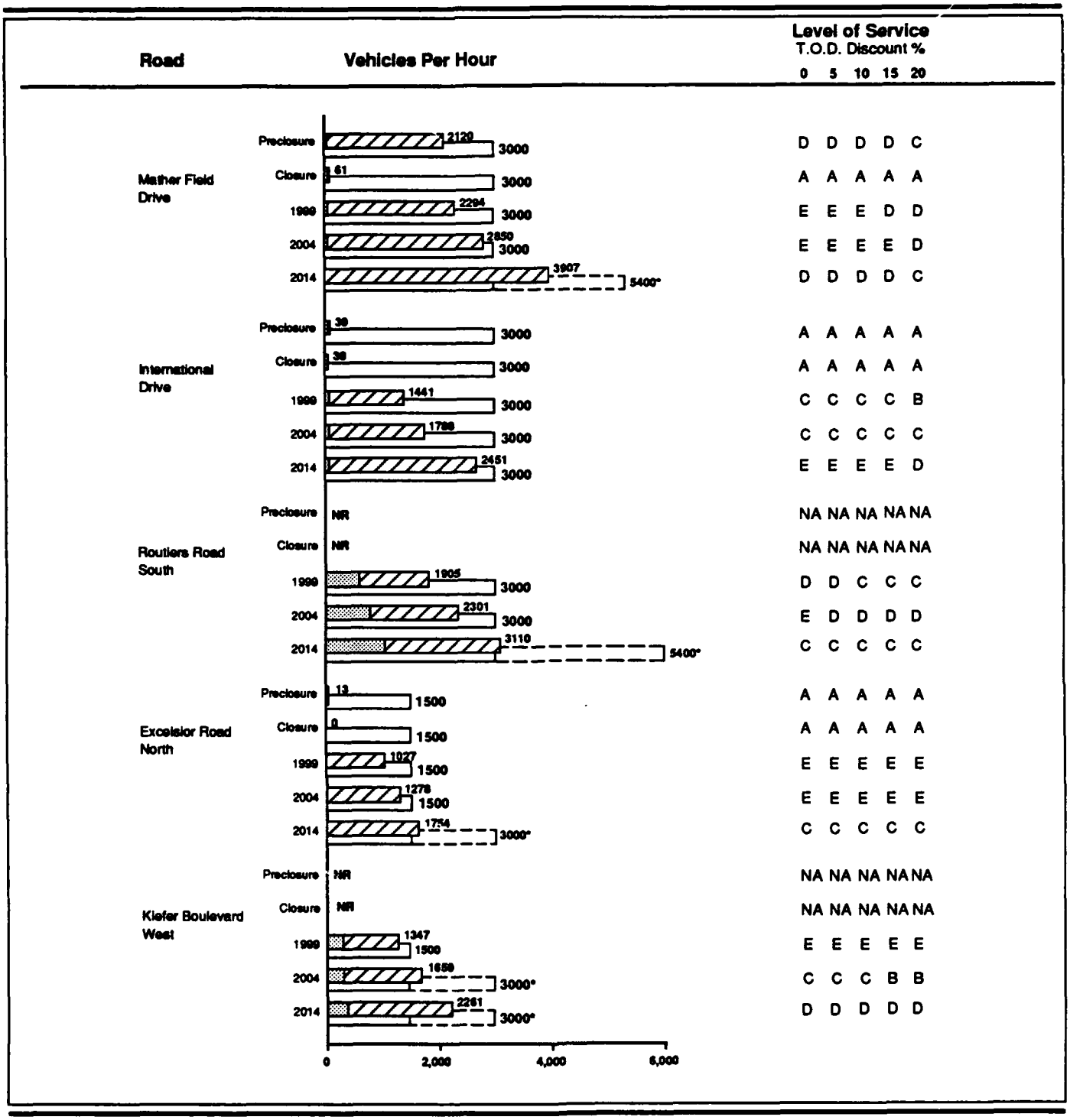
Effects on Key On-base Roads. Although this alternative would generate over 1.7 times as much traffic as the Proposed Action (because of the much larger residential area), except for Mather Boulevard, the effects on on-base roads would be similar to those set forth in Section 4.2.3.1, Proposed Action. This is because development of the airport area with mostly low-density residential uses would disperse traffic and relieve the more intensive use of Mather Boulevard that would otherwise be found with the Proposed Action.

Airspace/Air Traffic. This alternative includes replacement of the airfield with low-density housing, and there would be no aviation activity after base closure. Cessation of all air operations at Mather would eliminate the need for all of the airspace associated with the VFR and IFR airfield traffic patterns, published instrument approach procedures, and the transitioning of aircraft between the airbase and the enroute airspace system. The elimination of Mather-related airspace requirements and air traffic operations would provide additional unconstrained airspace for the overall air traffic control environment in the ROI.

The Mather TACAN is a navigational aid that can be used only by military aircraft. The Mather ILS can only serve Mather AFB. Because these navigational aids cannot play a role in the national airspace system, the decommissioning of the equipment would not affect airspace management in the area.

Air Transportation. At a minimum, use of the Sacramento Metropolitan Airport can be expected to increase in proportion to the projected population growth in Sacramento County. For this alternative, population is projected to increase by about 55 percent between 1990 and 2014 (average annual rate, about 1.85 percent per year). Assuming the same per capita use as in 1990, Sacramento Metropolitan Airport will grow from about 3.8 MAP to about 5.9 MAP by 2014. This is about 0.47 percent more passengers than projected for 2014 with the No-Action Alternative. Per capita use of air passenger service continues to increase, however, and the usage in 2014 will most likely be greater than 5.9 MAP.

Railroad Transportation. As with air transportation, ridership at the Sacramento AMTRAK Station can be expected to increase in proportion to the projected population growth in the area. Assuming the same per capita



EXPLANATION

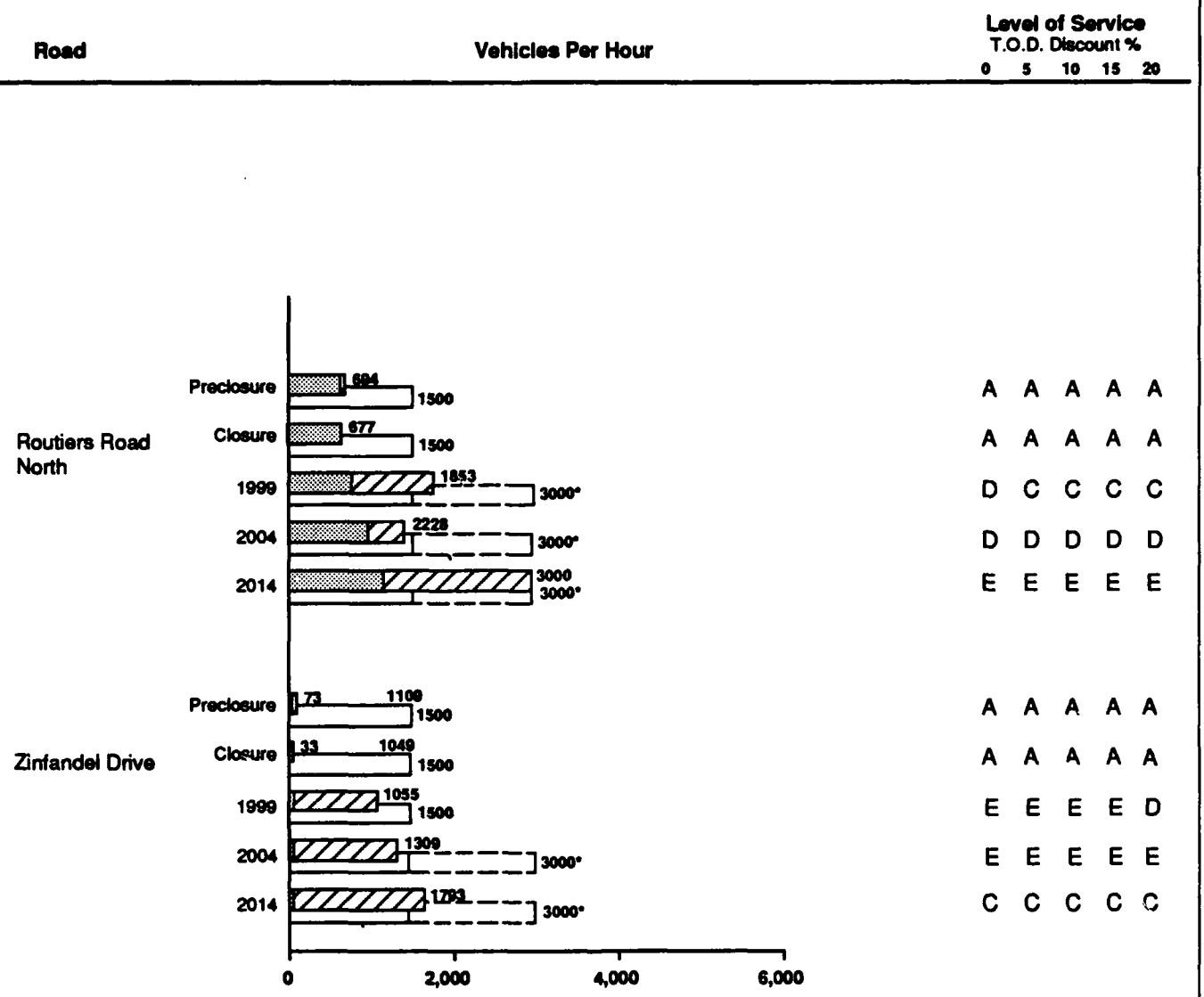
- Non-Project Generated Traffic
- Project Generated Traffic
- Capacity
- Future Capacity

*Roadway capacities have been increased in certain years to assure that traffic conditions will not drop to LOS F.

NA = Not Applicable, No Road

Peak-Hour Traffic Volume-Non-Aviation with Mixed-Density Residential Alternative

Figure 4.2-7



EXPLANATION

- Non-Project Generated Traffic
- Project Generated Traffic
- Capacity
- Future Capacity

*Roadway capacities have been increased in certain years to assure that traffic conditions will not drop to LOS F.

Peak-Hour Traffic Volume-Non-Aviation with Mixed-Density Residential Alternative

Figure 4.2-7 (continued)

ridership as in 1990, the ridership at the Sacramento AMTRAK Station will increase from about 40,000 in 1990 to about 62,000 in 2014. This is about 0.47 percent more passengers than projected for 2014 with the No-Action Alternative.

With the use of the TOD land development concept, a transit network would overlay the base development area which would encourage greater use of both bus and light rail than could be expected with conventional development. The extent of the use of such transit facilities would be similar to the extent that daily automobile trips would be reduced with the use of the TOD concept (i.e., somewhere between zero and 20 percent), less pedestrian traffic. If vehicle travel is reduced by 10 percent as a result of the availability of public transit and the TOD concept, transit ridership from the base area would be about 20,500 (assuming 1.25 passengers per vehicle).

Cumulative Impacts. There are no cumulative impacts to airspace and railways.

Sunrise Boulevard is the only key community road that would be affected by known future development in the area. The Douglas-Sunrise residential development located at the southeast quadrant of the intersection of Douglas Road and Sunrise Boulevard could generate as many as 10,800 daily trips on Sunrise Boulevard (240 acres x 6 dwelling units per acre x 7.5 trips per dwelling unit). These trips would be added to the approximately 7,000 trips projected to be generated by this alternative by the year 2014. These approximately 17,800 daily trips could easily be handled by Sunrise Boulevard.

Mitigation Measures. With the road widening assumptions made for this project, no mitigations would be required to prevent roadways from dropping to LOS F. Any traffic congestion conditions can be alleviated by providing roadways with access control to reduce side friction (such as with frontage roads or reduction of driveways).

4.2.3.3 General Aviation with Aircraft Maintenance Alternative

Roadways. Traffic generation for all ten types of land use plus construction workers have been analyzed. The land use that would generate the most traffic would be commercial which would generate about 36,900 daily trips by the year 2014. The other major traffic-generating land use is residential (about 30,000 trips). These two land uses would generate about 66,900 daily trips of the approximately 93,100 trips generated by all land uses by the year 2014, including construction workers. Table 4.2-8 shows total daily traffic projected to be generated by each of the proposed land uses and construction workers for each of the key study years. In the early years following base closure, traffic generated by construction workers would decrease from about 12.5 percent of the total to about 3.8 percent by 1999.

Table 4.2-8. Daily Trips Generated by Each Proposed Land Use and Construction Workers - General Aviation with Aircraft Maintenance Alternative

Land Use	1999	2004	2014
Airport	5,382	5,382	5,382
Aviation Industrial	474	896	1,949
Commercial	10,300	18,883	36,907
Light Industrial	947	1,999	4,103
Hospital	1,931	1,931	1,931
Educational Complex	2,410	2,410	2,410
Public Schools	3,549	7,928	8,809
Parks/Recreation	337	337	337
Residential	6,333	14,250	30,084
Construction Workers	1,376	1,376	1,208
Total Trips	33,039	55,392	93,120

Effects of Project-Generated Traffic on Key Community Roads. Table 4.2-9 shows the distribution of the daily trips generated under this alternative by operations and construction workers on each of the key community roads and for each of the three study years.

Table 4.2-9. AADT on Key Community Roadways - General Aviation with Aircraft Maintenance Alternative

Key Roadway	1999	2004	2014
Zinfandel Drive	7,563	11,466	19,276
Excelsior Road North	6,175	9,362	15,737
Mather Field Drive	5,261	7,976	13,409
Old Placerville Road	5,078	7,699	12,944
Douglas Boulevard	4,714	7,146	12,013
Kiefer Boulevard West	4,128	6,259	10,523
Routiers Road North	3,726	5,650	9,498

The most important key community road would be Zinfandel Drive which would carry about 19,300 daily trips generated by this alternative by 2014. Excelsior Road North would receive about 15,700 daily trips, and Mather Field Drive about 13,400 daily trips that year. By the year 2014, this alternative is projected to generate about 93,100 trips daily (including construction workers), or about 2.8 times the approximately 33,700 trips generated by the base in 1988.

Figure 4.2-8 shows project-generated peak-hour traffic for the study years. Zinfandel Drive would realize the greatest project generated peak-hour traffic load of about 2,100 vehicles by the year 2014. Excelsior Road North would

have the next highest project-induced peak-hour volume with about 1,700 vehicles.

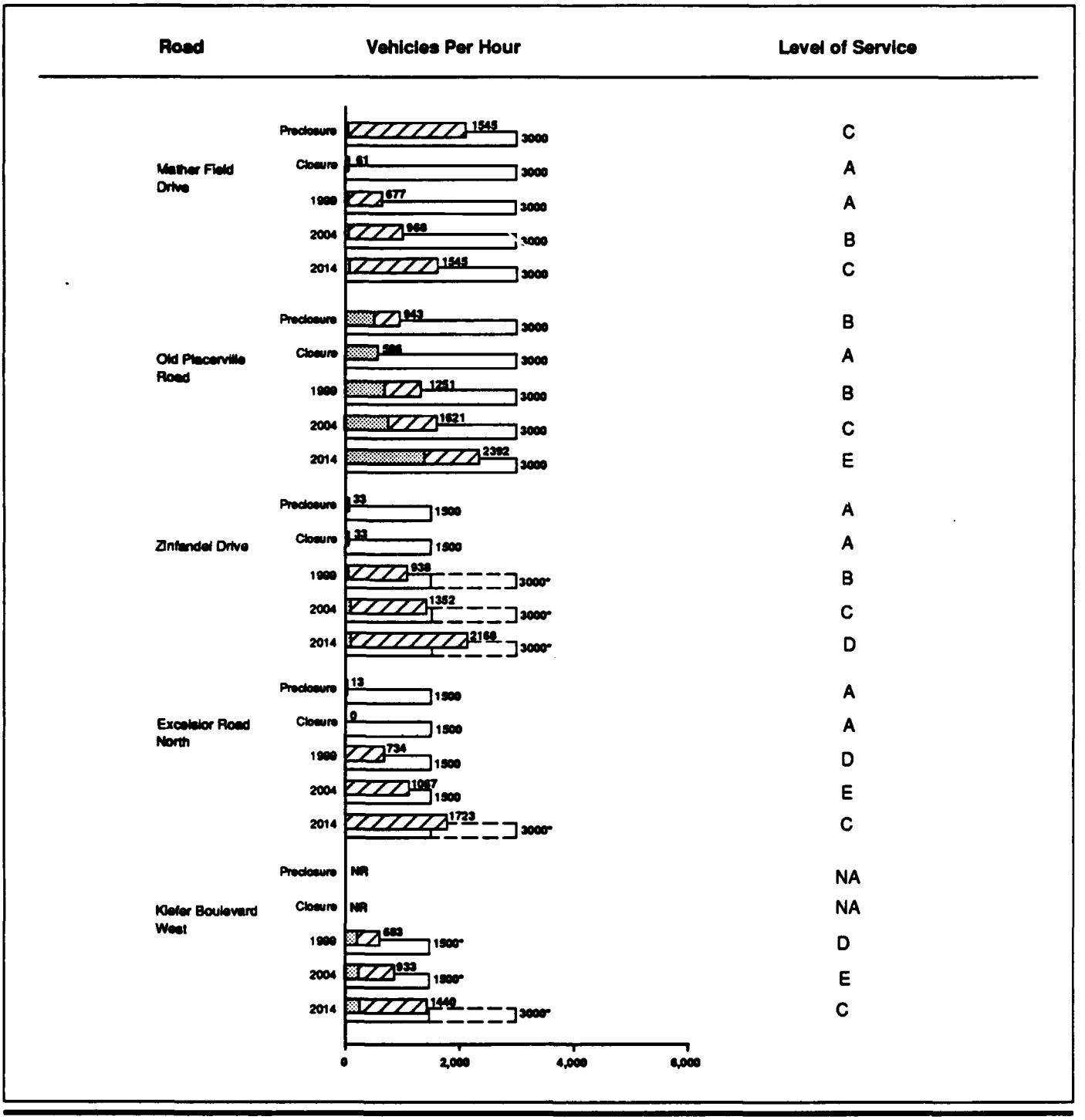
Effects of Community Growth on Traffic on Key Community Roads. Figure 4.2-8 also sets forth post-closure (non-project generated) peak-hour traffic volumes for each of the key community roads, for each of the project study years through 2014. Post-closure traffic is projected to increase in proportion to the projected population growth in Sacramento County for this alternative (about 1.85 percent per year).

Summary of Effects on Key Community Roads. Figure 4.2-8 also shows the projected LOS for each key community road, for each study year. It is assumed that the key community roads will be widened when necessary to the capacity needed to assure that the LOS will not drop to Level F. Roadways requiring widening to four lanes would be Zinfandel Drive by 1999, Routiers Road North by 2004, and Excelsior Road North and Kiefer Boulevard West by 2014.

Effects on Key On-base Roads. Although the present LOS on all on-base roads is reported to be A (Omni-Means, Ltd., 1988), this alternative would generate almost three times more traffic than is currently generated on the base. Much of it, however, would be generated in the area southeast of the airfield where there is little traffic generation at the present time. Consequently, with some exceptions, on-base roads should be able to accommodate projected traffic increases.

One exception is Mather Boulevard (easterly extension of E and G avenues), which is, as are all other on-base roadways, a two-lane road. Mather Boulevard is the only roadway which provides access from the north side of the airfield to the south side. Although much of the General Aviation with Aircraft Maintenance Alternative traffic generated south of the airfield would use existing gate roadways, and planned additional roadways, Mather Boulevard's present capacity of approximately 1,500 peak-hour vehicles would have to be increased to accommodate peak-hour traffic upon buildout. Mather Boulevard would provide the only east-west roadway between the extension of Mather Field Drive and Sunrise Boulevard south of International Drive, about 1 mile to the north. Widening of this road would be consistent with the Mather AFB Comprehensive Plan Traffic Element recommendation that Mather Boulevard be improved to four-lane arterial status (Omni-Means, Ltd., 1988).

Likewise, all roadways leading to the present access gates (Eknes Street, 6th Street, Airmen Way, G Street, and Douglas Road) would have to be widened to four lanes or be provided with controlled access to reduce side friction (caused by driveways and frequent intersections). One on-base intersection, Mather Boulevard and E Avenue, is already operating at an overall nighttime LOS of D, and a worst-case level of E (Omni-Means, Ltd., 1988). Under the Proposed Action plan this intersection would realize even worse congestion unless both streets are improved (such as four lanes with signalization).



Non-Project Generated Traffic

Project Generated Traffic

Capacity

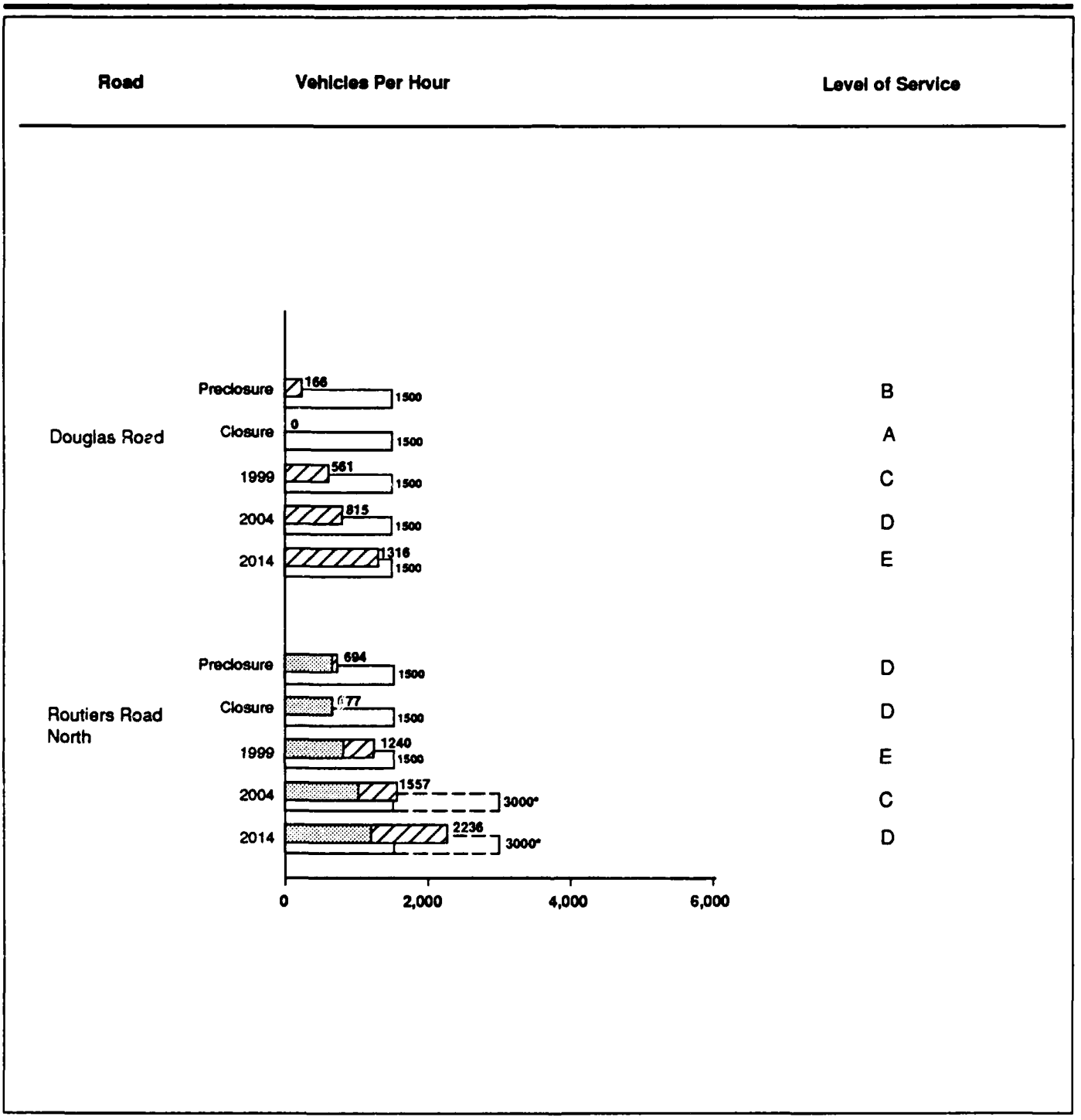
Future Capacity

Peak-Hour Traffic Volume-General Aviation with Aircraft Maintenance Alternative

*Roadway capacities have been increased in certain years to assure that traffic conditions will not drop to LOS F.

NA = Not Applicable, No Road

Figure 4.2-8



EXPLANATION

- Non-Project Generated Traffic
- Project Generated Traffic
- Capacity
- Future Capacity

*Roadway capacities have been increased in certain years to assure that traffic conditions will not drop to LOS F.

Peak-Hour Traffic Volume-General Aviation with Aircraft Maintenance Alternative

Figure 4.2-8 (continued)

If the present roadways are accepted into the county road system, they will require upgrading to comply with county road construction standards (to assure minimum maintenance) and possible widening to maintain adequate carrying capacity.

Airspace/Air Traffic. The General Aviation with Aircraft Maintenance Alternative differs from the Proposed Action to the extent that the projected total number of annual operations by civilian aircraft (general aviation and transport aircraft) is less than the projected operations specified for the Proposed Action. With this alternative, the civil transport aircraft activity is also subdivided into projected operations associated with aircraft maintenance, and operations associated with airline flight training. The forecast military aircraft operations and non-military governmental aircraft operations (U.S. Forest Service and California Department of Forestry) for the General Aviation with Aircraft Maintenance Alternative are the same as those projected for the Proposed Action (see Table 2.3-4, which delineates this forecast of aircraft operations).

This alternative also retains the same airfield facilities as those specified in the Proposed Action. Because the types of aircraft and the airfield facilities are the same as for the Proposed Action, there are no factors associated with this alternative that would alter the airspace, navigational aid, and ATC assumptions used in the impact analyses associated with the Proposed Action. Therefore the findings of the Proposed Action airspace analyses apply to this alternative also; there would be no detrimental airspace impacts resulting from implementation of the General Aviation with Aircraft Maintenance Alternative.

Airport Capacity. Table 4.2-10 delineates the ASVs associated with the projected fleet mix aircraft operations and provides a comparison of the total forecast of operations with the ASV. The ASV ranges from 260,000 operations in 1994 to 355,000 operations in the year 2014. The ASV in the 1999 to 2000 time period is lowest because of the projected high percentage of large aircraft relative to the total forecast aircraft operations. The ASV increases from the year 2000 through 2014 because the percentage of aircraft in the lighter weight categories increases dramatically in that time period. Because the total aircraft operations projected for each planning period are less than the respective ASVs, there are no capacity constraints associated with the General Aviation with Aircraft Maintenance Alternative.

Air Transportation. At a minimum, use of the Sacramento Metropolitan Airport can be expected to increase in proportion to the projected population growth in Sacramento County. For this alternative, population is projected to increase by 55 percent between 1990 and 2014 (average annual rate, about 1.85 percent per year). Assuming the same per capita use as in 1990, Sacramento Metropolitan Airport will grow from about 3.8 MAP in 1990 to about 5.9 MAP by 2014. This is about 0.47 percent more passengers than projected for 2014 with the No-Action

Table 4.2-10. General Aviation with Aircraft Maintenance Alternative Projected Aircraft Operations versus Annual Service Volume

Forecast Year	Forecast Operations	Annual Service Volume
1994	20,850	260,000
1999	164,441	355,000
2004	192,847	355,000
2014	232,847	355,000

Alternative. Per capita use of air passenger service continues to increase, however, and the usage in 2014 will most likely be greater than 5.9 MAP.

Development of general aviation at Mather AFB will, to the extent convenient to private aircraft owners, relieve some pressure for based aircraft usage at both Sacramento Metropolitan and Executive airports. It will also provide an additional private aircraft base for the growing population.

Railroad Transportation. As with air transportation, ridership at the Sacramento AMTRAK station can be expected to increase in proportion to the projected population growth in the area. Assuming the same per capita ridership as in 1990, the ridership at the Sacramento AMTRAK station will increase from about 40,000 in 1990 to about 62,000 in 2014. This is about 0.47 percent more passengers than projected for 2014 with the No-Action Alternative.

The county of Sacramento proposes to introduce public transit (buses) into the base area (Sacramento County, 1991). If vehicle travel is reduced by 10 percent as a result of public transit, ridership would be about 11,600 by 2014 (assumes 1.25 persons per automobile).

Cumulative Impacts. There are no cumulative impacts to airspace and railways.

Sunrise Boulevard is the only key community road that would be affected by known future development in the area. The Douglas-Sunrise residential development located at the southeast quadrant of the intersection of Douglas Road and Sunrise Boulevard could generate as many as 10,800 daily trips on Sunrise Boulevard (240 acres x 6 dwelling units per acre x 7.5 trips per dwelling unit). These trips would be added to the approximately 3,500 trips projected to be generated by this alternative by the year 2014. These approximately 14,300 daily trips could easily be handled by Sunrise Boulevard.

Mitigation Measures. With the road widening assumptions made for this project, no mitigations would be required to prevent roadways from dropping to

LOS F. Any traffic congestion conditions can be alleviated by providing roadways with access control to reduce side friction (such as with frontage roads or reduction of driveways).

4.2.3.4 Non-Aviation with Low-Density Residential Alternative

Roadways. For this alternative the land use that would generate the most traffic would be residential, which would generate about 129,000 daily trips by the year 2014. The other major traffic generating land use is commercial (about 37,900 trips). These two land uses would generate about 166,900 daily trips of the approximately 194,000 trips generated by all eight land uses by the year 2014, including construction workers. Table 4.2-11 shows total daily traffic projected to be generated by each of the proposed land uses and construction workers for this alternative for each of the key study years. In the early years following base closure, traffic generated by construction workers would decrease from about 20 percent of the total to about 2.4 percent by 1999.

Table 4.2-11. Daily Trips Generated by Each Proposed Land Use and Construction Workers-Non-Aviation with Low-Density Residential Alternative

Land Use	1999	2004	2014
Light Industrial	735	1,470	3,431
Commercial	9,733	17,844	37,851
Parks/Recreation	731	731	731
Hospital	1,932	1,932	1,932
College	1,615	1,615	1,615
Public Schools	10,818	12,727	15,909
Single Family Residential	86,389	103,151	128,939
Construction Workers	2,765	3,427	3,637
Total Trips	114,718	142,897	194,045

Effects of Project-Generated Traffic on Key Community Roads. Table 4.2-12 shows the distribution of the daily trips generated under this alternative by operations and construction workers on each of the key community roads and for each of the study years.

The most important key community road would be Mather Field Drive which would carry about 43,700 daily trips generated by this alternative by 2014. International Drive would receive about 27,200 daily trips, and Routiers Road South about 23,700 daily trips that year. By the year 2014 this alternative is projected to generate about 194,000 trips daily (including construction workers), or about 5.3 times the approximately 33,700 trips generated by the base in 1988.

Table 4.2-12. AADT on Key Community Roadways - Non-Aviation with Low-Density Residential Alternative [a]

Key Roadway	1999	2004	2014
Mather Field Drive	25,811	32,152	43,660
International Drive	16,060	20,006	27,166
Routiers Road South	13,995	17,433	23,674
Kiefer Boulevard West	13,308	16,577	22,509
Routiers Road North	12,160	15,147	20,569
Excelsior Road North	11,816	14,718	19,987
Zinfandel Drive	11,701	14,576	19,793

(a) Includes trips generated by both construction workers and operations activities.

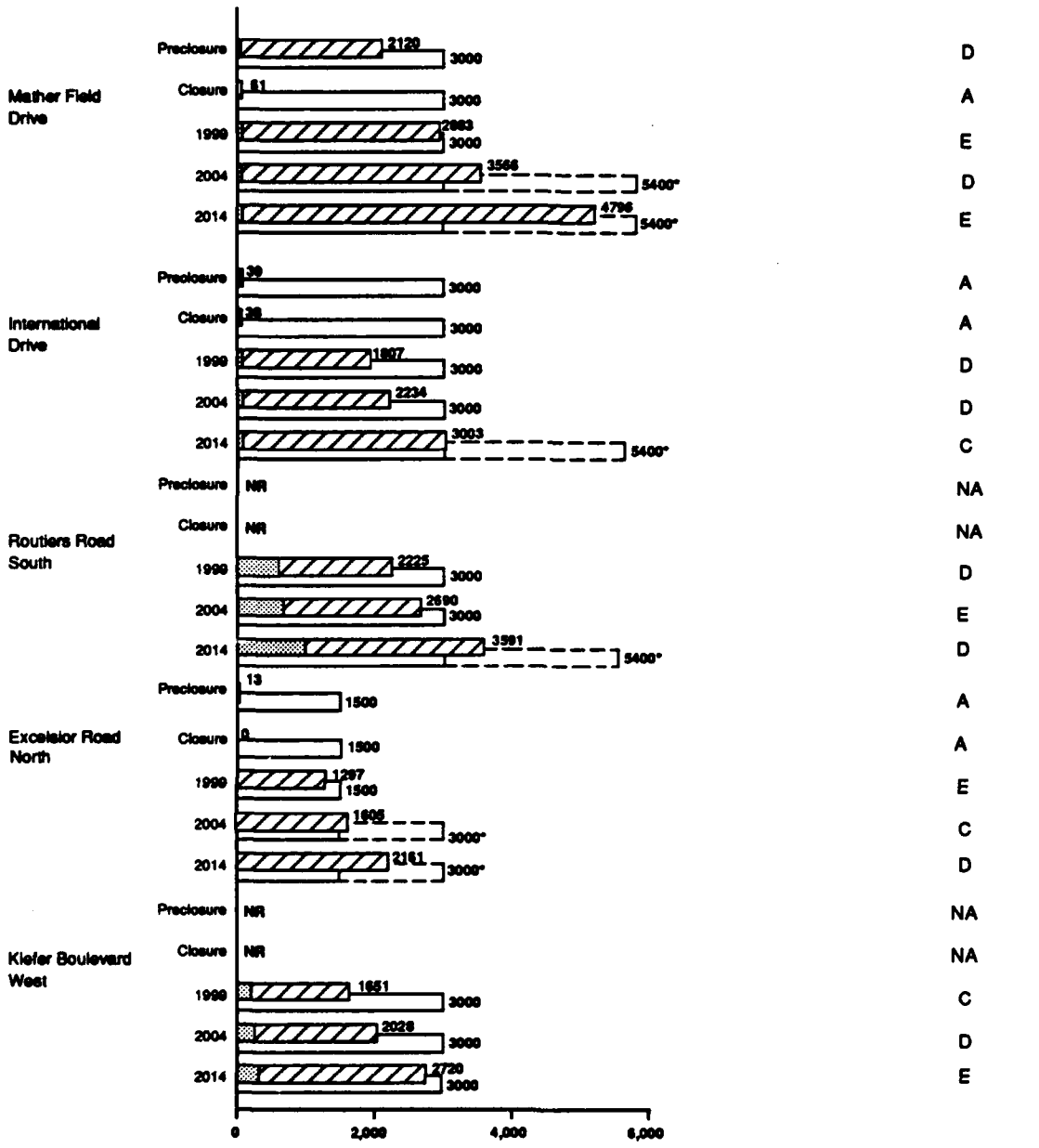
Figure 4.2-9 shows project-generated peak-hour traffic for the study years. Mather Field Drive would realize the greatest project-generated peak-hour traffic load of about 4,700 vehicles by the year 2014. International Drive would have the next highest project-induced peak-hour volume with about 2,900 vehicles.

Effects of Community Growth Traffic on Key Community Roads. Figure 4.2-9 also sets forth post-closure (non-project generated) peak-hour traffic volumes for each of the key community roads, for each of the study years through 2014. Post-closure traffic is projected to increase in proportion to the projected population growth in Sacramento County for this alternative (about 1.85 percent per year).

Summary of Effects on Key Community Roads. Figure 4.2-9 also shows the projected LOS for each key community road, for each study year. It is assumed that key community roads will be widened when necessary to the capacity needed to assure that the LOS will not drop to Level F. Roadways requiring widening to four lanes would be Excelsior Road North by 2004, and Routiers Road North and Zinfandel Drive South by 1999. Mather Field Drive, International Drive, and Routiers Road North would require widening to six lanes by 2014.

Effects on Key On-base Roads. Although the Non-Aviation with Low-Density Residential Alternative would generate more than twice as much traffic as the Proposed Action (because of the much larger residential area), except for Mather Boulevard, the effects on on-base roads would be similar to those set forth in Section 4.2.3.1, Proposed Action. This is because development of the airport area with mostly low-density residential uses would disperse traffic and relieve the more intensive use of Mather Boulevard that would otherwise be found with the Proposed Action.

Airspace/Air Traffic. This alternative provides that the airfield is replaced with low-density housing. Cessation of all air operations at Mather would eliminate



EXPLANATION

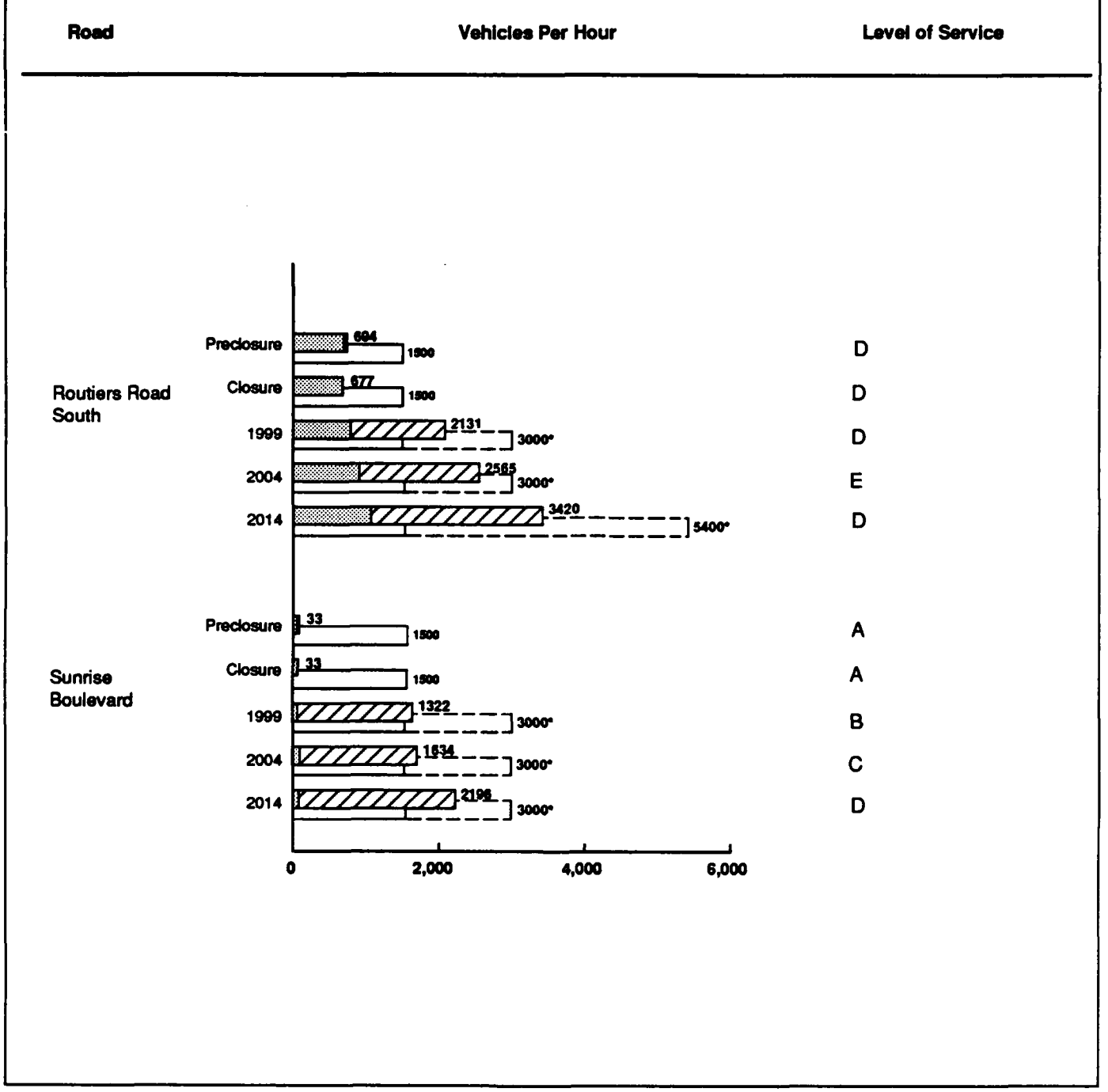
- Non-Project Generated Traffic
- Project Generated Traffic
- Capacity
- Future Capacity

*Roadway capacities have been increased in certain years to assure that traffic conditions will not drop to LOS F.

NA = Not Applicable, No Road

Peak-Hour Traffic Volume-Non-Aviation with Low-Density Residential Alternative

Figure 4.2-9



EXPLANATION

- Non-Project Generated Traffic
- Project Generated Traffic
- Capacity
- Future Capacity

*Roadway capacities have been increased in certain years to assure that traffic conditions will not drop to LOS F.

Peak-Hour Traffic Volume-Non-Aviation with Low-Density Residential Alternative

Figure 4.2-9 (continued)

the need for all of the airspace associated with the VFR and IFR airfield traffic patterns, published instrument approach procedures, and the transitioning of aircraft between the airbase and the en route airspace system. The elimination of Mather-related airspace requirements and air traffic operations would provide additional unconstrained airspace for the overall air traffic control environment in the ROI.

The Mather TACAN is a navigational aid that can be used only by military aircraft. The Mather ILS can only serve Mather AFB. Because these navigational aids cannot play a role in the national airspace system, the decommissioning of the equipment would not affect airspace management in the area.

Air Transportation. At a minimum, use of the Sacramento Metropolitan Airport can be expected to increase in proportion to the projected population growth in Sacramento County. For the Non-Aviation with Low-Density Residential Alternative, population is projected to increase by about 55 percent between 1990 and 2014 (average annual rate, about 1.85 percent per year). Assuming the same per capita use as in 1990, Sacramento Metropolitan Airport, will grow from about 3.8 MAP in 1990 to about 5.9 MAP by 2014. This is about 0.48 percent more passengers than projected for 2014 with the No-Action Alternative. Per capita use of air passenger service continues to increase; however, usage in 2014 will most likely be greater than 5.9 MAP.

Railroad Transportation. As with air transportation, ridership at the Sacramento AMTRAK Station can be expected to increase in proportion to the projected population growth in the area. Assuming the same per capita ridership as in 1990, the ridership at the Sacramento AMTRAK Station will increase from about 40,000 in 1990 to about 62,000 in 2014. This is about 0.47 percent more passengers than projected for 2014 with the No-Action Alternative.

Cumulative Impacts. There are no cumulative impacts to airspace and railways.

Sunrise Boulevard is the only key community road that would be affected by known future development in the area. The Douglas-Sunrise residential development located at the southeast quadrant of the intersection of Douglas Road and Sunrise Boulevard could generate as many as 10,800 daily trips on Sunrise Boulevard (240 acres x 6 dwelling units per acre x 7.5 trips per dwelling unit). These trips would be added to the approximately 6,400 trips projected to be generated by this alternative by the year 2014. These approximately 17,200 daily trips could easily be handled by the four-lane Sunrise Boulevard.

Mitigation Measures. With the road widening assumptions made for this project, no mitigations would be required to prevent roadways from dropping to

LOS F. Any traffic congestion conditions can be alleviated by providing roadways with access control to reduce side friction (such as with frontage roads or reduction of driveways).

4.2.3.5 Other Land Use Concepts. This section discusses the effects of each proposed federal transfer and independent land use concept described in Sections 2.3.4 of this study. The analysis considers the impact of the implementation of each of these plans on traffic conditions in conjunction with the Proposed Action and alternatives. The overlay generated traffic would replace the traffic projected to be generated by each land use specified in the Proposed Action and alternatives. The analysis concentrates on roadway transportation because these proposals and transfers would have little effect on air or rail transportation.

Caltrans R&D Center. Caltrans requests the use of 525 acres of land for the location of the Western R&D Center for federal, state, academic, and commercial uses. With this proposal, and the Proposed Action, there would be a net gain in employment of 3,955 jobs which would generate about 17,700 daily trips. For the Proposed Action, the AADT and peak-hour traffic would be increased by about 20.6 percent; for the Non-Aviation with Mixed-Density Residential Alternative, such traffic would be reduced by about 0.9 percent; for the General Aviation with Aircraft Maintenance Alternative, there would be an increase of about 16.5 percent in traffic; and for the Non-Aviation with Low-Density Residential Alternative, there would be a 6.1 percent increase in traffic above that which would be generated by the alternative without the Caltrans facility.

Theme Park. The theme park proposal would use about 2,050 acres including 50 acres proposed for a hotel area. The theme park and hotel area with the Proposed Action would result in a net gain of about 3,410 jobs which in turn would generate about 65,300 daily trips. However, the loss of 3,450 dwelling units would save about 25,900 daily trips. By the year 2014, for the Proposed Action, the AADT and peak-hour traffic would be increased by about 45.9 percent above that otherwise generated by this alternative without the theme park; for the Non-Aviation with Mixed-Density Residential Alternative, traffic would be about 8.7 percent less; for the General Aviation with Aircraft Maintenance Alternative, there would be a 28.6 percent increase in traffic; and for the Non-Aviation with Low-Density Residential Alternative, there would be 11.3 percent less traffic.

Other Transfers and Conveyances

Numerous transfers have been requested for Mather AFB reuse. Each involves reuse of a limited portion of the base. Only one of these proposals provide information regarding activities sufficient to make traffic projections. Because none of these federal transfers would conflict with the land use patterns presented in the Proposed Action, alternatives, or overlays, they would add traffic to the

traffic projected for those alternatives and overlays. Potential traffic impacts follow:

U.S. Department of Agriculture, U.S. Forest Service Pacific Southwest Region. The Forest Service requests land and facilities including office and parking space. The proposal would employ about 500 people who would generate about 1,750 daily trips.

State of California National Guard Bureau. The National Guard requests land and facilities for aviation support. The proposal would employ about 300 persons who would generate about 550 daily trips.

State of California Department of Forestry. The State Forestry Department requests the use of on-base land and facilities for fire fighting aviation support. The proposal would employ 21 persons who would generate about 75 daily trips.

Sacramento County Sheriff's Department, Aero Bureau/Airborne Law Enforcement. The Sheriff's Department requests aviation support land and facilities. Their proposal would employ 21 persons who would also generate about 75 trips daily.

4.2.3.6 No-Action Alternative. Transportation impacts for the No-Action Alternative would be those described in Section 3.2.4 as post closure conditions. Future peak-hour traffic is shown on the "Key Community Road Peak-Hour Traffic" figures for the Proposed Action and each of the alternatives. Actual projected peak-hour traffic on the key community roads is shown in Table 4.2-13. Without development of any of the projects analyzed in this study, none of the key community roads would fall below LOS C.

Table 4.2-13. Peak-Hour Traffic on Key Community Roads - No-Action Alternative

	1990	1993	1999	2004	2014
Mather Field Drive	2,120	61	51	58	77
Old Placerville Road	943	566	647	743	974
Zinfandel Drive	33	33	38	44	57
Excelsior Road North	13	0	0	0	0
Kiefer Boulevard West	0	0	191	219	287
Douglas Boulevard	166	0	0	0	0
Routiers Road North	694	677	797	913	1,196
Routiers Road South	0	0	689	788	1,033
International Drive	39	38	45	51	67

The No-Action Alternative provides that Mather AFB would remain the property of the Air Force, that the base would be placed in caretaker status, and that the base would be closed to all flight operations. Cessation of all air operations at Mather would eliminate the need for all of the airspace associated with the VFR and IFR airfield traffic patterns, published instrument approach procedures, and the transitioning of aircraft between the airbase and the en route airspace

system. The elimination of Mather-related airspace requirements and air traffic operations would provide additional airspace for the overall air traffic control environment in the ROI.

The Mather TACAN is a navigational aid that can be used only by military aircraft. The Mather ILS can only serve Mather AFB. Because these navigational aids cannot play a role in the national airspace system, the decommissioning of the equipment would not affect airspace management in the area.

Airline passenger growth at Sacramento Metropolitan Airport would reach 5.8 MAP by 2014 (from 3.8 MAP in 1990). AMTRAK passengers at the Sacramento station would grow from 40,000 passengers in 1990 to 81,800 in 2014 with the No-Action Alternative.

4.2.4 Utilities

Changes in future utility demands for each alternative were estimated based on changes in direct and indirect employment and population, proposed land uses and average daily per capita use of utilities (Table 4.2-14). These factors were applied to projections of number of future residents and employees associated with each alternative.

On-site demands were estimated by the number of direct project-related workers associated with each type of land use comprising the reuse alternative, and related per-capita use rate specific to each land use. Utility usage related to land use itself, such as landscape irrigation, was also included in the estimate of total on-site demand. On-site demands reflect buildout requirements by 2014.

Change in total regional demand includes the change in on-site demand and all the indirect utility demand generated by the reuse alternatives. New workers migrating into the region to take indirect jobs resulting from reuse activities, along with family dependents for both direct and indirect workers were used to derive net change in indirect regional utility demands based on a regional per-capita use rate.

For each utility, changes in land use associated with the Proposed Action and alternatives would create the need for changes in the existing distribution and collection systems at Mather AFB, including modifications to on-base water pumping and treatment facilities, wastewater collection systems, service providers for solid waste disposal, and distribution systems for electricity and natural gas. Increased pumpage at Mather would result in a water level cone of depression surrounding the site. The cone of depression would range from 9 to 15 miles depending on reuse activity, after 20 years of pumping. Very shallow wells in the region could experience lower water levels (see Water Resources, Section 4.4.2). Additional utility corridors would likely be required, and new metered service entrances may be needed on existing facilities, however, the full extent of these changes can only be identified when plans for future

development of the site evolve from a conceptual level to more detailed requirements.

Table 4.2-14. On-Site Utility Demands for the Proposed Action and Alternatives

	Preclosure Conditions	1994	1999	2004	2014
Proposed Action					
Water (MGD)	2.3	0.93	1.8	4.5	5.8
Wastewater (MGD)	0.6	0.48	1.0	1.5	2.3
Solid Waste (million cubic yards/yr)	0.00009	0.00338	0.008	0.012	0.021
Electricity (MWH/day)	7.2	14.4	26.1	52.3	72.0
Natural Gas (thousand therms/day)	7.1	2.6	5.6	9.6	13.8
Non-Aviation with Mixed-Density Residential					
Water (MGD)	2.3	2.8	5.3	7.0	10.9
Wastewater (MGD)	0.6	0.84	2.2	3.4	6.2
Solid Waste (million cubic yards/yr)	0.00009	0.00615	0.016	0.025	0.047
Electricity (MWH/day)	7.2	14.4	34.4	54	100
Natural Gas (thousand therms/day)	7.1	4.0	10.7	161	30.1
General Aviation with Aircraft Maintenance Alternative					
Water (MGD)	2.3	1.0	1.6	2.4	4.1
Wastewater (MGD)	0.6	0.94	1.3	1.9	3.2
Solid Waste (million cubic yards/yr)	0.00009	0.00287	0.006	0.010	0.020
Electricity (MWH/day)	7.2	42.0	51	64	93
Natural Gas (thousand therms/day)	7.1	3.0	4.8	7.7	13.7
Non-Aviation with Low-Density Residential Alternative					
Water	2.3	1.0	3.8	5.8	10.0
Wastewater (MGD)	0.6	0.52	2.5	4.00	7.1
Solid Waste (million cubic yards/yr)	0.00009	0.00347	0.016	0.022	0.049
Electricity (MWH/day)	7.2	9.0	40	65	118
Natural Gas (thousand therms/day)	7.1	2.5	12.4	20.0	35.1

For each reuse proposal analyzed in this section, it is assumed that the base site will be serviced by local utility suppliers. Three water purveyors directly border Mather AFB: Citizen's Utilities District (Rosemond and Security Park service areas); Sacramento County Sunrise Water District; and Arden-Cordova Water Services District. Both Arden-Cordova and Citizen's have expressed intentions to provide service to the base site after closure. Specific changes to the surrounding water supply systems will depend on the supplier's plans to link the existing on-base and off-base systems. Formal procedures, consisting of submission of a tariff map to the Public Utilities Commission, as well as public review and hearings, will be required prior to annexation of the site to one or more of the surrounding water purveyors' service areas.

The following assumptions were made in the analysis of potential effects on utilities:

- Specific infrastructural improvements needed and the associated costs will be borne directly or indirectly by the future site developer.
- A single water purveyor would assume responsibility for supplying service to the site and would address treatment and storage deficits.
- The existing distribution/collection systems will not be removed by the Air Force and will be available in their current condition for reuse in the future.

4.2.4.1 Proposed Action. Table 4.2-15 presents a summary of regional utility demand changes associated with the Proposed Action. This proposal would use approximately 2,510 acres for airfield, military aviation, and aviation industrial use. The southeastern side of the airfield would undergo the greatest amount of construction, as current utility system distribution lines would not be able to handle the demands of the Proposed Action. The northeastern corner (between Sunrise Boulevard and Douglas Road) of the base would also need new distribution lines for all the utilities. Pre-development mining of 1,203 acres would occur in the area south of the airfield prior to final development of the area for aviation industrial and a park site. This would disturb existing utility services throughout this area and create a need for rehabilitation and coordination of a new utility network. The existing residential area would remain, and a large section of the northeastern end of the base would be recreation/open space.

Water Supply. The Proposed Action would cause an increase in water consumption on base although differences in utility service demands would not be appreciable. Increases would be due to direct population growth and land use requiring extra amounts of water, such as institutional, industrial, commercial activities, open spaces, recreational facilities, and a golf course on the site. By 2014, the Proposed Action would create a need for 5.8 MGD (see Table 4.2-14). This represents 16 percent of Sacramento County Water Agency's (SCWA) Sunrise Study Area total water demand of 35.9 MGD of water consumed. Of this 5.8 MGD, 25 percent would be needed for lawn irrigation of the golf course and park. Under a 5-percent conveyance loss assumption, to fully meet the needs of landscaping and irrigation, the Proposed Action would require 5.9 MGD. Nationally accepted planning criteria for firefighting suggests a rate of 5,815 gpm for a duration of 10 hours, with a reserve storage of about 3.5 MG (Merritt, 1988).

Currently, growth of the base water supply system is limited by treatment and storage capabilities. However, future development of the site would not be hampered by these limitations, as the water purveyor supplying the base will assume responsibility for treatment and storage. Infrastructural changes would be needed on base to accommodate the aviation industrial, residential, commercial and office growth on the southeastern side of the airfield.

Table 4.2-15. Utility Demand Changes in the Sacramento Region - Proposed Action

	1994	1999	2004	2014
Water Demand				
SCWA Region (in MGD)				
Post-Closure	304.7	336.7	368.8	433.0
Proposed Action	304.7	337.2	370.0	435.1
Change from Post-Closure	0.1	0.5	1.2	2.1
Percent Change	0.0	0.1	0.3	0.5
Wastewater Generation				
SRCSD Service Area (in MGD)				
Post-Closure	163.9	191.2	218.6	281.8
Proposed Action	163.9	191.5	219.2	282.9
Change from Post-Closure	0.1	0.3	0.6	1.1
Percent Change	0.0	0.1	0.3	0.4
Solid Waste Generation				
Sacramento Area (in million cubic yards/year)				
Post-Closure	2.28	2.46	2.65	3.02
Proposed Action	2.28	2.47	2.66	3.04
Change from Post-Closure	0.00	0.00	0.01	0.01
Percent Change	0.0	0.1	0.3	0.5
Electricity Demand				
SMUD Service Area (in MWH/day)				
Post-Closure	23,405	26,076	29,022	35,282
Proposed Action	23,414	26,112	29,113	35,453
Change from Post-Closure	9	36	91	171
Percent Change	0.0	0.1	0.3	0.5
Natural Gas Demand				
PG&E Sacto. Division (in thou. therms/day)				
Post-Closure	845	916	993	1,167
Proposed Action	845	917	997	1,174
Change from Post-Closure	0	2	4	7
Percent Change	0.1	0.2	0.4	0.6

Note: Due to rounding, values in the table cannot be verified by addition and simple calculation.

Sources: Based on Sacramento County Water Agency, 1989; Cappola, 1991; Sacramento County Department of Public Works, 1991; California Energy Commission, 1990; Sacramento Municipal Utility District, 1991; and Mattina, 1991.

Rehabilitation and new construction would be necessary for the current distribution system and for the intertie with the private purveyor's system. Attention will need to be given to on-site treatment facilities. Current design capacities are not able to handle the additional demand that would be imposed by the Proposed Action. Another concern for the base water distribution system is the condition of storage tanks and wells (U.S. Air Force, 1989a). Although storage tanks are cathodically protected for corrosion and upkeep maintenance has been done, the average age of the system may present problems for future reusers of the site.

As a result of the Proposed Action, water consumption in the SCWA Sunrise Study Area, which includes the site, would increase over estimated consumption under the post-closure conditions. However, through about 1994, the overall increase in the water demand will remain about the same as post-closure conditions, an average of about 304.7 MGD. By 2014, the overall increase from the Proposed Action would average 2.1 MGD over the estimated

demand for the post-closure conditions. Increased pumpage at Mather would result in a water level cone of depression surrounding the site. The cone would range from 9 to 15 miles after 20 years of pumping activity. Very shallow wells in the region could experience lower levels due to on-site pumping. The availability of groundwater or other water supply resources are analyzed in Section 4.4.2, Water Resources.

Infrastructural changes are expected to be required throughout the SCWA Sunrise District to meet growing regional demand. These changes are also expected in the individual, private water supplier's districts that would experience direct and indirect population changes from the Proposed Action.

Wastewater. Wastewater generation on site would increase with the direct population growth and development attributable to implementation of the Proposed Action. By 2014, the Proposed Action would generate about 2.3 MGD of wastewater (see Table 4.2-14). Any difference in utility service demands would not be appreciable. This accounts for about 1.6 percent of the SRWTP total of average treated flow in 1990 of 137 MGD. For an area fully serviced by sewers, wastewater flows generally equate to water consumption levels (Merritt, 1987). However, the amount of wastewater is much less than water demand due to lawn irrigation needs (accounting for 25 percent of water needs).

Infrastructural changes would be needed on site to accommodate aviation industrial, low-density residential, commercial, and office growth on the southeastern side of the airfield. Rehabilitating and coordinating the inter-tie of the (more than 50 years old) collection system may be required to meet the increased demands which the Proposed Action would create. Due to stricter sanitation sewer collection system codes, replacement may be necessary for the majority of the current collection systems on base to improve the flow velocity. The system's root intrusion problems, leakage and settlement (due to flows of less than 1.7 fps as compared to the norm of 2.0 fps) are of some concern. Additional capacity may be needed for Mather Pump House. This pump house feeds wastewater from the base to the county interceptor lines. Preclosure design capacity of the pump house (2 MGD) would not be able to handle the additional demand imposed by the Proposed Action. Retrofitting the pump house with proper sized pumps and upgrading the 12 inch (forced main) 1.5 mile outfall would adequately mitigate this concern. The use of bigger retention ponds or redesign of this section of the line (using only gravity drainage) could also be considered in resolving this concern. California EPA regulations may require upgrading the oil/water separators.

Wastewater treatment within the service area of Sacramento County, including the site, is provided by SRWTP. Wastewater collection is provided by SRCSD. The Proposed Action would increase estimated treatment over those levels projected for the post-closure conditions. In the short term, through about

1994, the overall increase in the wastewater treatment demand would remain about the same as the post-closure projection of about 163.9 MGD. By 2014, the overall increase from the Proposed Action would be about 0.6 MGD greater than the estimated demand for the post-closure conditions.

As a result of the Proposed Action being implemented, the county would be required to make additional infrastructure changes in the communities around the site where direct and indirect population changes would occur. Under the Proposed Action, total demand within the SRCSD service area would reach an average of 281.8 MGD by 2014, approximately 1.0 percent greater than the SRCSD projection for that year.

The increased population and resulting increase in wastewater from the Proposed Action would require SRCSD to make the infrastructural improvements proposed in the Montgomery Engineers Project Report for Expansion. The overall changes to their short- and long-term plans would not be notably different from current need assessments, indicating no need for major change through 1995. Wastewater quality and related issues are analyzed in Section 4.3, Hazardous Wastes, and Section 4.4.2, Water Resources.

Solid Waste. Under the Proposed Action, solid waste generation on base would increase due to the direct population growth and the various proposed land uses. Project-related population for each reuse alternative would be about the same. Any difference in utility service demands would not be appreciable. This increase in the short term (1994) is 1.4 percent of Sacramento County solid waste total of 2,226 tons per day. By 2014, Kiefer Landfill would experience a slight decrease of lifespan due to implementation of the Proposed Action. Expansion plans for Kiefer Landfill are in progress, however, these plans have not yet been approved. The county will seek additional landfill site acreage in 2016, the year Kiefer Landfill will reach its original design capacity.

Table 4.2-15 shows the estimated volume of refuse generated for the period 1994 to 2014. This estimate includes contributions from preclosure base requirements from direct and indirect worker activities in the reuse area, and from residents of the surrounding region. The demolition and construction debris created as a result of implementation of the Proposed Action would have a moderate short-term impact on Kiefer Landfill. The demolition of 837,000 square feet of buildings would occur, creating approximately 47,320 cubic yards of solid waste material that would need to be disposed of in county or private landfills. Renovation and construction of 3,674,000 and 10,600,000 square feet of buildings, respectively, would also create debris. Kiefer Landfill and several private landfills in the area will accept construction and demolition debris. Current restrictions do not permit disposal of asbestos-containing material in the landfill. A disposal facility, yet to be designated, would be required for asbestos-containing material (greater than 1 percent asbestos by weight) of undetermined volume which will be generated over an extended period. There

are no public asbestos disposal sites in the county of Sacramento; the asbestos-containing material would have to be hauled out of the county.

The California State Integrated Waste Management Act outlines requirements for source reduction and recycling programs at the county and city level. This act has created greater legal and budgetary emphasis on solid waste issues. Implementation of the Act through the county's Solid Waste Management Plan could extend the Kiefer Landfill life expectancy as much as 5 to 10 years. Proposed Action-related changes to the county's long-term expansion plans for Kiefer Landfill capacity will not be substantially different from current expansion plans.

Energy

Electricity. Electricity consumption would increase as a result of the direct population growth and the intensive industrial activities associated with the Proposed Action. To meet this new demand, about 3 new substations would be necessary. This would create significant growth in SMUD's Rancho Cordova District (DeSelle, 1991). By 2014, the Proposed Action would create a need for approximately 72 MWH/day (see Table 4.2-14). This estimate is derived from preclosure base requirements and from the direct and indirect worker activities in the reuse area.

Infrastructural changes would be needed on site to accommodate 2,055 acres of improvements that includes new aviation industrial, low density residential, commercial, and office growth on the southeastern side of the airfield. This area would require new high voltage supply lines, new substations, and a distribution network that could accommodate the electricity demand of industrial land use. The existing supply system would require rehabilitation, metering of reusers individual facilities, and establishing appropriate utility corridors and easements. Metering will be desirable for cost monitoring and accountability of some public-supplied services. The residential area may need rehabilitation or new construction. Also the question of distribution system ownership (PG&E [lines] or Pacific Bell [poles]) would need to be addressed by new tenants in the residential area.

SMUD would not be required to make additional infrastructural changes in its Rancho Cordova District, except those specifically needed at the site. Communities around the base would not be impacted as a result of direct and indirect population changes caused by the Proposed Action. As a result of the Proposed Action, electricity consumption by the Rancho Cordova District would increase over the estimated consumption under the post-closure conditions. Curtailments of service to interruptible customers could occur as a result of additional demands of the Proposed Action. SMUD currently has 126 interruptible customers who demand 5 MWH/day. Additional interruptible service customers could curtail services during peak demand periods (DeSelle, 1991). Project-related population for each reuse alternative is about the same.

Any difference in utility service demands is not appreciable. The average daily demand estimates referred to above exclude very small amounts of electricity consumption required for direct construction activities (e.g., incidental demands for operating electrically powered tools and equipment, and temporary security lighting). Total demand within the SMUD service area would reach an average of 23,405 MWH/day by 1994, approximately 9 MWH/day less than the Proposed Action conditions for that year. By 2014, the demand would reach 35,453 MWH/day, 0.5 percent greater than post-closure demands.

Natural Gas. Natural gas consumption would increase in proportion to the direct population growth due to the implementation of the Proposed Action. By 2014, the Proposed Action would require 13,798 therms per day (see Table 4.2-14). Non-core, interruptible service customers would not experience any curtailment of service as a result of this alternative. This estimated demand represents less than 2 percent of PG&E Sacramento Division's total therms consumed each day, which includes contributions from the preclosure base requirements, direct and indirect worker activities in the reuse area, and from the resident population of PG&E's Sacramento Division. Project-related population for each reuse alternative would be relatively constant. The projected difference in utility service demands would not be appreciable.

A new supply network would be needed on site to accommodate new aviation industrial, low density residential, commercial, and office growth on the southeastern side of the airfield. The existing supply lines enter the base site at Old Placerville Road (for the main base area) and Kiefer Road (for the housing area). The Kiefer line is at maximum demand capacity due to the Sacramento Rendering Company's intensive natural gas use. Current difficulty in maintaining pressure in the Kiefer Road line would require PG&E to remove the housing area from the Kiefer line and hook it up to the Sunrise line which has a higher capacity.

PG&E would require metering of user's individual facilities and establishing appropriate utility corridors and easements. Metering would be desirable for cost monitoring and accountability of some public-supplied services. Under the Proposed Action, the residential area would need rehabilitation and new construction. The question of distribution system ownership would need to be addressed by tenant/users of the base site.

In 1990/91 PG&E installed an 8-inch steel pipeline parallel to Sunrise Boulevard. This line can be upgraded at a point south of Fitzgerald Road to transmission pressure capacity; north of this point the line is designed for standard distribution pressure thus, upgrade will mean retrofitting for increased pressure. PG&E would not be required to make additional infrastructural changes in the surrounding area off the base site. Communities around the base would not be impacted as a result of direct and indirect population changes caused by the Proposed Action. Under the Proposed Action, total demand within the

Sacramento Division service area would reach an average of 845 thousand therms/day by 1994, less than 1 percent over the post-closure conditions for that year. By 2014, the demand would reach 1,174 thousand therms/day for the Proposed Action, 0.6 percent than post-closure condition demands.

The overall changes to PG&E's short- and long-term plans would not be different from current need assessments.

Cumulative Impacts. The redevelopment projects referred to in Section 2.3 of this document would increase utility demand rates in the area. Total usage levels are accounted for in the County General Plan. The utility suppliers have indicated that future demands can be adequately met. The cost of infrastructural improvements created by these developments would be borne by each developer. Impacts from Sacramento Army Depot's closure would not alter these conclusions.

Mitigation Measures

Water Supply. Mitigation required due to rehabilitation/new construction of the water system interties and upgrade of treatment/storage facilities for reuse would be the responsibility of the water purveyor and future site developer in addressing potential impacts.

Conservation in the Sacramento area would reduce the projected total demand over the next 20 years. Reductions in water use would be accomplished through various voluntary or mandatory water conservation programs, including rationing. No adverse impacts are expected, therefore, no mitigation measures would be necessary.

Wastewater. Mitigation measures may be needed to address industrial pretreatment of wastewater needed for future industrial/commercial users of the site. The type(s) and extent of mitigation measures cannot at present be specified, because they depend on:

- The specific operating procedures established for the new land uses
- The specific materials used and final products
- The production equipment used on site.

Depending on these factors, new users may have to make provisions for pretreatment of industrial wastewater. New users would also be required to obtain discharge permits in accordance with Sacramento County Wastewater Division and the Central Valley Regional Water Quality Board.

Retrofitting of Mather Pump House and upgrade of the outfall line would decrease the potential impact that future site development may create.

Solid Waste. Recycling and/or reuse of inert demolition wastes would decrease the potential impact on landfills.

Energy. Upgrading the electric system with new substations will require special mitigation measures. These cannot be specified until final operating procedures at the site are made and production equipment is in place. Depending on these factors, site developers will make provisions for necessary mitigation.

4.2.4.2 Non-Aviation with Mixed-Density Residential Alternative.
Table 4.2-16 presents a summary of regional utility demand changes associated with the Non-Aviation with Mixed-Density Residential Alternative. This alternative would utilize the majority of the site, the airfield, and south side of the airfield (3,188 acres) for low density residential use. The current main base cantonment area would become commercial, office, and urban residential areas. A light industrial sector will be located in the current 7000 Area. A large recreational area stretches along the eastern border between Douglas Road and Kiefer Boulevard. Aggregate mining will cover 1,113 acres of in the area south of the airfield prior to final development of the area. Utility systems disturbed in the mining process would need to be replaced. The entire site, excluding the preserved habitat and recreation area, would need construction of new utility distribution systems to manage the demands of the residential, commercial and industrial growth of this reuse alternative.

Water Supply. This alternative would cause an increase in water consumption on base due to direct population growth and land uses such as institutional, industrial, commercial activities, open spaces, and recreational facilities on base that require extra amounts of water. By 2014, this population increase would create a need for 10.9 MGD of water (see Table 4.2-14). This represents 30 percent of Sunrise District's SCWA total of 35.9 MGD of water consumed. Of this 10.9 MGD, 17 percent would be needed for lawn irrigation at the golf course and park. Assuming a 5 percent distribution line conveyance loss, and to fully meet the needs of landscaping and irrigation, the Non-Aviation with Mixed-Density Residential Alternative would require 11.4 MGD. Nationally accepted planning criteria for firefighting suggests a rate of 8,127 gpm for a duration of 10 hours, with a reserve storage of about 4.8 MG (Merritt, 1988).

Currently, growth of the base water supply system is limited by treatment and storage capabilities. However, future development of the site will not be hampered by these limitations, as the water purveyor supplying the base will assume responsibility for treatment and storage. Infrastructural changes will be needed on base to accommodate the low-density residential growth.

Rehabilitation and new construction will be necessary for the current distribution system and for inter-tie with the private purveyor's system. At the base, attention will need to be given to the treatment facilities. Preclosure design capacities would not be able to accommodate the additional demand imposed

Table 4.2-16. Utility Demand Changes in the Sacramento Region - Non-Aviation with Mixed-Density Residential Alternative

	1994	1999	2004	2014
Water Demand				
SCWA Region (in MGD)				
Post-Closure	304.7	336.7	368.8	433.0
Alternative	304.8	337.3	369.7	435.1
Change from Post-Closure	0.1	0.5	0.9	2.0
Percent Change	0.0	0.2	0.2	0.5
Wastewater Generation				
SRCSD Service Area (in MGD)				
Post-Closure	163.9	191.2	218.6	281.8
Alternative	164.0	191.5	219.1	282.9
Change from Post-Closure	0.1	0.3	0.5	1.1
Percent Change	0.0	0.2	0.2	0.4
Solid Waste Generation				
Sacramento Area (in million cubic yards/year)				
Post-Closure	2.28	2.46	2.65	3.02
Alternative	2.28	2.47	2.66	3.04
Change from Post-Closure	0.00	0.00	0.01	0.01
Percent Change	0.0	0.2	0.2	0.5
Electricity Demand				
SMUD Service Area (in MWH/day)				
Post-Closure	23,405	26,076	29,022	35,282
Alternative	23,416	26,117	29,091	35,446
Change from Post-Closure	11	41	69	164
Percent Change	0.0	0.2	0.2	0.5
Natural Gas Demand				
PG&E Sacramento Division				
(in thousand therms/day)				
Post-Closure	845	916	993	1,167
Alternative	845	918	996	1,173
Change from Post-Closure	0	2	3	7
Percent Change	0.1	0.2	0.3	0.6

Note: Due to rounding, values in the table cannot be verified by addition and simple calculation.
Sources: Based on Sacramento County Water Agency, 1989; Cappola, 1991; Sacramento County Department of Public Works, 1991; California Energy Commission, 1990; Sacramento Municipal Utility District, 1991; and Mattina, 1991.

by this alternative. Another concern for the site water distribution system is the condition of storage tanks and wells (U.S. Air Force, 1989a). Though storage tanks are protected for corrosion, and upkeep maintenance has been accomplished, the average age of the system may present problems for future users of the site.

As a result of the Non-Aviation with Mixed-Density Residential Alternative, water consumption in SCWA, Sunrise District which borders the site, would increase over estimated consumption under post-closure conditions. In the short term, through 1994, the overall increase in the water demand would remain about 304.8 MGD. Increased pumpage at Mather would result in a water level cone of depression surrounding the site. The cone would range from 9 to 15 miles after

20 years of pumping activity. Very shallow wells in the region could experience lower levels due to on-site pumping. The availability of groundwater or other water supply resources are analyzed in Section 4.4.2, Water Resources.

As a result of the increased direct and indirect population caused by the Non-Aviation with Mixed-Density Residential Alternative, infrastructural changes would be required throughout Sunrise District.

Wastewater. Wastewater volume from the site would increase with the direct population growth and the land use due to the Non-Aviation with Mixed-Density Residential Alternative. By 2014, this alternative would produce 6.2 MGD of wastewater (see Table 4.2-14), which accounts for less than 4.5 percent of the SCRWTP total of the average flow treated in 1990 of 137 MGD (Wong, 1992). For an area fully serviced by sewers, wastewater flows should generally equate to water consumption levels (Merritt, 1988). However, due to the irrigation and landscape needs (accounting for 17 percent of water needs), the amount of wastewater is much less than water demand.

Infrastructural changes would be needed on the base to accommodate the improvements for the low-density residential growth. Rehabilitating and coordinating the inter-tie of the more than 50 year old collection system may be required to meet the increased demands that this alternative will create. Due to stricter sanitation sewer collection system codes, new construction might be necessary for the majority of the current collection system on base to improve the flow velocity. Of concern is the system root intrusion problems, and leakage and settlement (due to flows of less than 1.7 fps as compared to the norm of 2.0 fps). Additional capacity may be needed for Mather Pump House. This pump house feeds wastewater from the base to the county interceptor lines. Preclosure design capacity of the pump house (2 MGD) would not be able to handle the additional demand imposed by this alternative. Retrofitting the pump house with proper pumps and upgrading the 1.5 mile outfall which is currently a 12-inch diameter forced main, may adequately address this concern. The use of bigger retention ponds or redesign of this section of the line (using strictly gravity flow) could also be considered in resolving this concern. Wastewater treatment within the service area of Sacramento County, including the site is provided by SRWTP. Wastewater collection is provided by SRCSD. This alternative would increase estimated treatment levels projected for the post-closure conditions. In the short term, through about 1994, the overall increase in the wastewater treatment demand would remain 164.0 MGD. By 2015, the overall increase from this reuse alternative would average about 1.1 MGD over the estimated demand for the post-closure conditions.

As a result of the increased direct and indirect population caused by the Non-Aviation with Mixed-Density Residential Alternative, infrastructural changes would be required throughout Sunrise District.

The increased population and resulting increase in wastewater levels from this alternative would require SRCSD to make currently planned long-term infrastructural improvements as indicated in the Montgomery Engineers Project Report for Expansion. The overall changes to their short- and long-term plans would not be notably different from current need assessments, indicating the need for no major change through 1995. Wastewater quality and related issues are analyzed in Section 4.3, Hazardous Materials/Hazardous Waste, and Section 4.4.2, Water Resources.

Solid Waste. Under this alternative, solid waste generation on the site would increase due to the direct population growth and the various proposed land uses. This increase would range from 1.1 to 1.4 percent (during the 20-year forecast) of Sacramento County solid waste total of 2,226 tons per day. By 2014, Kiefer Landfill would experience an insignificant shortening of lifespan due to this alternative. Expansion plans for Kiefer Landfill are in progress, however, these plans are not approved. The county will still seek additional landfill site acreage by 2016, the year in which Kiefer Landfill will reach its original design capacity.

Table 4.2-16 shows the estimated volume of refuse disposed of from 1994 to 2014. This estimate includes contributions from the preclosure on base requirements from direct and indirect worker activities in the reuse area, and from residents of the surrounding region. The demolition and construction debris created as a result of implementation of this alternative will have a moderate short-term impact on Kiefer Landfill. The demolition of 1,274,000 square feet of buildings will occur, which would create approximately 86,775 cubic yards of solid waste material that will need to be disposed of in a county or private landfill. Renovation and construction of 3,249,000 and 31,531,000 square feet of buildings, respectively would create additional debris that will need disposal. Kiefer Landfill and several privately operated landfills accept construction and demolition debris in the area. Current restrictions will not, however, permit disposal of the asbestos-containing material in the landfill. A disposal facility, yet to be designated, would be required for this asbestos-containing material (greater than 1 percent by weight) of undetermined volume which will be generated over an extended period. There are no public asbestos disposal sites in the county of Sacramento; the asbestos-containing material would have to be hauled out of the county.

Due to the California Integrated Waste Management Act, source reduction, recycling and composting programs, which presently receive greater legal and budgetary emphasis, could extend the Kiefer Landfill life expectancy as much as 5 to 10 years. The Non-Aviation with Mixed-Density Residential Alternative changes related to the county's long-term plans for Kiefer Landfill expansion will not be substantially different from current expansion plans.

Energy

Electricity. Electric consumption would increase with the direct population growth and the intensive industrial activities due to this alternative. By 2014, this alternative would create a demand of approximately 100 MWH/day (see Table 4.2-14). To meet this increased demand, 4 additional substations for the site would be needed (DeSelle, 1991). This estimate includes preclosure on-base requirements of the Air Force, direct and indirect worker activities in the reuse area, the resident population of SMUD.

Infrastructural changes would be needed on the site to accommodate the new low-density residential growth and accompanying TODs in the south central area of the site, as well as the commercial, office, and urban residential areas in the northwestern portion of the base. This area would require new high voltage supply lines, new substations, and a distribution network that could accommodate the electric load for this type of land use. The existing supply system would require rehabilitation, metering of users' individual facilities, and establishing appropriate utility corridors and easements. Metering would be desirable for costs monitoring and accountability of some public-supplied services. The residential area may need rehabilitation or new construction. Also the question of distribution system ownership (PG&E [lines] or Pacific Bell [poles]) would need to be addressed by new tenants in the residential area.

SMUD would not be required to make additional infrastructure changes in its Rancho Cordova District. Communities around the base site where direct and indirect population changes would occur due to the implementation of this alternative would not be negatively impacted. Electricity consumption by the Rancho Cordova District would increase as a result of this alternative over the estimated consumption under the post-closure conditions. The average daily demand estimates referred to above exclude very small amounts of electricity consumption required for direct construction activities (e.g., incidental loads for operating electrically-powered tools and equipment, temporary security lighting). Under this alternative, total demand within the SMUD service area would reach an average of 23,416 by 1994 and 35,446 MWH/day by 2014. This would reflect less than 1 percent difference over post-closure conditions for 1994 through 2014. Curtailments of service to interruptible customers would not be affected by additional demands of this alternative.

Natural Gas. Natural gas consumption would increase with the direct population growth due to this alternative. By 2014, this alternative would create a need for approximately 30,134 therms per day (see Table 4.2-14). The estimated demand represents approximately 4 percent of PG&E's Sacramento Division total therms used each day. These estimates include contributions from the preclosure on-base requirements of the Air Force, from the direct and indirect worker activities in the reuse area, and from the resident population of PG&E's Sacramento Division of natural gas.

A new supply network would be needed on the site to accommodate the new low-density residential growth and accompanying TODs in the south central area of the site, as well as the commercial, office, and urban residential areas in the northwest portion of the base. The existing supply lines enter the base site at Old Placerville Road (for the main cantonment area) and Kiefer Road (for the housing area). The Kiefer line is at maximum demand capacity due to the Sacramento Rendering Company's intensive natural gas use. Current difficulty in maintaining Kiefer Road line pressure would require PG&E to remove the housing area from the Kiefer line and hook it up to the Sunrise line which has a higher demand capacity. PG&E would require metering of users' individual facilities and establishing appropriate utility corridors and easements. The question of distribution system ownership would need to be addressed by tenant/users of the site. The distribution system in the residential area would require rehabilitation and new construction.

Table 4.2-16 presents a summary of utility demand changes associated with this alternative. In 1990/91, PG&E installed an 8-inch steel pipeline parallel to Sunrise Boulevard. This line is upgradable at a point south of Fitzgerald Road to transmission pressure capacity; north of this intersection, the line is designed for standard distribution pressure and will require retrofitting for upgraded pressure. PG&E would not be required to make additional infrastructure changes in the surrounding area off the site. Communities around the site where direct and indirect population changes would occur due to implementation of the Non-Aviation with Mixed-Density Residential Alternative would not be negatively impacted with respect to utility demands being met. The demands for natural gas by this alternative would not impact non-core (interruptible service) customers.

In the short term, through about 1994, the overall increase in natural gas demand would remain about 845,090 therms per day. By 2014, the overall increase in demand related to this alternative would be 6,732 therms (0.6 percent) greater than the estimated demand for post-closure conditions.

The increased population and resulting increase in natural gas demand from the Non-Aviation with Mixed-Density Residential Alternative would require PG&E to make currently planned long-term infrastructural improvements as scheduled. The overall changes to their short- and long-term plans would not be notably different from current need assessments.

Cumulative Impacts. The cumulative impacts for this alternative are the same as those stated in the Proposed Action.

Mitigation. New users would be required to implement mitigation measures as discussed for the Proposed Action (Section 4.2.4-1) corresponding to the development in the south central area of the site.

4.2.4.3 General Aviation with Aircraft Maintenance Alternative. Table 4.2-17 presents a summary of regional utility demand changes associated with this alternative. The General Aviation with Aircraft Maintenance Alternative utilizes the site at the current main base area for military, industrial aviation, commercial, light industrial, recreational, educational, and medical use. Located along the eastern side of the airfield as well as along the eastern base border of the site are residential areas. A large recreational area stretches along the eastern border between Douglas Road and Kiefer Boulevard at the southeastern side of the airfield. Aggregate mining of 1,172 acres will occur in the area south of the airfield prior to residential and some light industrial development creating the need for new infrastructure throughout this area. The southeastern side of the site will need construction of new utility distribution systems to manage the demands of the residential, commercial, and industrial growth of this reuse alternative.

Table 4.2-17. Utility Demand Changes in the Sacramento Region - General Aviation with Aircraft Maintenance Alternative

	1994	1999	2004	2014
Water Demand				
SCWA Region (in MGD)				
Post-Closure	304.7	336.7	368.8	433.0
Alternative	304.7	337.6	370.1	435.3
Change from Post-Closure	0.1	0.9	1.3	2.3
Percent Change	0.0	0.3	0.4	0.5
Wastewater Generation				
SRCSD Service Area (in MGD)				
Post-Closure	163.9	191.2	218.6	281.8
Alternative	163.9	191.7	219.3	283.0
Change from Post-Closure	0.0	0.5	0.7	1.2
Percent Change	0.0	0.3	0.3	0.4
Solid Waste Generation				
Sacramento Area (in million cubic yards/year)				
Post-Closure	2.28	2.46	2.65	3.02
Alternative	2.28	2.47	2.66	3.04
Change from Post-Closure	0.00	0.01	0.01	0.02
Percent Change	0.0	0.3	0.4	0.5
Electricity Demand				
SMUD Service Area (in MWH/day)				
Post-Closure	23,405	26,076	29,022	35,282
Alternative	23,410	26,144	29,123	35,466
Change from Post-Closure	5	67	101	184
Percent Change	0.0	0.3	0.3	0.5
Natural Gas Demand				
PG&E Sactramento Division (in thousand therms/day)				
Post-Closure	845	916	993	1,167
Alternative	845	919	997	1,174
Change from Post-Closure	0	3	4	8
Percent Change	0.0	0.3	0.4	0.6

Note: Due to rounding, values in the table cannot be verified by addition and simple calculation.

Sources: Based on Sacramento County Water Agency, 1989; Cappola, 1991; Sacramento County Department of Public Works, 1991; California Energy Commission, 1990; Sacramento Municipal Utility District, 1991; and Mattina, 1991.

Water Supply. The General Aviation with Aircraft Maintenance Alternative would cause an increase in water consumption on the site. This would be due to direct population growth and land use such as institutional, industrial, commercial activities, and recreational areas on the site that require extra amounts of water. By 2014, this alternative would create a need for 4.1 MGD of water (see Table 4.2-14). This represents 11.4 percent of Sunrise District SCWA total of 35.9 MGD of water consumed. Of this 4.1 MGD, less than 1 percent would be needed for lawn irrigation at the public recreational areas. Under a 5-percent distribution line conveyance loss assumption, to fully meet the needs of landscaping and irrigation, the alternative would require 4.3 MGD. Nationally accepted planning criteria for firefighting suggest a rate of 6,100 gpm for a duration of 10 hours, with a reserve storage of about 3.7 MG (Merritt, 1988).

Currently, growth of the base water supply system is limited by treatment and storage capabilities. However, future development of the site would not be hampered by these limitations, as the water purveyor supplying the base would assume responsibility for treatment and storage. Infrastructural changes would be needed on the base site to accommodate the aviation industrial growth on the northwestern side of the airfield. Rehabilitation and replacement would be necessary for the current distribution system and for the inter-tie with the private purveyor's system. The treatment facilities would require attention; preclosure design capacities would not be able to handle the additional demand imposed by this alternative. Another concern about the site water distribution system is the condition of storage tanks and wells (U.S. Air Force, 1989a). Though storage tanks are protected for corrosion and upkeep maintenance has been done, the average age of the system may present problems for future reusers of the site.

Water consumption in SCWA's Sunrise District, which includes the site, would increase as a result of the General Aviation with Aircraft Maintenance Alternative over estimated consumption under post-closure conditions. In the short term, through about 1994, the overall water demand would remain at an average of about 304.7 MGD which is approximately 1.6 percent less than the SCWA projection for that year. By 2014, the overall increase from this alternative would be an average of 2.3 MGD over the estimated post-closure demand; demand will reach an average of approximately 433 MGD, 5.1 percent less than the SCWA projection. Increased pumpage at Mather would result in a water level cone of depression surrounding the site. The cone would range from 9 to 15 miles after 20 years of pumping activity. Very shallow wells in the region could experience lower levels due to on-site pumping. The availability of groundwater or other water supply resources is analyzed in Section 4.4.2, Water Resources. Infrastructural changes would be required throughout Sunrise District, in the individual private water suppliers districts that would experience direct and indirect population changes from this alternative.

Wastewater. Wastewater levels on the site would increase with the direct population growth and the land use due to the General Aviation with Aircraft Maintenance Alternative being implemented. This alternative would produce 3.2 MGD of wastewater (see Table 4.2-14). This is less than 2.3 percent of the SCRWTP total of the 137 MGD in 1990 (Wong, 1992). For an area fully serviced by sewers, wastewater flows should generally equate to water consumption levels (Merritt, 1987). However, due to the public recreational areas' lawn irrigation needs (accounts for 21 percent of water needs), the amount of wastewater is much less than water demand.

Infrastructural changes would be needed on the site to accommodate 1,661 acres of improvement for aviation industrial growth on the northwestern side of the airfield. Rehabilitating and coordinating the intertie of the (more than 50 year old) collection system may be required to meet the increased demands which this alternative will cause. Due to stricter sanitation sewer collection system codes, replacement might be necessary for the majority of the current collection system on the site in order to improve the flow velocity. The system's root intrusion problem, leakage, and settlement (due to flows of less than 1.7 fps as compared to the norm of 2.0 fps) are of some concern. Additional capacity may need to be examined for Mather Pump House. This pump house feeds wastewater from the site to the county interceptor lines. Preclosure design capacity of the pump house (2 MGD) would not be able to handle the additional demand imposed by this alternative. Retrofitting the pump house with proper pumps may adequately deal with this concern. The use of bigger retention ponds or redesign of this section of the line (using only gravity drainage) could also be considered in resolving this concern.

Wastewater treatment within the service area of Sacramento County, including the base site is provided by SRWTP. Wastewater collection is provided by SRCSD. The General Aviation with Aircraft Maintenance Alternative would increase estimated treatment levels projected for the post-closure conditions. In the short term, through about 1994, the overall wastewater treatment demand would remain at the same average of about 163.9 MGD. By 2014, the overall increase from this alternative would be an average of about 1.2 MGD over the estimated demand for post-closure conditions, which is less than 1 percent of the SRCSD projection for that year. The county would be required to make additional infrastructure changes in the communities around the site where direct and indirect population changes would occur due to this alternative being implemented.

The increased population and resulting increase in wastewater levels from this alternative would require SRCSD to make currently planned, long-term infrastructural improvements as indicated in the Montgomery Engineers Project Report for Expansion. Wastewater quality and related issues are analyzed in Section 4.3, Hazardous Materials/Hazardous Waste, and Section 4.4.2, Water Resources.

Solid Waste. Under the General Aviation with Aircraft Maintenance Alternative, solid waste generation on the base site would increase due to the direct population growth and the various proposed land uses. This increase in the short term (1994) would be 0.8 percent of Sacramento County's solid waste total of 2,211 tons per day. By 2014, Kiefer Landfill would experience a minimal shortening of lifespan due to the General Aviation with Aircraft Maintenance Alternative being implemented. Even if plans for landfill expansion are not approved, the county will still seek additional landfill site acreage by 2016, the year in which Kiefer Landfill will reach its original design capacity.

The estimated volume of refuse disposed of from 1994 to 2014 includes contributions from the preclosure on-base requirements of the Air Force, from direct and indirect worker activities in the reuse area, and from residents of the surrounding region. The demolition and construction debris created as a result of this implementation of this alternative would have a moderate short-term impact on the Kiefer Landfill. The demolition of 2,400,000 square feet of buildings would occur, as would renovation and construction of 2,120,000 and 19,449,000 square feet of buildings, respectively. All of these activities would create 158,820 cubic yards of demolished material which would need to be disposed of. Kiefer Landfill and other privately operated landfills will accept construction and demolition debris in the area. Current restrictions will not however, permit disposal of the ACM in the landfill. A disposal facility, yet to be designated, would be required for ACM (greater than 1 percent by weight) of undetermined volume which would be generated over an extended period. There are no public asbestos disposal sites in the county of Sacramento; ACM would have to be hauled out of the county.

The Integrated Waste Management Act in the state of California calls for local governments to plan for source reduction, recycling, and composting programs. These programs which presently receive greater legal and budgetary emphasis, could help extend the Kiefer Landfill life expectancy as much as 5 to 10 years. Sacramento County's long-term plans for Kiefer Landfill capacity expansion will not be substantially different from current expansion capacity plans.

Energy

Electricity. Electric consumption would increase with direct population growth and intensive industrial activities. The General Aviation with Aircraft Maintenance Alternative would create a demand of approximately 93 MWH/day (see Table 4.2-14). These estimates include contributions from the preclosure on-base requirements of the Air Force, from the direct and indirect worker activities in the reuse area, and from the resident population of SMUD.

Infrastructural changes would be needed on the site to accommodate the new aviation industrial growth on the northwestern side of the airfield. This area would require new high voltage supply lines, new substations, and a distribution

network that could accommodate the electric load needed for this type of land use. The existing supply system would require rehabilitation, metering of users individual facilities, and establishing appropriate utility corridors and easements. Metering would be desirable for costs monitoring and accountability of some public-supplied services. The residential area may need rehabilitation or new construction, also the question of distribution system ownership, (PG&E [lines] or Pacific Bell [poles]) will need to be addressed by new tenants in the residential area.

SMUD would not be required to make additional infrastructural changes in its Rancho Cordova District. Communities around the site where direct and indirect population changes would occur due to this alternative being implemented would not be negatively impacted. Electricity consumption by the Rancho Cordova District would increase over the estimated post-closure consumption. Curtailments of service to interruptible service customers would not be impacted by the added electric demands of this alternative. The average daily demand estimates referred to above exclude very small amounts of electricity consumption required for direct construction activities (e.g. incidental loads for operating electrically powered tools and equipment, or temporary security lighting). Under this alternative, total demand within the SMUD service area would remain at an average of 23,410 MWH/day in 1994, which is less than 1 percent greater than SMUD's implicit projection for that year. By 2014, demand within this service area would reach an average of 35,466 MWH/day, approximately 0.5 percent greater than the SMUD projection for that year.

Natural Gas. Natural gas consumption would increase with the direct population growth due to the General Aviation with Aircraft Maintenance Alternative being implemented. This alternative would require 13,666 therms per day (see Table 4.2-14). The estimated demand represents less than 2 percent percent of PG&E Sacramento Division total therms used each day. These estimates include contributions from the preclosure on-base requirements of the Air Force, from the direct and indirect worker activities in the reuse area, and from the resident population of PG&E's Sacramento Division of natural gas.

A new supply network would be needed on the site to accommodate the new development. The existing supply lines enter the site at Old Placerville Road (for the main cantonment area) and Kiefer Road (for the housing area). The Kiefer line is at maximum demand capacity due to the Sacramento Rendering Company's intensive natural gas use. Current difficulty in maintaining Kiefer Road line pressure would require PG&E to remove the housing area from the Kiefer line and hook it up to the Sunrise line which has a higher demand capacity. PG&E would require metering of users' individual facilities and the establishment of appropriate utility corridors and easements. Metering will be desirable for costs monitoring and accountability of some public-supplied services. The residential area would need rehabilitation and new construction,

also the question of distribution system ownership, would need to be addressed by tenant/reusers of the base site.

Table 4.2-17 presents a summary of utility demand changes associated with this alternative. In 1990/91, PG&E installed an 8-inch steel pipeline parallel to Sunrise Boulevard. This line can be upgraded at a point south of Fitzgerald Road to transmission pressure capacity; north of this point the line is designed for standard distribution pressure thus, upgrade will mean retrofitting for pressure. PG&E would not be required to make additional infrastructure changes in the area surrounding the base site. Communities around the base site where direct and indirect population changes would occur due to the General Aviation with Aircraft Maintenance Alternative being implemented, will not be negatively impacted in respect to utility demands being met. Under this alternative, total demand within the Sacramento Division service area would remain at an average of 84,850 therms/day in 1994, which is less than 1 percent greater than the Sacramento District implicit projection for that year. By 2014, demand within this service area will reach an average of 1,174,109 therms/day, approximately 0.6 percent greater than the Sacramento Division projection for that year. Added natural gas demand for this alternative would not impact non-core (interruptible service) customers.

The increased population and resulting increase in natural gas demand from General Aviation with Aircraft Maintenance Alternative would require PG&E to make currently planned long-term infrastructural improvements as scheduled. The overall changes to their short- and long-term plans would not be notably different from current need assessments.

Cumulative Impacts. The cumulative impacts for this alternative are the same as those stated for the Proposed Action.

Mitigation. New users would be required to implement mitigation measures as discussed for the Proposed Action (Section 4.2.4.1). If mitigation measures were implemented, they would likely occur northwest of the airfield corresponding with development of that area.

4.2.4.4 Non-Aviation with Low-Density Residential Alternative. Table 4.2-18 presents a summary of regional utility demand changes associated with the Non-Aviation with Low-Density Residential Alternative. This alternative uses the majority of the site (3,562 acres located in the current airfield area and south of the airfield, as well as the northeastern border of the site) for residential purposes, this includes schools and suburban commercial use. Open space/recreation makes up an additional 1,360 acres, and is located south of the airfield and current residential area. Commercial, light industrial, hospital, and the educational complex make up the remainder of land use with 794 acres located in the current main cantonment area. Aggregate mining will occur on 1,617 acres in the current airfield area and south of the airfield prior to residential development. This will disrupt current utility distribution lines (sewer,

water, some natural gas); aggregate mining companies will be responsible for costs to mitigate this problem.

Table 4.2-18. Utility Demand Changes in the Sacramento Region - Non-Aviation with Low-Density Residential Alternative

	1994	1999	2004	2014
Water Demand				
SCWA Region (in MGD)				
Post-Closure	304.7	336.7	368.8	433.0
Alternative	304.9	337.4	369.9	435.2
Change from Post-Closure	0.2	0.7	1.1	2.2
Percent Change	0.1	0.2	0.3	0.5
Wastewater Generation				
SRCSD Service Area (in MGD)				
Post-Closure	163.9	191.2	218.6	281.8
Alternative	164.0	191.6	219.2	283.0
Change from Post-Closure	0.1	0.4	0.6	1.2
Percent Change	0.1	0.2	0.3	0.4
Solid Waste Generation				
Sacramento Area (in million cubic yards/year)				
Post-Closure	2.28	2.46	2.65	3.02
Alternative	2.28	2.47	2.66	3.04
Change from Post-Closure	0.00	0.01	0.01	0.02
Percent Change	0.1	0.2	0.3	0.5
Electricity Demand				
SMUD Service Area (in MWH/day)				
Post-Closure	23,405	26,076	29,022	35,282
Alternative	23,420	26,128	29,107	35,457
Change from Post-Closure	15	52	85	176
Percent Change	0.1	0.2	0.3	0.5
Natural Gas Demand				
PG&E Sacramento Division (in thousand therms/day)				
Post-Closure	845	916	993	1,167
Alternative	845	918	997	1,174
Change from Post-Closure	1	2	4	7
Percent Change	0.1	0.3	0.4	0.6

Note: Due to rounding, values in the table cannot be verified by addition and simple calculation.
Sources: Based on Sacramento County Water Agency, 1989; Cappola, 1991; Sacramento County Department of Public Works, 1991; California Energy Commission, 1990; Sacramento Municipal Utility District, 1991; and Mattina, 1991.

Water Supply. This alternative would cause an increase in water consumption on the site due to direct population growth and land use requiring extra amounts of water, such as residential, institutional, industrial, commercial activities, parks and recreation areas on the base site. The alternative would create a need for approximately 10.0 MGD of water by 2014 (see Table 4.2-14). This represents 28 percent of Sunrise District, SCWA total of 35.9 MGD of water consumed. Of this 9.9 MGD, 2.6 percent would be needed for the recreation/preserved habitat area. Under a 5-percent distribution line conveyance loss assumption to fully satisfy landscaping and irrigation, the Non-Aviation with Low-Density Residential Alternative would require 10.3 MGD. Nationally accepted planning criteria for firefighting suggest a rate of 8,100 gpm for a duration of 10 hours with a reserve storage of about 4.9 MG (Merritt, 1988).

Currently, growth of the base water supply system is limited by treatment and storage capabilities. However, future development of the site would not be hampered by these limitations, as the water purveyor supplying the base would assume responsibility for treatment and storage. Infrastructural changes would be needed on the site to accommodate development involving interim mining (airfield and southeast side of airfield), residential and commercial/light industrial growth, predominantly on the airfield and the southeastern side of the airfield. Rehabilitation and replacement would be necessary for the current distribution system and for the intertie with the private purveyor's system. Another concern for the site water distribution system is the condition of storage tanks and wells (U.S. Air Force, 1989a). Although storage tanks are protected for corrosion and upkeep maintenance has been done, the average age of the system may present problems for future reusers of the site. Attention at the site would need to be given to the water treatment facilities. Preclosure design capacities would not be able to handle the additional demand imposed by the Non-Aviation with Low-Density Residential Alternative.

Water consumption in SCWA, Sunrise District which encompasses the site, would increase as a result of this alternative over estimated post-closure consumption. In the short term, through about 1994, the overall water demand would increase an average of about 0.1 MGD. By 2014, the overall increase from this alternative would be an average 2.0 MGD over the estimated post-closure demand. Increased pumpage at Mather would result in a water level cone of depression surrounding the site. The cone would range from 9 to 15 miles after 20 years of pumping activity. Very shallow wells in the region could experience lower levels due to on-site pumping. The availability of groundwater or other water supply resources are analyzed in Section 4.4.2, Water Resources.

Infrastructural changes would be required throughout Sunrise District, in the individual private water suppliers districts that will experience direct and indirect population changes of this reuse. Under this alternative, total demand for the region would reach an average of 435.2 MGD by 2014, approximately 2.2 percent greater than the extrapolated SCWA projection for that year.

Wastewater. Wastewater volume from the base site would increase with the direct population growth and the land use due to implementation of the Non-Aviation with Low-Density Residential Alternative. By 2014, the alternative would produce 7.1 MGD of wastewater (see Table 4.2-14). This accounts for less than 4.3 percent of the SCRWTP total of average treated flow in 1990 of 137 MGD. For an area fully serviced by sewers, it is assumed that wastewater flows generally equate to the water consumption levels (Merritt, 1987). At the base site, however, due to the open space/recreation area and lawn irrigation needs (this accounts for approximately 0.263 MGD of water), the amount of wastewater is much less than the water demand.

Infrastructural changes would be needed on the base site to accommodate predevelopment mining (airfield and southeast side of airfield), residential and commercial/light industrial growth, predominantly on the airfield and the southeast side of the airfield. Rehabilitating and coordinating the inter-tie of the (more than 50 year old) collection system may be required to meet the increased demands which this alternative will create.

Due to stricter sanitation sewer collection system codes, replacement might be necessary for the majority of the current collection system on the base site to improve the flow velocity. The system's root intrusion problem, leakage and settlement (due to flows of less than 1.7 fps as compared to the norm of 2 fps) are of some concern. Additional capacity may need to be examined, for Mather Pump House. This pump house feeds wastewater from the base site to the county interceptor lines. Preclosure design capacity of the pump house (2 MGD) would not be able to handle the additional demand imposed by this alternative. Retrofitting the pump house with proper pumps and upgrading the 1.5-mile outfall which is currently a 12-inch diameter forced main, may adequately deal with this concern. The use of bigger retention ponds or redesign of this section of the line (using only gravity drainage) could also resolve this concern.

Wastewater treatment within the service area of Sacramento County, including the base site is provided by SRWTP. Wastewater collection is provided by SRCSD. This alternative will increase estimated treatment levels projected for the post-closure conditions. In the short term, through about 1994, the overall increase in the wastewater treatment demand would be above the average of about 163.9 MGD by 0.1 MGD. By 2015, the overall increase from this alternative would be an average of about 1.2 MGD over the estimated demand of 282.9 MGD for post-closure conditions.

The county would be required to make additional infrastructure changes in the communities around the base site where direct and indirect population changes will occur due to the Non-Aviation with Low-Density Residential Alternative being implemented. Under this alternative, total demand within the SRCSD service area would reach an average of 283 MGD by 2014, less than 1 percent of the SRCSD implicit projection for that year.

The increased population and resulting increase in wastewater levels from this alternative would require SRCSD to make currently planned long-term infrastructural improvements as planned for in the Montgomery Engineers Project Report for Expansion. The overall changes to short- and long-term plans would not be notably different from current assessments. Wastewater quality and related issues are analyzed in Section 4.3, Hazardous Materials/Hazardous Waste, and Section 4.4.2, Water Resources.

Solid Waste. Under the Non-Aviation with Low-Density Residential Alternative, solid waste generation on the base site would increase due to the direct

population growth and the various proposed land uses. This increase would range from 0.8 to 6.3 percent (during the 20-year forecast). By 2014, Kiefer Landfill would experience a minimal shortening of lifespan due to this alternative being implemented. Even if plans for landfill expansion are not approved, the county would still seek additional landfill site acreage by 2016, the year in which Kiefer Landfill will reach its original design capacity.

The estimated volume of refuse disposed of from 1994 to 2014 includes contributions from the preclosure on-base requirements of the Air Force, from direct and indirect worker activities in the reuse area, and residents of the surrounding region. The demolition and construction debris created as a result of implementation of this alternative would have a moderate short term impact on the Kiefer Landfill. The demolition of 1,224,000 square feet of buildings would occur, creating approximately 76,915 cubic yards of solid waste material that would need to be disposed of in county or private landfills. Renovation and construction of 3,288,000 and 31,489,000 square feet of buildings, respectively, would create additional debris that will need disposal. Kiefer Landfill and other privately owned/operated landfills will accept construction and demolition debris. However, current restrictions will not permit disposal of the ACM in the landfill. A disposal facility, yet to be designated, would be required for this ACM (greater than 1 percent by weight) of undetermined volume which will be generated over an extended period. There are no public asbestos disposal sites in the county of Sacramento; the ACM would have to be hauled out of the county.

Under the California Integrated Waste Management Act, source reduction, recycling and composting programs which presently receive greater legal and budgetary emphasis, could extend the Kiefer Landfill life expectancy as much as 5 to 10 years. The county's long-term plans for Kiefer Landfill expansion will not be substantially different from current expansion plans.

Energy

Electricity. Electric consumption would increase with the direct population growth and the intensive industrial activities due to the Non-Aviation with Low-Density Residential Alternative. By 2014, this alternative would create a need for approximately 118 MWH (see Table 4.2-14). This represents 2 to 3 times the existing capacity. These estimates include contributions from the preclosure on-base requirements of the Air Force, from the direct and indirect worker activities in the reuse area, and from the resident population of SMUD.

Infrastructural changes would be needed on the base site to accommodate the pre-development mining, residential (airfield and south side of airfield), and commercial/light industrial, educational complex on the current main base cantonment area. These areas would require new high voltage supply lines, new substations and a distribution network that could accommodate the electric load of an industrial nature. The existing supply system would require

rehabilitation, metering of users' individual facilities, and establishing appropriate utility corridors and easements. Metering would be desirable for costs monitoring and accountability of some public-supplied services. The residential area may need rehabilitation or new construction, also the question of distribution system ownership (PG&E [lines] or Pacific Bell [poles]) would need to be addressed by new tenants in the residential area.

SMUD would not be required to make additional infrastructure changes in its Rancho Cordova District. Communities around the base site where direct and indirect population changes would occur due to this alternative being implemented would not be negatively impacted. Electricity consumption by the Rancho Cordova District would increase as a result of this alternative over the estimated consumption under post-closure conditions. The average daily demand estimates referred to above exclude very small amounts of electricity consumption required for direct construction activities (e.g. incidental loads for operating electrically powered tools and equipment, temporary security lighting). Under this alternative, total demand within the SMUD service area would reach an average of 23,420 MWH/day by 1994, approximately 0.1 percent greater than the post-closure projection for that year. Total demand would reach an average of 35,457 MWH/day by 2014, approximately 0.5 percent greater than the post-closure demand projections for that year.

The increased population and resulting increase in wastewater from this alternative would require SMUD to make currently-planned, long-term infrastructural improvements as scheduled. The overall changes to their short- and long-term plans would not be notably different from current need assessments. SMUD's interruptible service customers would not be impacted by the demands of this alternative.

Natural Gas. Natural gas consumption would increase with the direct population growth due to the Non-Aviation with Low-Density Residential Alternative being implemented. This alternative would require approximately 35,148 therms per day (see Table 4.2-14). This estimated demand represents about 5 percent of PG&E's Sacramento Division total therms. These estimates include contributions from the preclosure on-base requirements of the Air Force, from the direct and indirect worker activities in the reuse area, and from the resident population of PG&E's Sacramento Division of natural gas. A new supply network would be needed on the base site to accommodate the new residential, light industrial, commercial, and educational complex on the site.

The existing supply lines enter the base site at Old Placerville Road (for the main base area) and Kiefer Road (for the housing area). The Kiefer line is at maximum demand capacity due to Sacramento Rendering Company's intensive natural gas use. Current difficulty in maintaining Kiefer Road line pressure would require PG&E to remove the housing area from the Kiefer line and hook it up to the Sunrise line which has a higher demand capacity. PG&E would

require metering of reusers individual facilities and establishing appropriate utility corridors and easements. Metering would be desirable for costs monitoring and accountability of some public-supplied services. The residential area would need rehabilitation and new construction, also the question of distribution system ownership would need to be addressed by tenant/users of the base site.

Table 4.2-18 presents a summary of utility demand changes associated with this alternative. In 1990/1991, PG&E installed an 8-inch steel pipeline parallel to Sunrise Boulevard. This line is upgradable to transmission pressure capacity south of Fitzgerald Road. PG&E would not be required to make additional infrastructure changes in the surrounding area off the base site. Communities around the base site where direct and indirect population changes would occur due to this alternative being implemented would not be negatively impacted with respect to meeting of utility demands. Under this alternative, total demand within the Sacramento Division service area would reach an average of 845,283 therms/day by 1994, approximately 0.1 percent greater than the Sacramento District implicit projection for that year. The demand would reach an average of 1,173,747 therms/day by 2014, approximately 0.6 percent greater than the Sacramento District implicit projection for that year. Curtailment of service to non-core (interruptible service) customers would not occur due to the demands of this alternative.

The increased population and resulting increase in natural gas demand from the Non-Aviation with Low-Density Residential Alternative would require PG&E to make currently planned long-term infrastructural improvements as scheduled. The overall changes to their short- and long-term plans would not be notably different from current need assessments.

Cumulative Impacts. The cumulative impacts for this alternative are the same as stated for the Proposed Action.

Mitigation. New users would be required to implement mitigation measures as discussed for the Proposed Action (Section 4.2.4.1). Temporary utility services that could satisfactorily handle demand for water, wastewater, and energy would need to be installed during interim mining.

4.2.4.5 Other Land Use Concepts. Changes in utility demand within each utility purveyor's service area resulting from the federal transfers and independent land use concepts (referred to as reuse components) would be generally commensurate with population changes resulting from these activities. Only those federal transfers, state/local conveyances and independent land use proposals that have impacts upon the various reuse alternatives are presented here.

Caltrans R&D Center. This reuse component when overlaid with the Proposed Action or alternatives, would increase direct on-site jobs. The Proposed Action

with the reuse component would create a net gain of 3,455 direct, on-site jobs; this represents 11 percent of the total direct, on-site jobs. The Non-Aviation with Mixed-Density Residential Alternative, overlaid with this reuse component, would create a net gain of 280 direct, on-site jobs; this represents 0.4 percent of the total direct, on-site jobs. The General Aviation with Aircraft Maintenance Alternative, overlaid with this reuse component, would create a net gain of 4,500 direct, on-site jobs, this represents 11 percent of the total direct, on-site jobs. The Non-Aviation with Low-Density Residential Alternative, overlaid with this reuse component, would create a net gain of 140 direct, on-site jobs, this represents 0.2 percent of the total direct, on-site jobs. If population in-migration were assumed to reflect the same proportion as the estimated reduction in jobs, utility demand would also be reflected by the same proportions.

Theme Park. This reuse component when overlaid with the Proposed Action or alternatives, would cause an estimated net reduction of 7,753 direct on-site jobs. This represents a reduction of 7.5 percent. If population in-migration were assumed to reflect the same proportion as the estimated reduction in jobs, utility demand would also be reflected by those same proportions.

4.2.4.6 No-Action Alternative. Under the No-Action Alternative, the U.S. Government would retain ownership of the Mather AFB property. A DMT (with a crew of approximately 50 personnel) would maintain the facilities and grounds. Disuse of the various utility systems would cause degradation over the long-term (such as, corrosion and pipeline infiltration). At closure the DMT crew could completely shut down electric and natural gas systems; however, water and wastewater systems would need minimal flows for limited upkeep (to prevent additional corrosion, infiltration and inflow). The water system would also need to be monitored for minimal fire protection service at the site. In the absence of any reuse actions at Mather AFB, post-closure utility demand in the region is projected to increase with the projection of baseline population. Utility usage is forecast using per capita demand factors provided by the utility purveyors in the study area:

- Water consumption in SCWA's service area is projected to increase from 305 MGD in 1994 to 433 MGD in 2014.
- Wastewater treatment volume in the Sacramento County Water Quality Division service area is projected to increase from 163.9 MGD in 1994 to 282.9 MGD in 2014.
- Solid waste generated in the Sacramento area is expected to increase from 2.3 million cubic yards per year in 1994 to 3.0 million cubic yards in 2014.
- Electricity consumption in SMUD's service area is projected to increase from 23,400 MWH/day in 1994 to 35,282 MWH/day in 2014.
- Natural gas use in PG&E's Sacramento Division is projected to increase from 845 thousand therms per day in 1994 to 1,167 thousand therms per day in 2014.

4.3 HAZARDOUS MATERIALS/HAZARDOUS WASTE

This section addresses the potential impacts of existing contaminated sites on the various reuse options, and the potential for environmental impacts caused by hazardous materials/waste management practices associated with the reuse options. Hazardous materials/waste, IRP sites, storage tanks, asbestos, pesticides and herbicides, PCBs, radon, and medical/biohazardous wastes will be discussed within this section.

The U.S. Air Force is committed to the remediation of all contamination at Mather AFB due to past Air Force activities. The DMT will remain after base closure to coordinate cleanup activities. Delays or restrictions in reuse or disposal of property may occur due to the extent of contamination and the results of both the risk assessment and remedial designs determined for contaminated sites. Examples of possible land use restrictions would be the capping of landfills and the constraints from methane generation and cap integrity; as well as the location of long-term monitoring wells. These restrictions would have to be considered in the layout of future development. Options to developers include creation of parks, greenbelts or open spaces over and around such areas.

Regulatory standards and guidelines will be applied in determining the impacts caused by hazardous materials/waste. The following criteria were used to identify potential impacts:

- Accidental release of friable asbestos during the demolition or modification of a structure
- Generation of a hazardous waste (California Health and Safety Code Chapter 6.95, Section 25532), resulting in increased regulatory requirements
- New operational requirements or service for all USTs and tank systems
- Any spill or release of a reportable quantity of a hazardous material
- Manufacturing of any compound that requires notifying the pertinent regulatory agency
- Exposure to the environment or public of any hazardous material through release or disposal practices.

4.3.1 Proposed Action

4.3.1.1 Hazardous Materials Management. The hazardous materials likely to be utilized by activities occupying the proposed land use zones are identified in Table 4.3-1. The majority of the types of hazardous materials used would be similar to those used by the base prior to closure. The quantity of hazardous materials utilized under the Proposed Action would increase over the baseline conditions at closure. The commercial mix and potential utilization of

hazardous materials (chemical compositions and use rates), based on unknown commercial types of operations is not quantifiable within this document.

Table 4.3-1. Proposed Action Hazardous Material Usage

Land Use	Operation Process	Hazardous Materials
Airfield	Refueling, de/anti-icing	Jet fuel, aviation fuel, propylene and ethylene glycol, lubrication, oils, pesticides and herbicides
Aviation Support	Aircraft Maintenance, firefighting, air cargo, refurbishing and remanufacturing	Fuels, solvents, paints, glycols, degreasers, corrosives, heavy metals, reactives, thinners, ignitables, pesticides, herbicides, waste oils
Light Industrial	Light industry, warehousing and manufacturing	Solvents, heavy metals, corrosives, catalysts, aerosols
Institutional (Medical)	Hospital	Silver waste, pharmaceuticals, biohazardous waste
Institutional (Education)	Higher education Simulator Research labs	Laboratory waste, corrosive ignitables, heating oils, propane, solvents, lubricants and cleaners
Commercial (and Office)	Drycleaners, gas station, hardware, paint store, warehouse, computer centers	Fuels, oils, paints, solvents, corrosives, pesticides, fertilizers, and herbicides
Residential	Maintenance: Family housing, swimming pools	Pesticides, fertilizers, herbicides, waste oils, chlorine, and household waste
Parks/Recreation	Maintenance: Golf course, pool, sports complex, recreational lake	Cleaners, solvents, pesticides, fungicides, herbicides, fertilizers, aerosols, heating oil and propane
Aggregate Mining	Earthmoving	Petroleum, oils, and lubricants

DOD has been the single organization responsible for the management of hazardous materials used by the base. Under the Proposed Action, numerous individual and independent organizations would be required to transport and manage these materials in compliance with the appropriate regulations. The independent organizations would be required to comply with SARA Section 311, Title III, concerning community right-to-know and emergency response inventories. These organizations would require the establishment of a hazard communication program (per OSHA) for the employees in each of the separate facilities. California Hazardous Materials Business Plans would be required from the various facilities. The Proposed Action would probably not have an on-site organization responsible for spills and releases from hazardous materials and hazardous waste.

The storm water regulations that resulted from the Water Quality Act of 1987 became effective in December of 1990 and require that a National Pollutant Discharge Elimination System (NPDES) permit be obtained for the airport. This permit would also address the storm water runoff from areas devoted to aggregate mining, construction activity, and airport operations which utilize waste oils and de/anti-icing solutions.

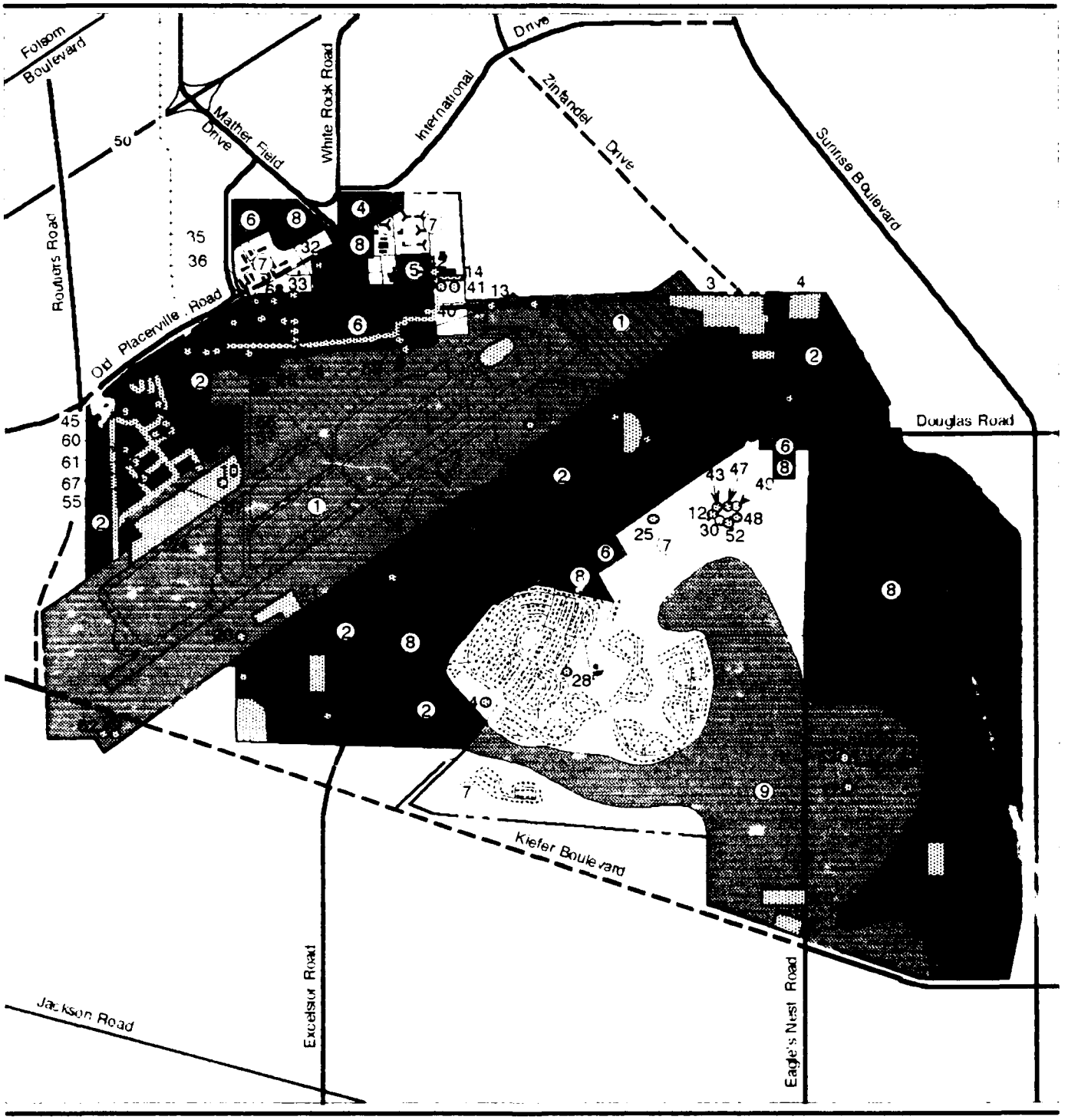
4.3.1.2 Hazardous Waste Management. The Air Force policy of centralizing hazardous waste management, storage and disposal would be replaced by separate and independent generators of hazardous waste. All applicable regulations concerning hazardous waste management would become the responsibility of the new operators. The new operators would have to become proficient with hazardous waste management and appropriate spill response.

The presence of numerous small independent owner/operators on the base would change the regulatory requirements and probably lessen the regulatory burden for the management of these wastes. The potential reduction in the regulatory requirements will be dependent on the final regulations adopted by the state of California during RCRA authorization. The options for waste minimization and recycling may increase due to new waste streams.

4.3.1.3 Installation Restoration Program Sites. The U.S. Air Force is committed to continue IRP activities under DERP, CERCLA, and the FFA between the Air Force, U.S. EPA, and California EPA. IRP activities will be coordinated by the DMT and the afforementioned agencies.

The extent of contamination is being delineated and both the risk assessment and remedial designs will be a result of this work. Proposed disposal and reuse of some Mather AFB properties may be delayed or limited due to the extent of contamination as well as ongoing and future IRP activities (Figure 4.3-1). Site access restrictions may be required for long-term monitoring and remedial activities. This process will also identify current and future monitoring well locations and consider land use limitations as a result of their presence. The regulatory review process would include notifying the FAA concerning the construction and locations of any monitoring wells.

Ultimate decisions on what type of future land use will be implemented at areas overlying or adjacent to an IRP site will greatly depend on the overall characterization of risk to human health posed by the IRP site. This risk assessment is an integral part of the remedial investigation to be conducted at IRP sites. Part of the risk assessment involves estimates of exposure to contaminants under future land use conditions at the site. This assessment provides an understanding of the potential exposures to contaminants in the future and may reveal that the site will not support some potential future land uses.



EXPLANATION

1. Airfield
2. Aviation Support
3. Light Industrial
4. Institutional (Medical)
5. Institutional (Education)
6. Commercial
7. Residential
8. Parks/Recreation
9. Natural Habitat

Military

Pre-development Aggregate Mining

Airfield Pavement

IRP Site (Numbers refer to Table 3.3-3)

Base Boundary

Proposed Light Rail Line

Proposed Road

0 800 1600 3200 Feet

* Not Applicable

IRP Sites Proposed Action

Figure 4.3-1

The IRP sites within each land use area for the Proposed Action are summarized in Table 4.3-2. These IRP sites may require remedial activities. Potential remedial designs may restrict future development. An example of possible restrictions would be the capping of landfills and the constraints from methane generation and cap integrity on the siting of housing developments over these areas. Monitoring well locations and extraction wells would preclude building on these structures. Ongoing IRP activities may restrict or delay reuse options in the following areas, dependent upon pending remediation requirements.

- Airfield - Several portions of the airfield are underlain by IRP sites; the major constraints on this area would be the disturbance of pending cap designs, extraction wells or ground water monitoring wells; the remedial requirements have yet to be determined and the RI/FS will better define the extent of contamination. Flight operations are not anticipated to be curtailed by remedial activities.
- Aviation Support - The proposed construction of aviation support facilities may be constrained by the remediation associated with the TCE and PCE plumes in the northwest portion of the base (see Figure 3.3-1). Additionally the aviation support area will overlay a landfill, and the West ditch (Site 15). Landfill caps and monitoring or extraction wells may constrain development pending the final RD.
- Institutional (Medical) - This area would not be restricted by any known IRP sites or remedial activity.
- Institutional (Education) - The 13 acre educational complex will not be restricted by any underlying site.
- Commercial - This land use would be underlain by numerous past disposal sites. The monitoring and potential extraction wells associated with the TCE plume in the northern portion of the base may delay the placement of new buildings.
- Residential - Extraction wells or monitoring wells associated with the AC&W would likely constrain development on portions of this land and is dependant on the final RD.
- Parks, Natural Habitat, and Recreation - The park and natural habitat areas may be constrained by the RD for a landfill. The recreation site may have minor potential constraints due to the pending RD.
- Predevelopment Aggregate Mining - Aggregate mining may be delayed in areas to prevent impacts to the remediation process. Delays may be required to eliminate potential impacts associated with the removal of overburden and the removal of gravels. Potential impacts to be avoided include:

    1. Destruction or disturbance of existing groundwater monitoring wells.
    2. Disruption or damage to extraction wells (pump and treat systems).

Table 4.3-2. IRP Sites within Land Use Areas: Proposed Action

Proposed Land Use	IRP Site(s)
Airfield	1, 3, 8, 9, 11, 13, 20, 21, 22, 24, 26, 51, 52, 62
Aviation Support	TCE and PCE plumes, 2, 3, 4, 5, 7, 10, 11, 15, 16, 18, 19, 21, 23, 24, 27, 29, 31, 44, 45, 46, 55, 57, 58, 59, 60, 61, 64, 65, 66, 67, 68
Commercial	TCE plume, 23, 32, 36, 37, 38, 39, 40, 54, 63
Residential	TCE plume, 12, 14, 25, 28, 30, 33, 34, 35, 41, 42, 43, 45, 47, 48, 49, 50, 52, 56, AC&W
Parks and Recreation	5, 6, 17, 53, 69
Natural Habitat	5, 6, 17, 53, 69
Predevelopment Aggregate Mining	PCE and TCE plumes, 2, 3, 4, 5, 7, 11, 16, 22, 31, 44, 46

3. As a result of the 35-foot depression from the mining activity, a potential exists for the rapid infiltration of surface water into the upper aquifer; this may disrupt the cone of depression for proposed extraction wells, or influence the groundwater gradient and impact the monitoring wells.

4. Disruption of the impervious cap designs for sites.

5. *Transportation* - Road extensions may potentially be impacted by IRP sites.

4.3.1.4. Underground/Aboveground Storage Tanks. The continuation of air flight and maintenance operations under the Proposed Action would require both aboveground tanks and USTs. The potential for fuel spills and releases would be addressed by the completion of a Spill Prevention and Countermeasures Plan. Reuse and new USTs and aboveground storage tanks that would be required by the new owner/operators would have to comply with all applicable federal, state, and local regulations. These regulations include acceptable leak detection methodologies, spill and overfill protection, cathodic protection, secondary containment for the tank systems including the piping, and liability insurance. USTs that would not support reuse activities would be expected to be closed in conformance with the appropriate local, state, and federal regulations.

Aboveground fuel storage tanks that would not be utilized to support the reuse activities would be purged of fumes to preclude fire hazards. Under the jurisdiction of the Uniform Fire Code, the State Fire Marshall's office can require:

- Tanks out of service for 90 days must be safeguarded.
- Tanks out of service for one year "shall be removed from the property."

The closure of these tanks would meet the requirements of the California Fire Marshall's office and California EPA.

4.3.1.5 Asbestos. Renovation and demolition of existing structures with ACM may occur with reuse development. Such activities will comply with all applicable federal, state, and local regulations.

4.3.1.6 Pesticides and Herbicides. Pesticide and herbicide usage associated with the Proposed Action would increase over amounts used under preclosure conditions, as a result of the increase in recreation and commercial land uses. The areas adjoining the runways and taxiways would require the use of these materials in quantities similar to preclosure practices. The increased application rate for these substances within the residential areas would be proportionate to the population increases on the facility. Management practices would conform with FIFRA and state regulations.

4.3.1.7 PCBs. All Air Force owned PCB-contaminated equipment (50-499 ppm) has been retrofilled to levels below 5 ppm and will not create any impacts. All Air Force owned PCB items will be retrofilled to levels below 5 ppm by August, 1992, and will not create any impacts. PG&E will retain responsibility for management of their equipment.

4.3.1.8 Radon. Radon surveys completed show that only 3 of 1,613 samples approached 4 pCi/l, which is the recommended action level for remediation within 5 years. Comprehensive data available from the prior surveys indicate that radon would not create any impacts on this reuse option.

4.3.1.9 Medical/Biohazardous Waste. Biohazardous materials generated with the reuse of the hospital would be managed in conformance with state of California regulations. The generation rates for waste products and disposal requirements would not appreciably change from preclosure as a result of the change in management at this facility. The assumption has been made that the hospital would not change the preclosure level or types of services provided. These materials would not represent impacts on this reuse option.

4.3.1.10 Cumulative Impacts. The Proposed Action would not result in any cumulative impacts.

4.3.1.11 Mitigation Measures. The formation of a cooperative planning body for hazardous materials and waste management could be established with the support of the new individual operators on the base. The establishment of a cooperative planning body could reduce the costs of environmental compliance training, reduce cost of waste management, increase recycling and minimize waste, and assist in mutual spill responses.

The scheduling of "household collection days" for hazardous residential wastes would mitigate POTW and storm water discharge concerns. Educational articles in the local papers and classes offered by community educational programs could increase residential awareness on recycling, appropriate use of pesticides, waste minimization and appropriate disposal.

The Air Force is committed to the remediation of all the IRP sites in coordination with the U.S. EPA and California EPA. The presence of IRP sites may limit certain land uses within the overlying areas. Active coordination between the Environmental Management Office and the new construction planning agencies would mitigate potential problems.

UST locations that remain in service would require coordination with planning agencies to preclude placing structures that would endanger the integrity of the tanks or piping systems. Aboveground tanks out of service in excess of one year would be closed in compliance with state and local regulations.

Equipment owned by PG&E, should it contain PCBs, could be mitigated by either retrofitting and confirmatory testing, removal, or routine inspections.

Coordination between asbestos removal and new construction or renovation would mitigate potential asbestos impacts. Compliance with NESHAP would mitigate and preclude asbestos exposures.

4.3.2 Non-Aviation with Mixed-Density Residential Alternative

4.3.2.1 Hazardous Materials Management. The use of hazardous materials in the Non-Aviation with Mixed-Density Residential Alternative would be less than in the Proposed Action. The loss of aircraft maintenance would generate an initial large decrease in the quantity of hazardous materials. Concern with the lack of centralized management, discussed under the Proposed Action, would also apply to this alternative. Interim aggregate mining would require use of POL materials for operation of the trucks and heavy equipment. The quantity of hazardous materials for this reuse option is approximately the same as that for the Proposed Action due to aggregate mining. The industrial areas would utilize hazardous materials and have the potential to increase hazardous materials usage over the Proposed Action for industrial use alone.

4.3.2.2 Hazardous Waste Management. The same effects discussed under the Proposed Action would apply with implementation of this alternative.

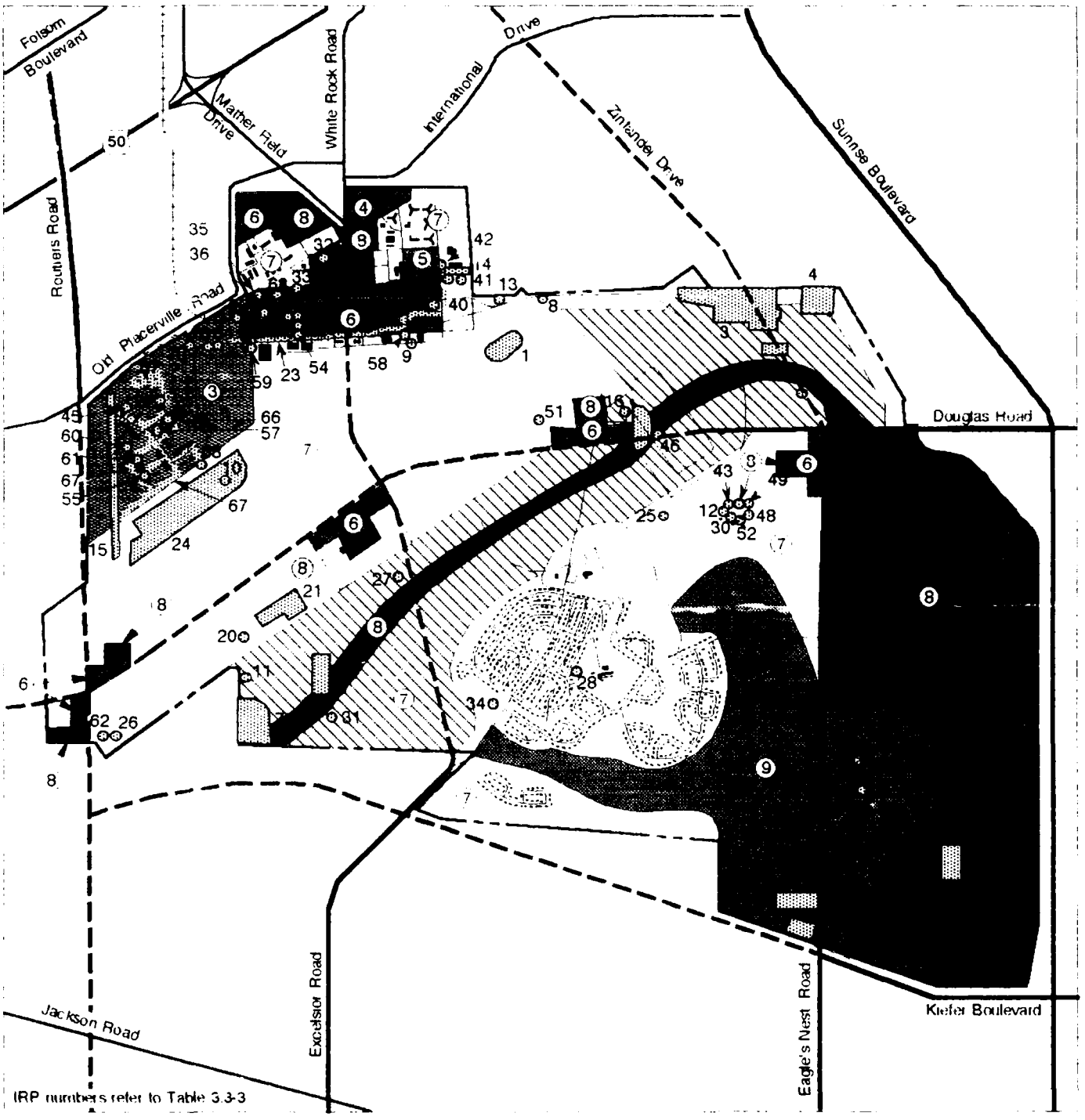
Industrial activities may generate similar types of hazardous waste to those of aviation maintenance activities, but in smaller quantities. Various parties would be responsible for managing different streams in the identified reuse areas.

4.3.2.3 Installation Restoration Program Sites. The IRP program and remediation requirements may impact the land uses identified in this alternative (Figure 4.3-2). IRP sites located within each land use area are cited in Table 4.3-3. As for the Proposed Action, ongoing activities at identified IRP sites may delay or limit some proposed reuses depending on remediation requirements.

- Light Industrial - This reuse option may be impacted by the remedial activities in the west ditch area. Potential monitoring and extraction wells associated with the TCE and PCE plumes may constrain development and are dependant on the RD.
- Institutional (medical) - There are no known IRP sites that would impact this reuse option.
- Institutional (educational) - Remedial designs associated with a TCE plume may place short term delays on the development of this area.
- Commercial - Monitoring wells associated with an underlying TCE plume may require coordination prior to the development of this area.
- Residential - Remedial activities associated with landfill, TCE and PCE plumes and remedial activities associated with other sites, may constrain the development of portions of this reuse option.
- Parks/Recreation - The primary constrain to this reuse option is the potential RD associated with a landfill in the southwest corner of this option.
- Natural Habitat - A landfill underlies this reuse option and the final RD will determine potential limitations on this alternative.
- Aggregate Mining - Remedial activities associated with several landfills and both TCE and PCE plumes would require coordination after the final approved RD.

4.3.2.4 Underground/Aboveground Storage Tanks. The loss of aviation activities would result in the removal of the large tank systems associated with current POL storage. Aboveground tanks would be purged of fumes and closed in accordance with state regulations. The addition of an industrial reuse may result in the construction of additional USTs and aboveground storage tanks. USTs that are required by the new owner/operators would have to comply with federal, state, and local regulations regarding leak detection, spill and overfill protection, cathodic protection, secondary containment, and liability insurance.

4.3.2.5 Asbestos. This alternative would entail the same general impacts that were identified and discussed within the Proposed Action.



EXPLANATION

- 1 Airfield *
- 2 Aviation Support *
- 3 Light Industrial
- 4 Institutional (Medical)
- 5 Institutional (Education)
- 6 Commercial
- (7) Residential
- 8 Parks/Recreation
- 9 Natural Habitat
- Military *
- Predevelopment Aggregate Mining
- Base Boundary
- Proposed Light Rail Line
- Proposed Road
- IRP Site (Numbers refer to Table 3.3-3)

0 800 1600 3200 Ft

* Not Applicable

IRP Sites - Non-Aviation with Mixed-Density Residential Alternative

Figure 4.3-2

Table 4.3-3. IRP Sites within Land Use Areas: Non-Aviation with Mixed-Density Residential Alternative

Proposed Land Use	IRP Sites
Light Industrial	Northwest PCE and TCE plumes, 15, 18, 19, 29, 55, 57, 60 61, 64, 65, 66, 68
Commercial	TCE plume, 2, 32, 35, 36, 37, 38, 39, 40, 54, 58, 59, 63
Residential	PCE and TCE plumes, 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 20, 21, 22, 24, 25, 26, 28, 29, 30, 31, 34, 41, 42, 43, 44, 45, 47, 49, 50, 56, 62
Parks and Recreation	PCE and TCE plumes, 2, 7, 31, 46
Natural Habitat	AC&W TCE plume, 6, 7, 53, 69
Predevelopment Aggregate Mining	PCE and TCE plumes, 2, 3, 4, 5, 7, 11, 16, 27, 31, 44, 46, 51

4.3.2.6 Pesticides and Herbicides. The use of these materials is likely to be similar to the Proposed Action and to increase from preclosure conditions. The increased number of residential units would potentially increase the quantities and diversity of these chemicals. Pesticide and herbicide runoff could create problems associated with residential applications. The golf course may increase the use of some of these compounds over closure baseline conditions as a result of reuse.

4.3.2.7 PCBs. All Air Force owned PCB-contaminated equipment (50-499 ppm) has been retrofilled to levels below 5 ppm and will not create any impacts. All Air Force owned PCB items will be retrofilled to levels below 5 ppm by August, 1992, and will not create any impacts. PG&E will retain responsibility for management of their equipment.

4.3.2.8 Radon. Radon levels detected are not anticipated to impact this reuse alternative. Radon studies completed show that only 3 of 1,613 samples approach 4 pCi/l which is the recommended action level for remediation within 5 years.

4.3.2.9 Medical/Biohazardous Waste. The generation of these materials would be similar and analogous to the impacts identified in the Proposed

Action. The quantities and types of waste would not change from the existing baseline. These materials would not represent impacts to this alternative.

4.3.2.10 Cumulative Impacts. There are no cumulative impacts associated with this reuse.

4.3.2.11 Mitigation Measures. As with the Proposed Action, potential impacts from both hazardous materials and hazardous waste can be mitigated by the formation of a cooperative managing organization. Active coordination between the Air Force's IRP representative and new construction planning agencies would mitigate potential problems.

4.3.3 General Aviation with Aircraft Maintenance Alternative

4.3.3.1 Hazardous Materials Management. The level of hazardous materials associated with this alternative would likely be equal to or slightly higher than those of the Proposed Action. POL management and aviation-related maintenance would be similar to the Proposed Action. The industrial reuse has the potential to create both different hazardous material types and greater quantities. The impacts for this alternative would be similar to those identified in the Proposed Action.

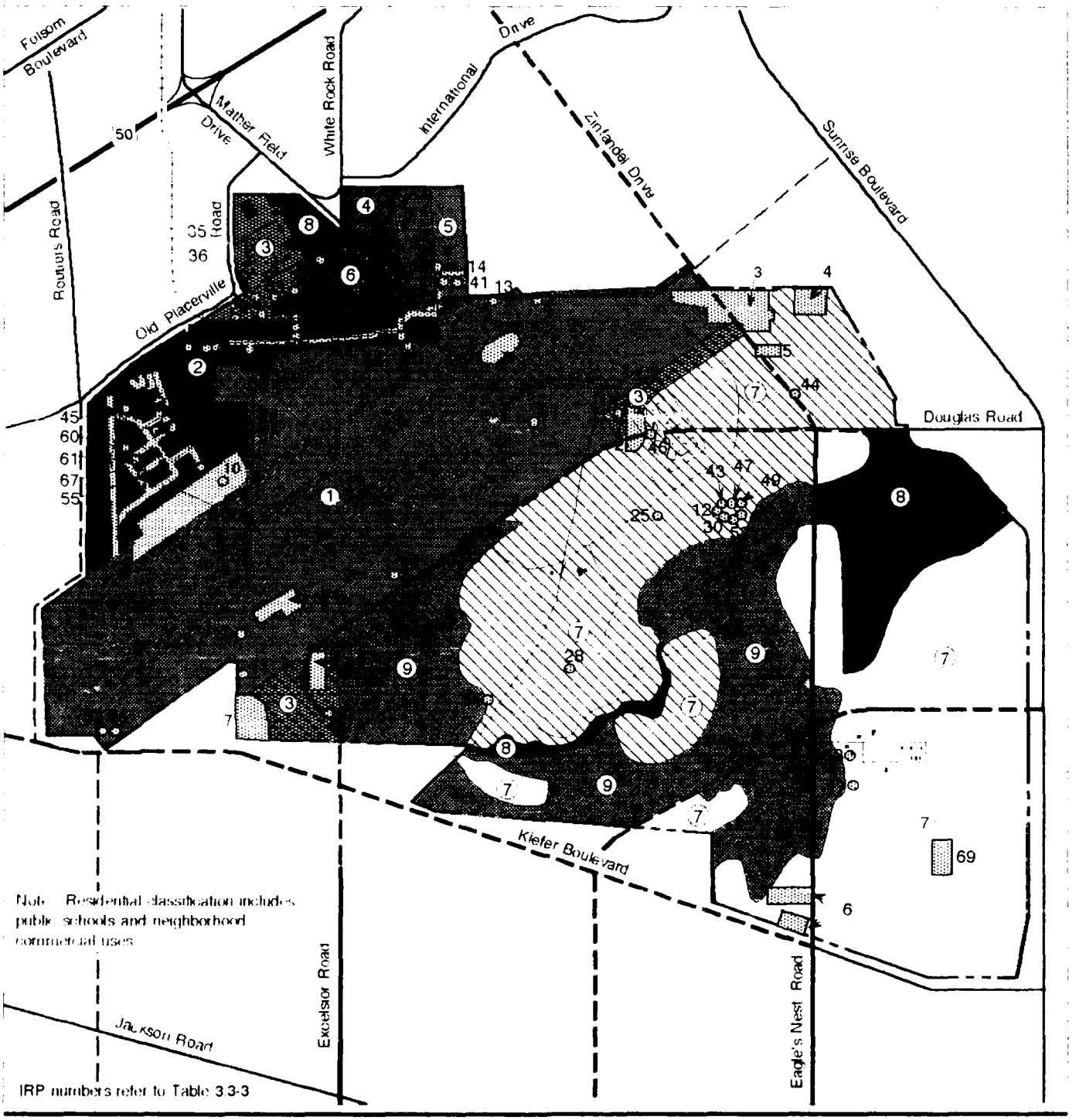
4.3.3.2 Hazardous Waste Management. The concerns over the decentralized hazardous waste management under the Proposed Action would also apply to this option. The industrial reuse associated with this alternative has the potential to generate greater quantities of hazardous waste than in the Proposed Action.

4.3.3.3 Installation Restoration Program Sites. The potential for delays and/or restrictions of some proposed reuses are similar to the Proposed Action (Figure 4.3-3). Potential IRP sites that may restrict land use are summarized in Table 4.3-4.

Remedial activities for each land use type would be the same as those described for the Proposed Action.

4.3.3.4 Underground/Aboveground Storage Tanks. The impacts from this alternative would be similar to those identified in the Proposed Action and Non-Aviation with Mixed-Density Residential Alternative.

4.3.3.5 Asbestos. Renovation and demolition of existing structures with ACM may occur with reuse development. Such activities will comply with all applicable federal, state, and local regulations.



EXPLANATION

- 1 Airfield
- 2 Aviation Support
- 3 Light Industrial
- 4 Institutional (Medical)
- 5 Institutional (Education)
- 6 Commercial
- (7) Residential
- 8 Parks/Recreation
- 9 Natural Habitat
- Military *
- Predevelopment Aggregate Mining
- Base Boundary
- Proposed Light Rail Line
- Proposed Road
- IRP Site (Numbers refer to Table 3.3-3)

0 800 1600 3200 Ft

* Not Applicable

IRP Sites - General Aviation with Aircraft Maintenance Alternative

Figure 4.3-3

Table 4.3-4. IRP Sites within Land Use Areas: General Aviation with Aircraft Maintenance Alternative

Proposed Land Use	IRP Site(s)
Airfield	1, 3, 11, 13, 20, 21, 24, 26, 27, 51, 62
Aviation Support	PCE and TCE plumes, 9, 10, 15, 18, 19, 23, 54, 55, 57, 58, 60, 61, 64, 65, 66, 67, 68
Light Industrial	TCE plume, 2, 7, 16, 22, 29, 31, 35, 36, 37, 39, 59, 63
Institutional (Education)	TCE plume, 14, 40, 41, 42, 56
Commercial	PCE and TCE plumes, 32, 33, 36
Residential	TCE plume, AC&W, 2, 3, 4, 5, 6, 12, 25, 28, 30, 34, 43, 45, 46, 47, 49, 50, 52, 53, 69
Parks and Recreation	TCE plume, 17
Predevelopment Aggregate Mining	PCE and TCE plumes, 2, 3, 4, 5, 7, 12, 25, 28, 30, 31, 34, 43, 44, 45, 46, 47, 49, 50, 52

4.3.3.6 Pesticides and Herbicides. The use of these compounds is likely to result in the same general quantities and impacts as those discussed for the Proposed Action.

4.3.3.7 PCBs. Impacts will be the same as those described in the Proposed Action.

4.3.3.8 Radon. Potential for impacts will be the same as those identified for the Proposed Action.

4.3.3.9 Medical/Biohazardous Waste. Potential for impacts will be the same as those identified for the Proposed Action.

4.3.3.10 Cumulative Impacts. There are no cumulative impacts associated with this reuse.

4.3.3.11 Mitigation Measures. Potential for impacts will be the same as those identified for the Proposed Action. Potential IRP constraints would be mitigated through cooperation between DMT office and either the cooperative planning organization or individual owner/operators responsible for the new facilities.

4.3.4 Non-Aviation with Low-Density Residential Alternative

Both non-aviation alternatives present virtually identical levels of utilization of hazardous materials and the generation of hazardous waste. The increased light industrial land use has the potential to increase levels of both of these materials over the Non-Aviation with Mixed-Density Residential Alternative. Nevertheless, impacts concerning USTs and aboveground tanks, asbestos, pesticides, PCBs, radon, and biohazardous waste would be similar to those described for the Non-Aviation with Mixed-Density Residential Alternative.

The IRP program and remedial requirements may delay or restrict some land uses identified in this reuse alternative (Figure 4.3-4, Table 4.3-5).

- Light Industrial - Remedial activities associated with several landfills, the west ditch, and several groundwater plumes may delay development of small areas within this proposed alternative.
- Institutional (Medical) - This area is not underlain by IRP sites.
- Institutional (Educational) and Commercial - Development may be delayed by the remedial design associated with a TCE plume.
- Commercial - Activities associated with the remedial design that will address the TCE plume underlying this area may impede development.
- Residential - Remedial designs may be associated with several landfills and a TCE plume.
- Natural Habitat - Remedial activities associated with a TCE plume and potential monitoring wells may constrain development.
- Interim Aggregate Mining - Proximity to the remedial activities associated with several landfill and both the TCE and PCE groundwater concerns would potentially require further coordination.

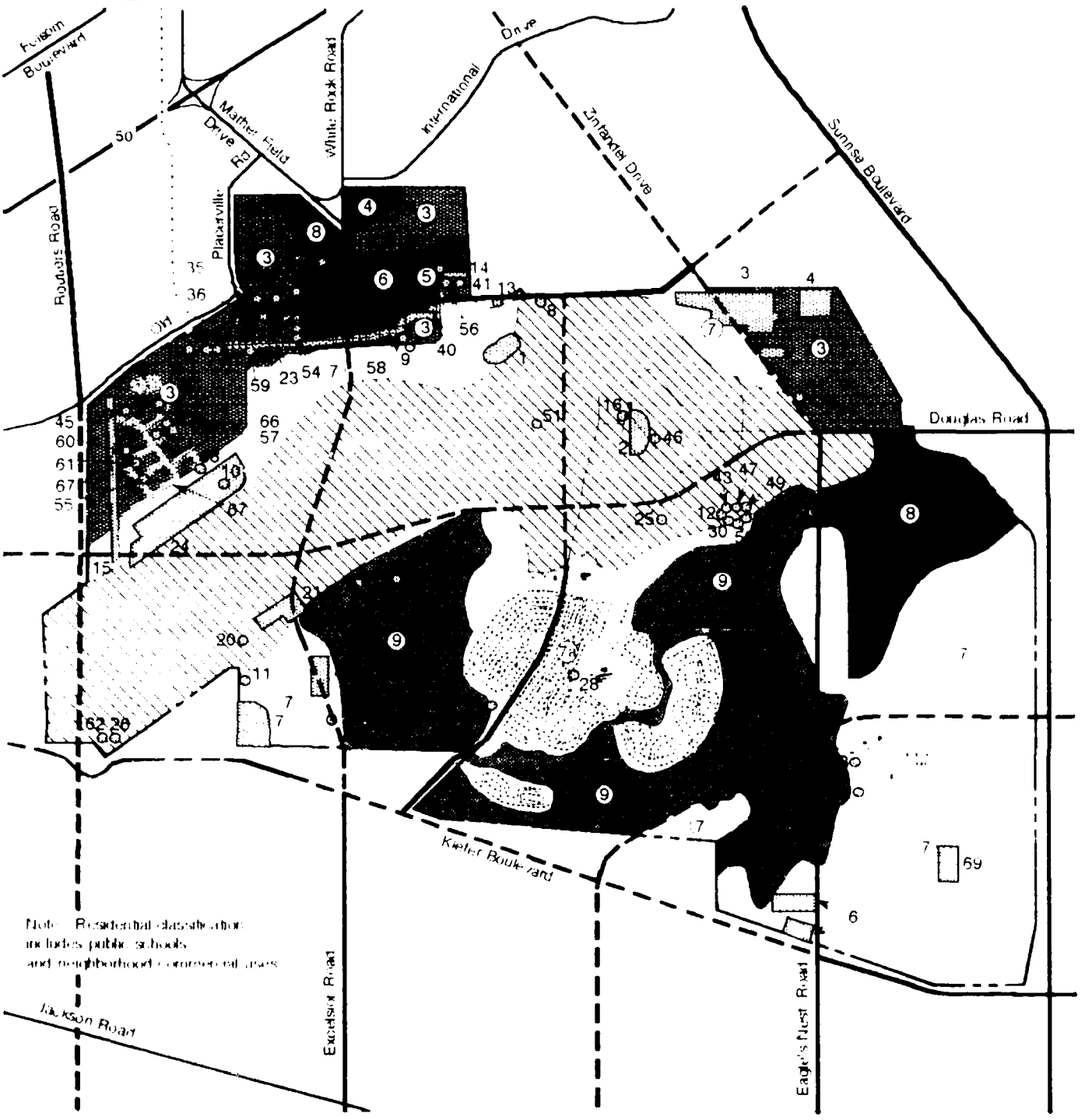
Cumulative Impacts. There are no cumulative impacts associated with this reuse.

Mitigation Measures. As with the Non-Aviation with Mixed-Density Residential reuse, potential impacts from both hazardous materials and hazardous waste could be mitigated by the formation of a cooperative planning body.

Coordination between the DMT and either a cooperative planning organization or the reuse tenants would mitigate IRP constraints. The mitigation measures identified for the Non-Aviation with Mixed-Density Residential Alternative would apply to the Non-Aviation with Low-Density Alternative.

4.3.5 Other Land Use Concepts

Only those proposed reuses with potential impacts associated with hazardous materials and waste are discussed below.



EXPLANATION

1. Airfield
2. Aviation Support
3. Light Industrial
4. Institutional (Medical)
5. Institutional (Education)
6. Commercial
7. Residential
8. Parks/Recreation
9. Natural Habitat
- Military
- Predevelopment Aggregate Mining
- Not Applicable

- Base Boundary
- Proposed Light Rail Line
- Proposed Road
- IRP Site (Numbers refer to Table 3.3-3)

0 800 1600 3200 Ft

IRP Sites - Non-Aviation with Low-Density Residential Alternative

Figure 4.3-4

Table 4.3-5. IRP Sites within Land Use Areas: Non-Aviation with Low-Density Residential Alternative

Proposed Land Use	IRP Sites
Light Industrial	Northwest PCE and TCE plumes, 3, 4, 5, 9, 15, 18, 19, 26, 29, 35, 36, 37, 39, 41, 55, 56, 57, 59, 60, 61, 63, 64, 65, 66, 67, 68
Institutional (Education)	TCE plume, 14, 40, 41, 42, 56
Commercial	TCE plume, 32, 33, 37, 38, 40, 54, 58
Residential	TCE plume, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 20, 21, 22, 24, 25, 28, 30, 31, 34, 43, 45, 46, 47, 49, 50, 51, 52, 53, 69
Natural Habitat	AC&W TCE plume, 6, 17, 27
Predevelopment Aggregate Mining	TCE plume, 1, 2, 8, 11, 12, 16, 20, 24, 25, 26, 30, 43, 45, 46, 47, 49, 51, 52, 62

Caltrans Research and Development Center. The hazardous materials envisioned for this reuse alternative include fuels, oils, lubricants, laboratory chemicals, and solvents associated with maintenance. The testing of vehicles potentially results in accidents and releases of hazardous materials.

USTs and aboveground tanks may be required for fuels. Hazardous waste may consist of waste oils, fuels, photographic waste, laboratory waste, and solvents associated with maintenance. Asbestos waste may be generated through the demolition of existing structures for the test track. Radon, PCBs, and biohazardous waste would not impact this alternative.

The potential constraints on developing this alternative would include several IRP sites and possible remedial activities associated with these sites. This reuse would be potentially constrained by the location of landfill sites 3, 4, 5, and 6.

Mitigation Measures. Hazardous material spills would be mitigated through a spill prevention plan. USTs and aboveground tanks would be mitigated through effective management that complies with local, state, and federal regulations. Asbestos concerns would be mitigated through adherence to federal, state, and local NESHAP regulations. The IRP constraints associated with geographic track locations would be mitigated through coordination with the DMT.

Theme Park. Potential hazardous materials associated with this alternative include fuels, lubricants, oils, chlorine, and solvents. Hazardous waste generated on site would be minimal and associated with maintenance. USTs may be required for petroleum storage. Asbestos may potentially create constraints as a result of the demolition and renovation associated with the theme park construction. PCBs, radon, and biohazardous waste would not impact this alternative.

The IRP sites that potentially impact the theme park overlay on the Proposed Action and Air Transport with General Aviation Alternative are: 4, 5, 6, AC&W, 69, and a TCE plume. The non-aviation alternatives with a theme park are potentially constrained by remedial activities at sites 3, 4, 5, 15, 20, and several groundwater plumes.

Mitigation Measures. Filing a Hazardous Materials Business Plan with the county would address hazardous material concerns. IRP constraints would be mitigated through coordination with the DMT and development that addresses potential land use conflicts.

Other Transfers and Conveyances

U.S. Department of Agriculture/U.S. Forest Service/Pacific Southwest Region. General office space requirements may be impacted by asbestos in existing structures. Mitigation would result from disclosure of existing asbestos and compliance with federal, state, and local NESHAP regulations during renovation.

State Commission of Peace Officer Standards. Munitions and waste associated with a small arms range would be mitigated through the use of appropriate management practices.

California State Fire Marshall. Explosive transportation and storage would minimally increase hazardous materials usage under the Proposed Action or alternatives.

Sacramento County Department of Parks and Recreation. Floral garden pesticide use and lead associated with a small arms range would be mitigated through management practices.

Sacramento County-wide Education Consortium. Asbestos constraints on renovation would be mitigated through disclosure of the materials and management or removal in conformance with federal, state, and local NESHAP regulations. Vehicle maintenance and repair facilities would utilize hazardous materials similar to those in the Proposed Action and the General Aviation with Aircraft Maintenance Alternative. Minor increases in these materials would occur with the non-aviation alternatives. A hazardous materials management

plan and hazardous waste handling in conformance with federal, state, and local regulations would mitigate these impacts.

Sacramento County Child Care and Family Support Center. Day-care facilities and general office space requirements may be impacted by asbestos in existing structures. Mitigation would result from disclosure of existing federal, state, and local NESHAP regulations during renovation.

4.3.6 No-Action Alternative

The only hazardous materials/waste issues associated with this alternative would concern the final phases of the IRP activities. The No-Action Alternative would require the DMT to manage all wastes generated under the applicable regulations. Painting and maintenance would be the primary activities that would involve hazardous materials.

Hazardous Materials Management. Hazardous materials would be utilized in preventative and regular maintenance activities, grounds maintenance, and water treatment. The materials used for these activities would include pesticides, herbicides, fuels, paints, and corrosives. The DMT would be responsible for hazardous materials handling training, as well as hazardous materials communication requirements of OSHA regulations.

Hazardous Waste Management. The U.S. EPA permit for the storage of hazardous waste at Mather AFB requires the closure of the storage facilities and the removal of these wastes prior to the caretaker assuming control of the base. All of the waste would be removed and disposed of in coordination with the Environmental Management Office and the DRMO at McClellan AFB. The DMT would generate minimal amounts of hazardous waste.

Installation Restoration Program Sites. The DMT would support the utility requirements for the IRP contractor and provide security for the areas. Ongoing sampling and pump-and-treat remedial design activities would be continued by the individual IRP contractors.

Underground/Aboveground Storage Tanks. All USTs would be removed or managed by the DMT. Cathodic protection and leak detection systems on USTs remaining at Mather AFB would be the responsibility of the DMT. Federal regulations require the closure of USTs out of service for 1 year. Many of the USTs may be closed in conformance with state regulations to preclude the expense associated with the inactivation of these tanks. The large aboveground storage tanks would be purged of fuel fumes to preclude fire hazards. The Fire Marshall has the discretion to order the removal of aboveground tanks that are out of service for 1 year. The caretaker would continue to provide cathodic protection, repair, and general maintenance for the aboveground storage tanks, piping and containment dike systems, until the removal of these tanks.

Asbestos. The impacts from the No-Action Alternative would be minimal. Vacated buildings would likely be boarded up which would preclude airborne exposures to the releases from deteriorating ACM. Asbestos would be managed in conformance with U.S. EPA policy on the management of asbestos that is left in place.

Pesticides and Herbicides. Under the No-Action Alternative, the grounds and golf course would be maintained in such a manner as to facilitate economic resumption of use. There may be an increase in the use of pesticides and herbicides. Application of pesticides and herbicides would be conducted in accordance with FIFRA and state regulations to assure the proper and safe handling and application of all chemicals.

PCBs. All Air Force owned PCB-contaminated equipment (50-499 ppm) has been retrofilled to levels below 5 ppm and will not create any impacts. All Air Force owned PCB items will be retrofilled to levels below 5 ppm by August, 1992, and will not create any impacts. PG&E will retain responsibility for management of their equipment.

Radon. Residential buildings and day-care facilities would no longer operate. As a result, there would be no exposures or impacts from radon.

Medical/Biohazardous Waste. All of these materials will be disinfected or removed prior to closure; therefore, these materials will not create an impact.

Cumulative Impacts. Because there would be no other ongoing project activities, there would be no cumulative impacts.

Mitigation Measures. Under the No-Action Alternative, one organization would be responsible for the basewide management of hazardous materials/waste.

Contingency plans to address spill response would be less extensive than those required for the Proposed Action or the other reuse alternatives.

4.4 NATURAL ENVIRONMENT

4.4.1 Soils and Geology

Potential impacts to soils and geology through implementation of the Proposed Action and all alternative actions except the No-Action Alternative would occur as a consequence of mining aggregate (sand and gravel). Impacts discussed in this section include extraction of aggregate resources, handling and replacement of soils, and topographic changes due to mining.

Impacts to surface water and drainage associated with surface mining activities are discussed in Section 4.4.2.1, while Section 4.4.5 describes related habitat impacts.

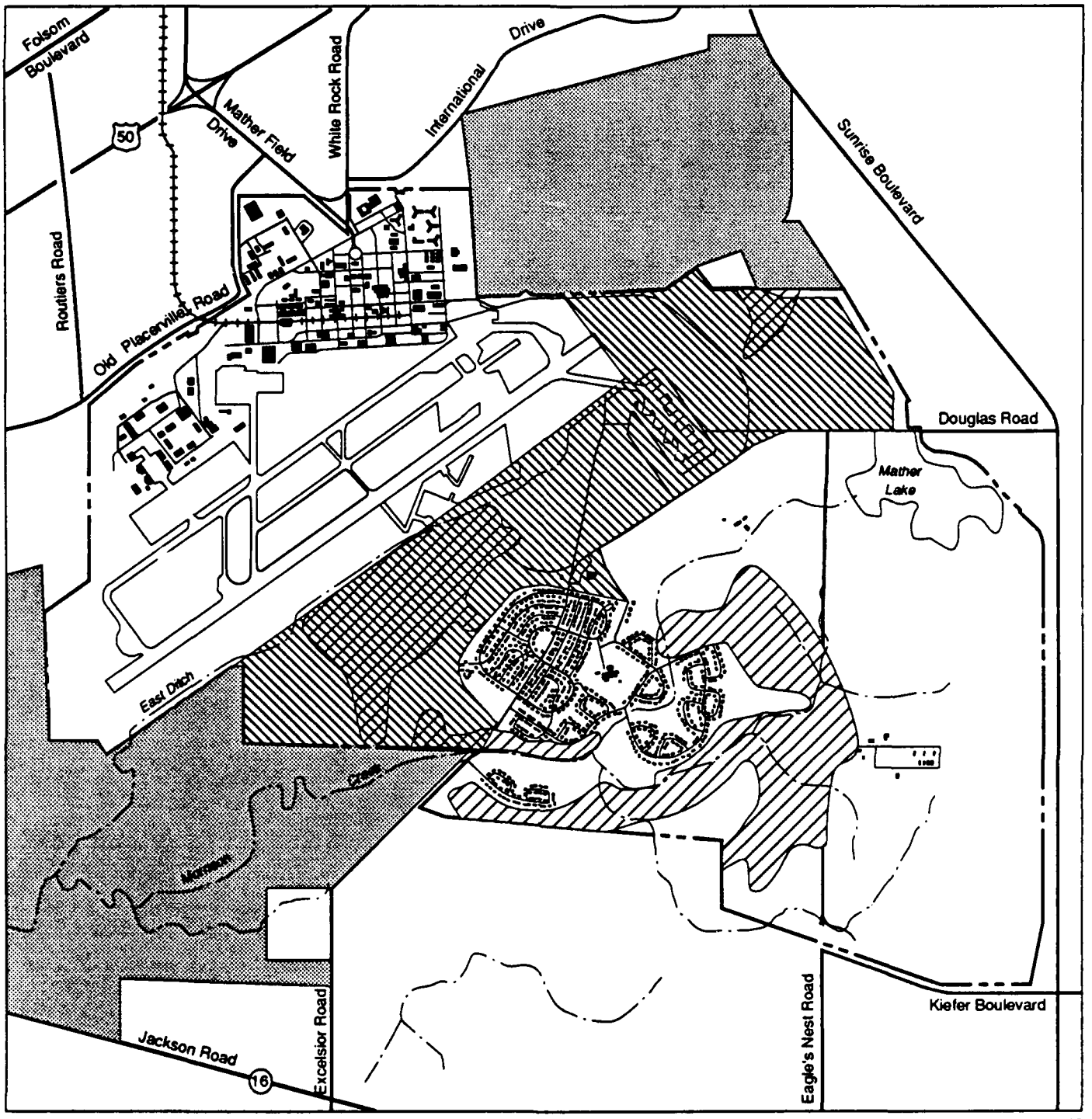
The rate of mining (and ground disturbance) and reclamation that may occur at Mather AFB will depend on the market share that can be captured by the producers; aggregate is generally not extracted faster than it can be sold. Table 4.4-1 shows acreage disturbed, yield, and potential completion dates for mining and reclamation for the Proposed Action and alternatives. The schedule assumes the interested developers (A. Teichert and Son, Inc., and Granite Construction Company) could capture 56 percent of the regional market, or 6 to 7 million tons per year. Reclamation will generally be complete 2 years after mining.

Table 4.4-1. Acreages Disturbed and Reclaimed at 5, 10, and 20 Years After Closure

	1999	2004	2014
Proposed Action			
Disturbed	250 acres	580 acres	1,203 acres
Reclaimed	120 acres	450 acres	1,203 acres
Yield	25 million tons	58 million tons	107 million tons
Non-Aviation with Mixed-Density Residential Alternative			
Disturbed	250 acres	580 acres	1,113 acres
Reclaimed	120 acres	450 acres	1,113 acres
Yield	25 million tons	58 million tons	98 million tons
General Aviation with Aircraft Maintenance Alternative			
Disturbed	250 acres	580 acres	1,172 acres
Reclaimed	120 acres	450 acres	1,172 acres
Yield	25 million tons	58 million tons	100 million tons
Non-Aviation with Low-Density Residential Alternative			
Disturbed	250 acres	580 acres	1,350 acres
Reclaimed	120 acres	450 acres	1,190 acres
Yield	25 million tons	58 million tons	135 million tons

4.4.1.1 Proposed Action Yield. Mining in the Proposed Action will cover 1,203 acres (Figure 4.4-1) and yield approximately 107 million tons of medium to high quality PCC-grade aggregate.

Soils. During mining, approximately 13 million cubic yards of overburden, including surface soils, will be stripped and stockpiled with approximately 11 million cubic yards of interburden. As mining of an area is completed, the material will be replaced in the mined area. If care is used in stockpiling and restoring the soil, surface soils can be replaced in their original locations, or in enhanced configurations. Soil stratification can also be restored. Hardpan layers will be destroyed and restoration may not be possible. The presence of hardpan layers is important to the formation of vernal pools; hence, vernal pools disturbed by mining may not be recreated (see Section 4.4.5 for biological impacts due to loss of vernal pool habitats). Vernal pool re-creation studies



EXPLANATION

Vernal Pool Terrain

Base Boundary

Stream

Light Rail Line

Areas of Aggregate Mining

Proposed On-base Mining

Permitted Off-base Mining

0 800 1600 3200 Feet

Areas of Aggregate Mining Impacts- Proposed Action (2014)

Figure 4.4-1

were initiated in 1990 by A. Teichert and Son, Inc., and Granite Construction Company; however, results of these studies will not be available until after the 5-year monitoring period.

Topography. At the end of mining, the 1,203-acre mined area will have several large, relatively flat-bottomed depressions with floors averaging 30 to 40 feet below existing grade. This relief is comparable to the maximum relief at the base. The area thus lowered will be approximately 20 percent of the base. The perimeter of the mined area will include approximately 39,300 linear feet of steepened excavated slopes, including one straight segment 10,500 feet long. Maximum pit-wall height will probably not exceed 50 feet.

Most of the topographic change will be in areas of flat to gently rolling terrain with few intermittent drainage channels. Additionally, about 300 acres of the impacted topography currently contains small depressions in which vernal pools accumulate. This represents about 36 percent of the vernal pool terrain on the base.

Some existing facilities may not meet current UBC design standards for Seismic Hazard Zone 3. The conforming guidelines followed by Sacramento County do not go beyond those of the UBC. Major additions or alterations must meet current seismic codes; upgrades to the existing structure would only be required if the modifications cause it to be in violation of any UBC provisions. In addition, buildings whose use or occupancy was legal at the time the UBC was adopted may continue to be used or occupied.

Cumulative Impacts. Aggregate mining, on-going to the north and south west of the base (see Figure 4.4-1), is currently producing impacts like those described above. If aggregate mining occurs at Mather AFB, mining off-base may be suspended so the aggregate producers can concentrate on the Mather PCC-grade resource before it is built over.

Mitigation Measures. Impacts to soils can be mitigated by segregating stockpiles during mining. During restoration, the soils may be replaced on the mined areas to restore or enhance the original distribution. Loss of hardpan structure cannot be reasonably mitigated.

The impact of the topographic changes over much of the mined area can be mitigated during restoration by replacing overburden and grading and smoothing cut slopes so that the rolling topography adjacent to the mined area is duplicated by the restored floors of the mined areas. The visual impacts of long linear pit margins, if deemed undesirable, can be mitigated by excavating to produce a cusp-and-embayment form (see Section 4.2.2.1). For much of the mined area, restoration can be accomplished in ways that enhance topography and drainage to better suit the planned reuses by adding topographic variety. However, it is not possible to restore the portions of the terrain that currently

foster vernal pools in a way that mitigates the loss of the pools. The impact of mining on the geomorphology of the pool terrain cannot be restored.

4.4.1.2 Non-Aviation with Mixed-Density Residential Alternative

Yield. Approximately 98 million tons of medium to high quality PCC-grade sand and gravel would be mined from an area of 1,113 acres (Figure 4.4-2).

Soils. Approximately 12 million cubic yards of overburden (including surface soil) and 16 million cubic yards of interburden will be removed, stockpiled and replaced resulting in the same potential impacts as those described for the Proposed Action.

Topography. Topographic changes in this alternative are of the same character as in the Proposed Action. Steepened slopes along the perimeter of the mined area will extend 39,300 linear feet; the longest straight-line pit wall may reach 10,900 feet long. The area of vernal pool terrain impacted in this alternative is approximately 295 acres, which represents 36 percent of the vernal pool terrain on the base.

Cumulative Impacts. Cumulative impacts would be similar to those discussed for the Proposed Action in Section 4.4.1.1.

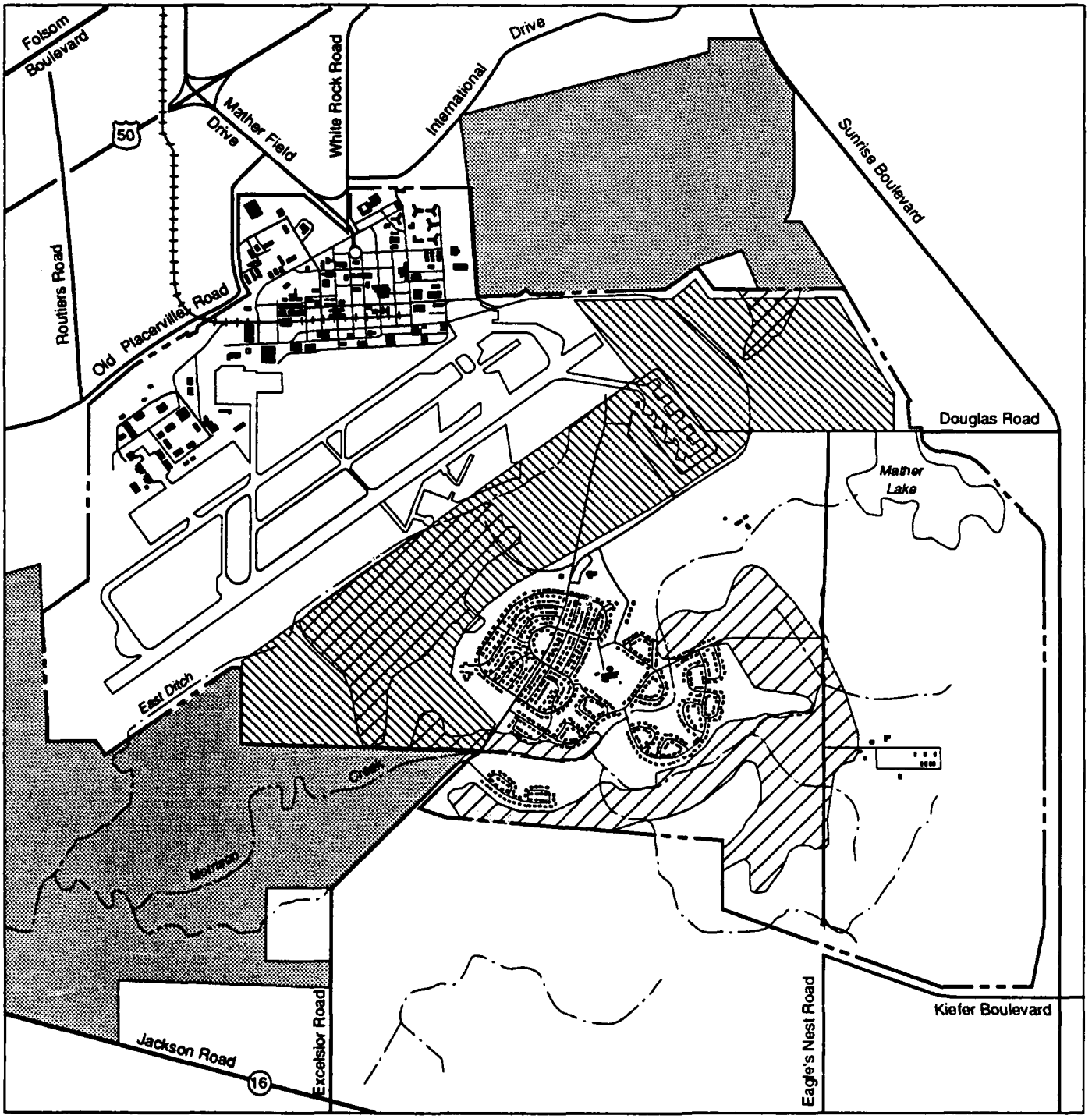
Mitigation Measures. Mitigation measures applicable to the projected impacts would be similar to those presented for the Proposed Action in Section 4.4.1.1.

4.4.1.3 General Aviation with Aircraft Maintenance Alternative

Yield. Mining in this alternative would cover an area of 1,172 acres (see Figure 4.4-3) and might yield approximately 100 million tons of medium to high quality PCC-grade aggregate.

Soils. During mining, approximately 13 million cubic yards of overburden, including surface soils, will be stripped and stockpiled with approximately 18 million cubic yards of interburden. As mining of an area is completed, the material will be replaced in the mined area. Depending on the care used in stockpiling and restoring the soil, surface soils can be replaced in their original locations, or in enhanced configurations. Soil stratification can also be restored, although textures, like hardpan layers, will be destroyed.

Topography. At the end of mining, the 1,172-acre mined area will have several large, relatively flat-bottomed depressions with floors averaging 30 to 40 feet below existing grade. This relief is comparable to the maximum relief at the base. The area, thus lowered, will be approximately 21 percent of the base. The perimeter of the mined area will include approximately 42,000 feet of steepened excavated slopes, including one straight segment approximately 5,000 feet long. Maximum pit-wall height will probably not exceed 50 feet.



EXPLANATION

Vernal Pool Terrain

Base Boundary

Stream

Light Rail Line

Areas of Aggregate Mining

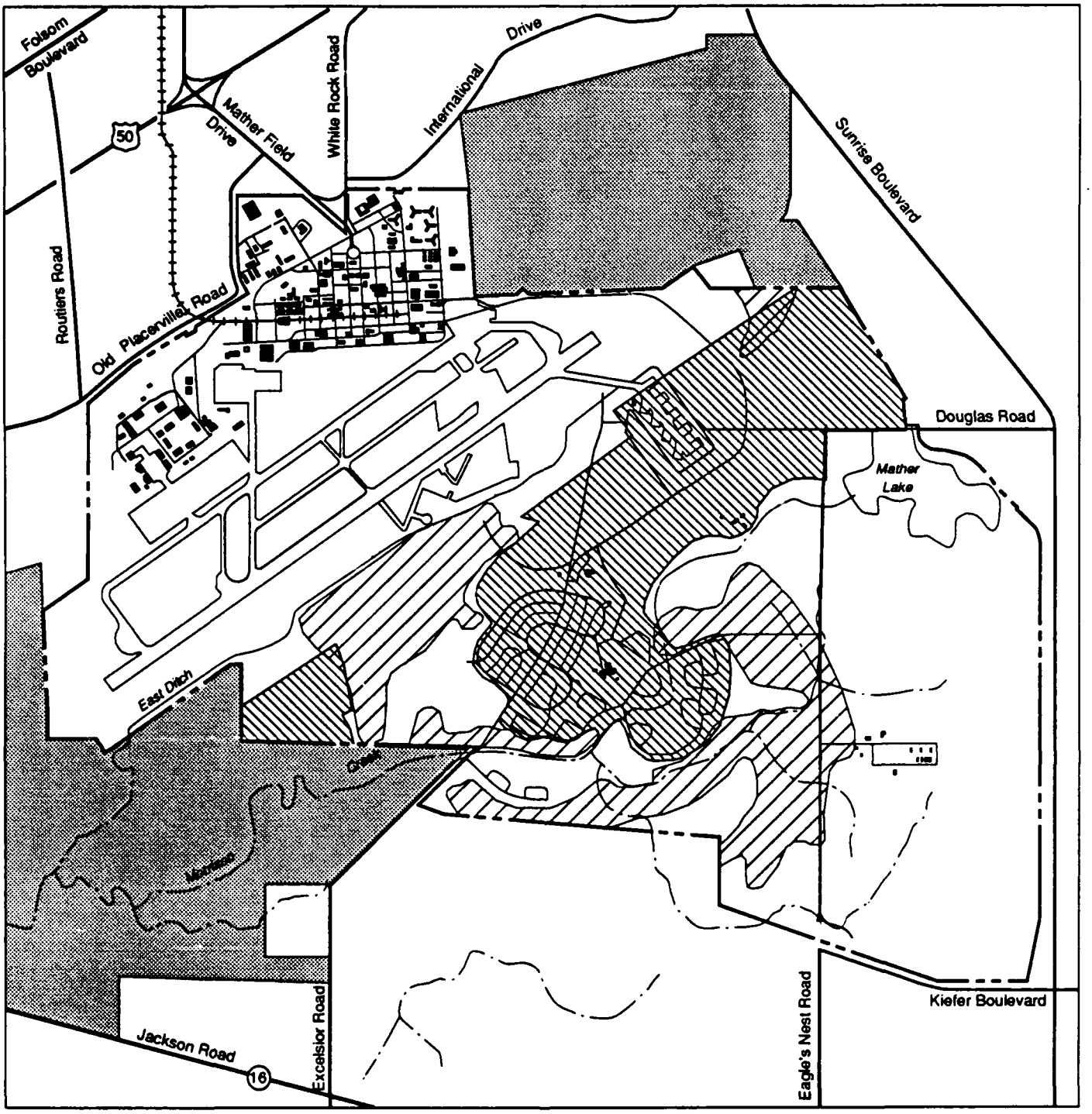
Proposed On-base Mining

Permitted Off-base Mining

0 800 1600 3200 Feet

Areas of Aggregate Mining Impacts-Non-Aviation with Mixed-Density Residential Alternative (2014)

Figure 4.4-2



EXPLANATION

- Vernal Pool Terrain
- Base Boundary
- Stream
- Light Rail Line

Areas of Aggregate Mining

- Proposed On-base Mining
- Permitted Off-base Mining

0 800 1600 3200 Feet

Areas of Aggregate Mining Impacts-General Aviation with Aircraft Maintenance Alternative (2014)

Figure 4.4-3

Most of the topographic change will be in areas of flat to gently rolling terrain with few intermittent drainage channels. However, approximately 40 acres of the impacted topography currently contains small depressions in which vernal pools accumulate; this is only 5 percent of the vernal pool terrain on the base. Additionally, mining will interrupt approximately 7,400 feet of the courses of both the main branch and an unnamed northern branch of Morrison Creek (where they pass south of and through the base housing, respectively).

Cumulative Impacts. Cumulative impacts will be similar to those discussed for the Proposed Action in Section 4.4.1.1.

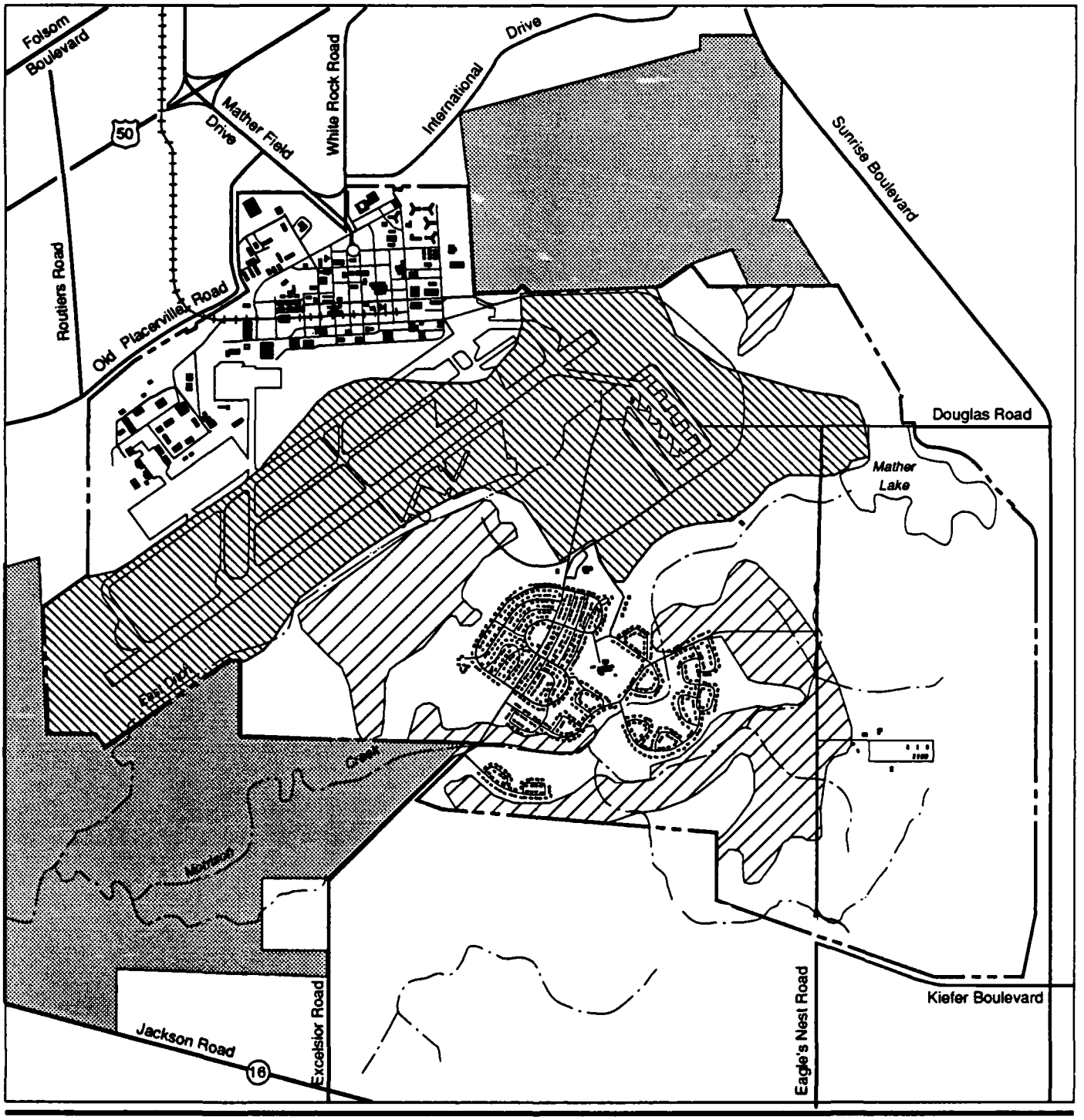
Mitigation Measures. Mitigation measures applicable to the projected impacts are similar to those presented for the Proposed Action in Section 4.4.1.1. For example, the branch channels of Morrison Creek where impacted, can be reconstructed to create riparian parks that enhance the planned reuse of the locale as a low-density residential development. However, it would not be possible to restore the small portion of disturbed terrain that currently fosters vernal pools in a way that mitigates the loss of the pools; the impact of the mining on the geomorphology of the pool terrain cannot be restored.

4.4.1.4 Non-Aviation with Low-Density Residential Alternative

Yield. Mining under this alternative would cover approximately 1,350 acres and could yield up to 160 million tons of medium to high quality PCC-grade aggregate. Additionally, in this alternative, mining in the area of the present airfield (Figure 4.4-4) is expected to yield the highest quality aggregate of any area on base.

Soils. Approximately 18 million cubic yards of overburden, including surface soil, and approximately 100 million cubic yards of interburden will be removed stockpiled, and replaced in the mined area. Depending on the care used in stockpiling and restoring the soil, surface soils can be replaced in their original locations (or in enhanced locations). As in the proposed action and preceding alternatives, the soil stratification can be recreated, but hardpan layers will be destroyed. However, the loss of hardpan layers in this alternative will have minor adverse consequences, since vernal pools less than 3 acres would be mined.

Topography. At the end of mining, the up to 1,350-acre mined area (Figure 4.4-4) will have several large, relatively flat-floored depressions with floors averaging 30 to 40 feet below existing grade. This relief is comparable to the maximum relief at the base. The area, thus lowered, could be up to 28 percent of the base. The perimeter of this large mined area would include approximately 47,500 linear feet of steepened excavated slopes, including one straight segment approximately 3,100 feet long. Maximum pit-wall height will probably not exceed 50 feet.



EXPLANATION

Vernal Pool Terrain

Base Boundary

Stream

Light Rail Line

Areas of Aggregate Mining

Proposed On-base Mining

Permitted Off-base Mining

0 800 1600 3200 Feet

Areas of Aggregate Mining Impacts- Non-Aviation with Low-Density Residential Alternative (2014)

Figure 4.4-4

Most of the topographic change will be in areas of flat to gently rolling terrain with few intermittent drainage channels. However, mining will interrupt approximately 7,500 feet of the man-made East Ditch channel. There are no topographic impacts to vernal pool terrain in this alternative.

Cumulative Impacts. Cumulative impacts will be similar to those discussed for the Proposed Action in Section 4.4.1.1.

Mitigation Measures. Mitigation measures applicable to the projected impacts are similar to those presented for the Proposed Action in Section 4.4.1.1.

Restoration can be accomplished in ways that enhance topography and drainage to better suit the planned reuses by adding topographic variety. For example, the East Ditch can be reconstructed to create a riparian park that enhances the planned long-term use of the locale as a low-density residential development.

4.4.1.5 Other Land Use Concepts. Aggregate mining can occur as a pre-development activity with any of the independent concepts and federal transfers. The impacts will be the same as those previously described for the Proposed Action and the alternatives. Mining-related impacts are specific to each alternative and are unaffected by the other uses.

4.4.1.6 No-Action Alternative

Yield. None of the aggregate deposit on base will be mined, so there will be no impact to the availability of this commodity. Available reserves of PCC-grade aggregate are currently expected to be depleted in the region by about the year 2000.

Soils. There will not be disturbance to soils under this alternative.

Topography. There will not be disturbance to topography under this alternative.

Cumulative Impacts. Aggregate mining to the north and south of the base will probably continue. However, rapid growth in the region is annually eliminating many high quality aggregate deposits from ever being mined. For example, between 1980 and 1988, lands south of the American River containing aggregate resources capable of providing a 22-year supply to the entire region were subdivided, developed, and otherwise lost to mining (CDMG, 1988).

Mitigation Measures. No mitigation is required.

4.4.2 Water Resources

Surface Water Resources. The largest impacts to on-base surface water under the Proposed Action and all alternatives except the No-Action Alternative are expected to be consequences of the surface mining of aggregate. Areas

mined will be lowered by an average of 30 to 40 feet, so they will be lower than the beds of drainage courses whose drainage areas are disturbed. Therefore, the mined areas will drain internally to their lowest point, which is likely to be the southernmost extent of the mined area. From there, surface water can be channeled to the south, to Morrison Creek; such impacts are diversions of drainage areas. Diversions of drainage courses may also occur if the drainage course itself is mined through. A master drainage plan is being developed by the Sacramento County Public Works for the drainage that would likely be affected by the proposed aggregate mining activities. The plan includes provisions for potential flooding and safe flow. This plan is expected to be submitted to the County Board of Directors by early 1993. Finally, surface mining for aggregate can impact vernal pools in two ways: (1) by disrupting the small-scale topography of closed depressions (the vernal pool terrain), and (2) by destroying the hardpan layer upon which the ponded surface water perches.

Off base, the supply of surface water in the region around Mather AFB is plentiful. However, surface water is not used widely as a water supply source.

Groundwater Resources. According to the SCWAWP (1989), overdraft of groundwater resources began to occur in the Sacramento Valley in the early 1940's, primarily around agricultural irrigation centers. The effects of overdraft are measurable in the vicinity of Mather AFB where the average annual decline in static water level is approximately 1.4 feet per year (ft/yr). Although the SCWAWP indicates that the county intends to decrease groundwater pumpage significantly by the year 2000, the projections used in the following discussions assume the scenario whereby the total water demand remains the same in the vicinity of Mather AFB, but excludes the base, and is met by current groundwater pumpage. Pumping rates associated with each reuse alternative are superimposed on this regional pumping scenario. All water demand calculations are given in Appendix O.

In evaluating the impacts to groundwater resources, no specific consideration has been given to the potential for contamination in groundwater supplies. As discussed in the Final Site Inspection Report (U.S. Air Force, 1990a), ground water contamination has been detected in the water supply aquifers at Mather AFB, although it is not yet evident in the water supply wells. It is noted, however, in Section 8.0 of the Final Site Inspection Report, that the on-base water supply wells are potential receptors. Under the Proposed Action and alternatives, increased pumpage of groundwater could induce the migration of contaminants to the water supply wells. Given that restoration activities will be implemented prior to disposal of the base, and pumping from the Mather base wells will gradually increase during a 20-year development period, impacts to on-base groundwater supply wells, as a result of contaminant migration, are not expected to occur. Such impacts to water supplies will be considered as part of

the scope of the remedial investigation, and will not be addressed further in this document.

4.4.2.1 Proposed Action

Surface Water. In the Proposed Action, approximately 930 acres of the East Ditch drainage area and 270 acres of the Morrison Creek drainage area will be captured by internal drainage in the mined areas (see Figure 4.4-1). This represents diversion of 21 percent of the base's drainage area. Additionally, approximately 300 acres of vernal pool terrain will be mined, 36 percent of such terrain on the base. No stream-course diversions are anticipated.

Groundwater. Water demand was calculated as shown in Table 4.4-2 for the Proposed Action. Implementing the Proposed Action will ultimately increase the water demand in the ROI by approximately 19 percent over usage under post-closure conditions without reuse.

Table 4.4-2. Projected Water Demand - Proposed Action[a]

	1994	1999	2004	2014
Production (MGD)	0.93	1.8	4.5	5.8
Consumption (acre-feet per year)	1,042	2,016	5,041	6,497
Percent Contribution to Total On-Base Drawdown	59	45	55	54
Percent Change from Current Base Operations	-58	-19	102	160

(a) Does not include 5 percent conveyance loss.

The primary adverse impact that can be expected to occur from the Proposed Action is a localized net depletion (or overdraft) of groundwater resources that will cause measurable declines in the local water supply aquifers through time. Based upon the results of simplified models of Mather AFB and the surrounding area, the 20-year average rate of decline at Mather AFB for the years 2004 to 2014 is estimated to be 1.3 ft/yr. Table 4.4-3 shows the drawdown caused by the Proposed Action, including the drawdown caused by regional pumping.

The effects of the overdraft are measurable in the vicinity of Mather AFB where the average annual decline in static water level is approximately 1.4 ft/yr, based on water level maps for 1971 and 1985 (California ADWR, 1978; U.S. Bureau of Reclamation, 1988). Estimated groundwater declines of 1.3 ft/yr are anticipated in addition to the average annual decline of 1.4 ft/yr that has been occurring because of regional pump. . Thus, the cumulative impact measurable at the on-base water supply wells will be an average annual decline of 2.7 ft/yr.

Table 4.4-3. Projected Drawdown Values (feet) at Mather AFB for the Proposed Action and Alternatives[a]

	1994	1999	2004	2014
Proposed Action	3.4	12.0	27.0	54.0
Non-Aviation with Mixed-Density Residential Alternative	6.4	22.0	41.0	73.0
General Aviation with Aircraft Maintenance Alternative	3.4	12.0	23.0	44.0
Non-Aviation with Low-Density Residential Alternative	3.4	15.0	34.0	68.0
No-Action Alternative	1.5	7.5	15.0	30.0

(a) Includes existing lowering of the water table at a rate of 1.4 ft/yr due to regional overdrafting.

The projected water demand for the Proposed Action can be met by the existing on-base wells. Capacities of the on-base wells range from 55 gpm to 2,000 gpm, providing a total pumpage capacity of approximately 35,000 acre-feet per year (af/yr) of potable and non-potable water. Total potable water capacity from on-base wells is estimated to range from 18,500 to 30,000 af/yr (depending on actual well capacities), and will be adequate to meet the projected demands. However, the increased pumpage at Mather will result in a water level cone of depression surrounding the base area. The cone of depression for the Proposed Action could be 12 miles wide after 20 years of pumping activities; very shallow wells in the ROI could experience lowering of water levels due to on-base pumping.

Cumulative Impacts

Surface Water. Current permits allow the mining of aggregate from 12,000 acres in the Morrison Creek drainage area immediately south of the base. The mining would interrupt approximately 27,300 feet of drainage course along Mather Creek and two of its tributaries.

Groundwater. No other projects are assessed in determining the cumulative impacts. The only other currently planned project, the Sunrise-Douglas Project, is fully absorbed in the current SCWAWP. Water for the Sunrise-Douglas Project will be supplied from off-base wells operated by one of the existing utilities, and has been fully accounted for in existing population and water demand projections.

Mitigation Measures

Surface Water. The impact of aggregate mining on the base's surface water drainage system can be mitigated by grading the quarry floor so that the drainage flows to the most southwestern corner of the mined area. From there it can be channeled either directly to Morrison Creek, or to the unnamed tributary of Morrison Creek that currently receives East Ditch flow. In this way,

the flow volume of Morrison Creek south of the base is not seriously changed. As previously mentioned, a drainage master plan is being developed by the county to mitigate potential impacts to surface flow and from potential flooding. As part of the post-mining restoration, potential impacts to surface water quality may be reduced by revegetating and stabilizing excavated surfaces to reduce soil erosion, and by constructing siltation basins along artificial drainage courses before they enter natural stream courses. Impacts to the vernal pool terrain are not reasonably subject to mitigation.

Groundwater. A comparison of projected impacts for this alternative against the scenarios presented in the SCWAWP (1989) indicate that the impacts can be absorbed by 2014. To reach full absorption without noticeable adverse impacts, mitigation measures are recommended. The existing options for mitigation are described below.

Water Conservation Programs. The implementation of water conservation and wastewater reclamation programs, and the installation of residential metering, could effectively decrease water use. Discussions of various programs are presented in the SCWAWP (1989). Although none of these programs are currently scheduled for implementation, they have the potential to significantly decrease the water demand. For example, several case studies presented in the SCWAWP (1989) indicate an average annual reduction in water use of 36 percent following the installation of water meters. Conversion of billing from flat-fee to individual metering for new dwelling units, and all commercial and industrial connections would contribute to an overall reduction in projected water use.

Importation of Surface Water. As discussed in the SCWAWP (1989), two options have been developed to alleviate groundwater overdraft problems in the Sacramento Valley. Both options involve full utilization of existing surface water rights and entitlements, concurrent with a reduction in groundwater usage. The options, as proposed, assume that additional surface water entitlements would be offered by the U.S. Bureau of Reclamation (USBOR) to cover any projected shortfalls in supply that would occur as a result of increasing demand and decreasing groundwater pumpage. Full utilization of existing surface water rights and entitlements could reduce the impacts to groundwater levels by approximately 45 percent. The USBOR has withdrawn its offer, and thus, no additional surface water entitlements are assumed over the existing entitlements.

In addition to additional entitlements from USBOR, there appears to be an additional 10,000 af/yr available through existing surface water entitlements. Table 3.4-1 identifies the existing surface water rights and entitlements for the ROI, and the annual surface water usage. Surface water use is minimal, and according to McDonald (1989), may continue to decline because of the economics of treatment and delivery. The available surface water entitlements,

if put to use as planned, will aid in mitigating the impacts from any of the alternatives.

4.4.2.2 Non-Aviation with Mixed-Density Residential Alternative

Surface Water. Surface mining of aggregate in this alternative will alter drainage over approximately 19 percent of the base (see Figure 4.4-2). Topography of approximately 760 acres that presently drain to the East Ditch, and approximately 350 acres that drain to Morrison Creek will be disrupted so that the drainage will be to the floor of the mined area. Additionally, approximately 295 acres of vernal pool terrain, 36 percent of the vernal pool terrain on base, will be disturbed. No stream-course diversions are anticipated.

Residential and industrial development in the existing airfield area will require installation of stormwater sewer systems which should be incorporated into the construction design. Effects on surface and groundwater quality are expected to be positive from this alternative, since the inflow of industrial hazardous materials associated with the airfield would be reduced.

Groundwater. Water demand was calculated as shown in Table 4.4-4 for the Non-Aviation with Mixed-Density Residential Alternative. The projected water demands associated with this alternative will be greater than those of the Proposed Action. The resulting impacts will be somewhat greater. This alternative will ultimately increase the water demand in the ROI by approximately 33 percent over the post-closure conditions without reuse.

Table 4.4-4. Projected Water Demand - Non-Aviation with Mixed-Density Residential Alternative [a]

	1994	1999	2004	2014
Production (MGD)	2.8	5.3	7.0	10.9
Consumption (af/yr)	3,136	5,937	7,841	12,210
Percent Contribution to Total On-Base Drawdown	78	80	77	71
Percent Increase over Current Base Operations	25	137	214	388

(a) *Does not include a 5 percent conveyance loss.*

The primary adverse impact that can be expected to occur from this alternative is a localized overdraft of groundwater resources that will cause measurable declines in the local water supply aquifers through time. Based upon the results of simplified models of Mather AFB and the surrounding area, the average rate of water level decline at Mather AFB for the years 2004 to 2014 is estimated to be 2.25 ft/yr, in addition to the average annual decline of 1.4 ft/yr due to regional pumping. The drawdown caused by the increased pumpage of groundwater for this alternative is presented in Table 4.4-3.

The projected water demand for this alternative can be met by the existing on-base wells. Capacities of the on-base wells range from 55 gpm to 2,000 gpm, providing a total pumpage capacity of approximately 35,000 af/yr of potable and non-potable water. Total potable water capacity from on-base wells is estimated to range from 18,500 to 30,000 af/yr (depending on actual well capacities), and will be adequate to meet the demand of any of the alternatives. The cone of depression resulting from this alternative by 2014 could have a radius of 15 miles; potentially impacting the water levels of shallow wells in the ROI.

Cumulative Impacts

Surface Water. A. Teichert and Son Inc, and Granite Construction Company currently have permits to mine aggregate from 12,000 acres in the Morrison Creek drainage area immediately south of the base. The mining would interrupt approximately 27,300 feet of drainage course along Mather Creek and two of its tributaries.

Groundwater. No other projects were considered to contribute toward the cumulative impacts.

Mitigation Measures

Surface Water. The impact of aggregate mining on the base's surface water drainage system can be mitigated by grading the quarry floor so that the drainage flows to the most southwestern corner of the mined area. From there it can be channeled either directly to Morrison Creek, or to the unnamed tributary to Morrison Creek that currently receives East Ditch flow. In this way, the flow volume of Morrison Creek south of the base is not seriously changed. As part of the post-mining restoration, potential impacts to surface water quality may be reduced by revegetating and stabilizing excavated surfaces to reduce soil erosion, and by constructing siltation basins along man-made drainage courses before they enter natural stream courses. Impacts to the vernal pool terrain are not reasonably subject to mitigation.

Groundwater. A comparison of the impacts of the Non-Aviation with Mixed-Density Residential Alternative against the scenarios presented in the SCWAWP (1989) indicates that the impacts can be absorbed by 2014. To reach full absorption without noticeable adverse impacts, mitigation measures are recommended. The existing options for mitigation presented in Section 4.4.2.1 for the Proposed Action also apply to the Non-Aviation with Mixed-Density Residential Alternative.

4.4.2.3 General Aviation with Aircraft Maintenance Alternative

Surface Water. In this alternative, approximately 760 acres of East Ditch drainage area, and 410 acres of Morrison Creek drainage area will be captured

by internal drainage in the mined areas (see Figure 4.4-3). This represents diversion of about 20 percent of the base's drainage area. The mined area includes 40 acres of vernal pool terrain, which is 5 percent of the bases total vernal pool terrain. Additionally, approximately 7,400 feet of stream course will be disrupted along the main branch of Morrison Creek and its unnamed northern branch (which passes through the base housing).

Groundwater. The projected water demands for the General Aviation with Aircraft Maintenance Alternative are similar to those of the Proposed Action (see Table 4.4-5). Therefore, the resulting impacts will be similar to those of the Proposed Action. By 2014, this alternative will increase the water demand in the ROI by approximately 21 percent over post-closure conditions without reuse.

Table 4.4-5. Projected Water Demand - General Aviation with Aircraft Maintenance Alternative [a]

	1994	1999	2004	2014
Production (MGD)	1.0	1.6	2.4	4.1
Consumption (af/yr)	1,120	1,792	2,688	4,592
Percent Contribution to Total On-Base Drawdown	59	53	39	38
Percent Increase over Current Base Operations	-58	-28	8	83

(a) Does not include a 5 percent conveyance loss.

The primary adverse impact of this alternative is a localized net decline of water level in the local water supply aquifer over time. Based upon simplified modeling of Mather AFB and the surrounding area, the average rate of decline between 2004 and 2014 at Mather AFB will be approximately 0.80 ft/yr, in addition to the average annual decline of 1.4 ft/yr due to regional pumping. The drawdown of the water level at base pumping wells that is a result of increased pumpage demand for the with General Aviation with Aircraft Maintenance Alternative is presented in Table 4.4-3 including effects of regional pumping.

As previously noted in Section 4.4.2.1, this alternative and all of the other alternatives, have a projected water demand which can be met by existing on-base wells. The cone of depression formed around Mather AFB water supply wells due to the increased on-base pumpage demands of the General Aviation with Aircraft Maintenance Alternative could have a radius of 9 miles, and thus may result in lowered water levels in shallow wells in the ROI.

Cumulative Impacts

Surface Water. A. Teichert and Son, Inc., and Granite Construction Company currently have permits to mine aggregate from 12,000 acres in the Morrison Creek drainage area immediately south of the base. The mining would interrupt approximately 27,300 feet of drainage course along Mather Creek and two of its tributaries.

Groundwater. No other projects were considered to contribute toward the cumulative impacts.

Mitigation Measures

Surface Water. The impact of aggregate mining on the base's surface water drainage system can be mitigated by grading the quarry floor so that drainage flows to the most southwestern corner of each mined area. From there, it can be channeled either directly to Morrison Creek or to the unnamed tributary to Morrison Creek that currently receives East Ditch Flow. In this way, the flow volume of Morrison Creek south of the base is not seriously changed. During grading (to direct flow in the mined areas) channels may be created which will help replace the riparian habitat that will be lost when stream courses are mined-through. As part of the post-mining restoration, potential impacts to surface water quality may be reduced by revegetating and stabilizing excavated surfaces to reduce soil erosion, and by constructing siltation basins along man-made drainage courses before they enter natural stream courses.

Groundwater. To attain full absorption without noticeable adverse impacts, mitigation measures are recommended. The existing options for mitigation presented in Section 4.4.2.1 also apply to this alternative.

4.4.2.4 Non-Aviation with Low-Density Residential Alternative

Surface Water. Surface mining of aggregate in this alternative will alter drainage over approximately 29 percent of the base (see Figure 4.4-4). Topography of approximately 1,560 acres that presently drain to the East Ditch, and approximately 50 acres of Morrison Creek drainage area will be disrupted so that the drainage is to the floor of the mined area. The drainage course of the East Ditch (7,500 feet long) will be lost to the mining. Less than 3 acres of vernal pool terrain is impacted.

Residential and industrial development in the existing airfield area will require installation of stormwater sewer systems which should be incorporated into the construction design. Effects on surface and groundwater quality are expected to be positive from this alternative, since the inflow of industrial hazardous materials associated with the airfield would be reduced.

Groundwater. The projected water demands for the Non-Aviation with Low-Density Residential Alternative (Table 4.4-6), are greater than those of the Proposed Action. This alternative will increase the water demand in the ROI by approximately 32 percent over the post-closure conditions in the vicinity of the base without reuse.

As is the case with the other alternatives, the primary adverse impact of this alternative is a localized net depletion of groundwater which will cause a long-term decline in local water supply aquifers. Assessments of Mather AFB

Table 4.4-6. Projected Water Demand - Non-Aviation with Low-Density Residential Alternative [a]

	1994	1999	2004	2014
Production (MGD)	1.0	3.8	5.8	10.0
Consumption (af/yr)	1,120	4,257	6,497	11,201
Percent Contribution to Total On-Base Drawdown	59	77	75	71
Percent Increase over Current Base Operations	-58	70	160	348

(a) Does not include a 5 percent conveyance loss.

and the surrounding area indicate that the average rate of decline of water levels at Mather AFB due to this alternative between 2004 and 2014 will be approximately 2.0 ft/yr, in addition to the average annual decline of 1.4 ft/yr due to regional pumping. Table 4.4-3 presents the drawdown related to this alternative. The cone of depression radius caused by implementation of this alternative could have a radius of 15 miles in 2014 and may impact water levels in shallow wells in the ROI.

Cumulative Impacts

Surface Water. A. Teichert and Son, Inc., and Granite Construction Company currently have permits to mine aggregate from 12,000 acres in the Morrison Creek drainage area immediately south of the base. The mining would interrupt approximately 27,300 feet of drainage course along Mather Creek and two of its tributaries.

Groundwater. No other projects were considered to contribute toward the cumulative impacts.

Mitigation Measures

Surface Water. The impact of aggregate mining on the base's surface water drainage system can be mitigated by grading the quarry floor so that drainage flows to the most southern corner of the mined area. From there it can be channeled to the unnamed tributary to Morrison Creek that currently receives East Ditch flow. In this way, the flow volume of Morrison Creek south of the base is not seriously changed. During grading (to direct flow in the mined areas) channels may be created which will help replace the riparian habitat which will be lost when the east ditch is mined. As part of the post-mining restoration, potential impacts to surface water quality may be reduced by revegetating and stabilizing excavated surfaces to reduce soil erosion, and by constructing siltation basins along artificial drainage courses before they enter natural stream courses.

Groundwater. To lessen the decline in groundwater levels, mitigation measures are recommended for this alternative. The existing options for mitigation presented in Section 4.4.2.1 also apply to this alternative.

4.4.2.5 Other Land Use Concepts

Surface Water. Aggregate mining can occur as a pre-development activity with any of the independent proposals, transfers or conveyances. The impacts will be the same as those described for the Proposed Action and the alternatives; mining-related impacts are specific to each alternatives and are unaffected by the overlays.

Groundwater. Impacts to groundwater resources would result principally from development of the Caltrans R&D Center and the Theme Park. Additional water demands from these larger actions are discussed below.

Caltrans R&D Center. Total water demand was calculated with each Caltrans overlay as shown in Table 4.4-7. Implementing the Caltrans Proposal will ultimately increase the water demand in the ROI by 20 to 34 percent.

Table 4.4-7. Projected Water Demand for Other Land Use Concepts

	Consumption (af/yr)		
Overlays and Alternatives	1999	2004	2014
Caltrans R&D Center			
Proposed Action	2,125	5,314	6,908
Non-Aviation with Mixed-Density Residential Alternative	6,080	8,160	12,640
General Aviation with Aircraft Maintenance Alternative	1,923	2,833	4,857
Non-Aviation with Low-Density Residential Alternative	4,420	6,788	11,523
Theme Park			
General Aviation with Aircraft Maintenance Alternative	5,603	7,519	11,648
Non-Aviation with Low-Density Residential Alternative	12,707	16,136	18,556

The primary adverse impact that can be expected to occur from implementation of the Caltrans scenarios is increased localized groundwater overdraft that will cause measurable declines in the local water supply aquifers through time. Based upon the results of simplified models of Mather AFB and the surrounding area, the Caltrans R&D Center would result in the following average rates of net water level decline (in the years 2004 to 2014):

- Proposed Action - 2.8 ft/yr
- Non-Aviation With Mixed-Density Residential - 3.8 ft/yr
- General Aviation with Aircraft Maintenance - 2.3 ft/yr
- Non-Aviation With Low-Density Residential - 3.5 ft/yr.

Theme Park. Water demand was calculated for each of the Theme Park scenarios (Table 4.4-7). Implementing the Theme Park will ultimately increase the water demand in the ROI by about 44 percent, over the post-closure conditions without reuse.

The primary adverse impact that can be expected to occur from the Theme Park scenario is a localized net depletion of groundwater resources that will cause measurable declines in the local water supply aquifers through time. Based upon the results of simplified models of Mather AFB and the surrounding area, the Theme Park scenario will result in the following average rates of net water level decline (for the years 2004 to 2014 as measured at the on-base water supply wells):

- Proposed Action - 3.9 ft/yr
- Non-Aviation with Mixed-Density Residential - 4.3 ft/yr
- General Aviation with Aircraft Maintenance - 3.4 ft/yr
- Non-Aviation with Low-Density Residential - 4.7 ft/yr.

Cumulative Impacts. No other projects are assessed in determining the cumulative impacts.

Mitigation Measures. A comparison of the impacts of the overlay plans against the scenarios presented in the SCWAWP (1989) indicates that the impacts can be absorbed by 2014. To reach full absorption without noticeable adverse impacts, mitigation measures are recommended. The existing options for mitigation presented in Section 4.4.2.1 for the Proposed Action also apply to the overlay scenarios.

4.4.2.6 No-Action Alternative. No significant impacts to surface water are expected in the No-Action Alternative.

Under the No-Action Alternative, resultant impacts to the groundwater system would be beneficial, although insignificant in magnitude. The No-Action Alternative would require continued pumpage of approximately 1,023 af/yr to maintain the water level in Mather Lake during the summer, to maintain the golf course, and to support a staff of 50 caretaker employees. Because overall pumpage in the surrounding area is projected to increase, the decreased pumpage from the Mather wells will not cause significant changes in the rate of decline of local water levels.

Under the No-Action scenario, water levels in the vicinity of Mather AFB will decline at an approximate average rate of 0.1 ft/yr in addition to the background decline of 1.4 ft/year. Table 4.4-3 shows the amount of drawdown for the No-Action Alternative.

Cumulative Impacts. The only impacts identified are those arising from the Sunrise-Douglas Project. The estimated water demand for the Sunrise-Douglas Project is fully absorbed by the projections provided in the current SCWAWP (1989).

Mitigation Measures. The No-Action Alternative does not cause any measurable impact. Thus, no mitigation measures are recommended.

4.4.3 Air Quality

Air quality impacts could occur during construction, operations, and aggregate mining activities associated with the Proposed Action and alternatives for the reuse of Mather AFB. Construction-related impacts could result from fugitive dust (particulate matter) and construction equipment emissions over an intermittent period of 20 years. Operational impacts could occur from: (1) mobile sources such as aircraft, aircraft operation support equipment, commercial transport vehicles, mining equipment, and personal vehicles; (2) point sources such as heating/power plants, generators, incinerators, storage tanks, and mining equipment; and (3) secondary emission sources associated with a general population increase, such as residential heating.

The methods selected to analyze impacts depend upon the type of air emission source being examined. The primary emission source categories associated with the Proposed Action and alternatives include construction, aircraft, vehicles, point sources, and indirect source emissions related to population increase. Because construction phase emissions are generally considered temporary and not subject to air quality regulation, analysis is limited to estimating the amount of uncontrolled fugitive dust that may be emitted from disturbed areas. Analysis for point source and indirect source emissions consists of quantifying the emissions and evaluating how those emissions would affect progress toward attainment or maintenance of the NAAQS and CAAQS. The ambient effects of aircraft and mobile source emissions are analyzed by modeling. The Emissions and Dispersion Modeling System (EDMS) is used to simulate the dispersion of emissions from airport operations (Segal, 1988a, b, c). The EDMS was developed by the FAA and the U.S. Air Force specifically to prepare airport or air base emission inventories, and to calculate the concentrations caused by these emissions as they disperse downwind. The model is run in a screening mode utilizing an array of 1-hour worst-case meteorological conditions.

The following assumptions were made in estimating the effects of the Proposed Action and alternatives:

- For the following source categories, emission inventory amounts for the reuse alternatives are based on the ratio of source emissions to population, as defined by the 1985 Trends Report supplied by the SMAQMD (Scenario - TND85CS985, October 1989): fuel combustion; waste burning; solvent use; petroleum storage and transfer; industrial

processes; miscellaneous processes (includes farming operations, construction and demolition, entrained road dust, fires, and other natural sources); and off-road vehicles.

- For the same source categories as above, emission inventory amounts for hydrocarbons (ROG), NO_x, and CO are adjusted for the effect of future control measures as outlined in the Sacramento Air Quality Attainment Plan (SMAQMD, 1991a).
- For the on-road vehicle category, emission inventory amounts are modified by a factor based on the change in mobile source vehicle emission rates (as predicted by the ARB's EMFAC7PC emission rate program). The factor is applied to account for the more stringent tailpipe exhaust emission standards that will go into effect in future years.

Table 4.4-8 provides an estimate of the emissions that would be associated with the potential aggregate mining activity on the base. These emissions were based on an annual production rate of 6.6 million tons/yr in 1999, 7.2 million tons/yr in 2004, and 8.3 million tons/yr in 2014, and were estimated from similar activities associated with the Pharris Aggregate Plant, San Bernardino, California, as contained in the Pharris Pre-annexation Agreement Environmental Impact Report (EIR) (Tom Dodson Associates, 1991). At the assumed production rates mentioned above, the Proposed Action and alternatives could continue to produce aggregate for up to 17, 16, 16, and 20 years respectively.

Table 4.4-8. Pollutant Emissions from Aggregate Mining

Pollutant	1999 Daily Emissions (tons)	2004 Daily Emissions (tons)	2014 Daily Emissions (tons)
NO_x	0.251	0.274	0.315
ROG	0.020	0.022	0.025
PM_{10}	0.304	0.331	0.382
CO	0.079	0.086	0.100
SO_2	0.026	0.029	0.033

4.4.3.1 Proposed Action. Total estimated emissions associated with implementation of the Proposed Action, including emissions associated with aggregate mining, are presented in Table 4.4-9 for the years 1999, 2004, and 2014. Emissions associated with aggregate mining are not included in 2014, as the full potential of yield associated with this alternative will be accomplished in 2011. For emissions associated exclusively with aggregate mining operations during 1999, and 2004, see Table 4.4-8. Estimates of aircraft operation emissions are based on U.S. EPA aircraft emission factors provided as part of the built-in data base of the EDMS model. The EDMS model uses EPA emission factors and information on peak and annual LTO cycles to produce an emissions inventory report for the aircraft operations (including takeoff, runway climb and approach, runway queuing, taxi-in and taxi-out, and idling at the

gates). Estimates for all other categories of emissions were calculated as described in Appendix P.

Table 4.4-9. Pollutant Emissions Associated with the Proposed Action (tons/day)

Pollutant	Estimated Attainment Level	1989 Emission Inventory Amounts [a]			Proposed Action [b]		
		SVAB	County	MAFB	1999	2004	2014
NO_x	<33 [c]	270	88	1.2	0.82	1.17	2.21
ROG	<46 [c]	280	100	2.9	0.72	0.82	1.10
PM_{10}	35 [d]	480	130	0.13	0.60	0.71	0.58
CO	<243 [d]	1,500	480	5.6	10.25	11.82	14.34
SO_2	17 [e]	24	7.8	0.08	0.08	0.11	0.16

Notes:
(a) Refer to Table 3.4-5.
(b) See Appendix P for emission inventory information by source category.
(c) NO_x and ROG are precursors to ozone formation. Attainment levels shown here are the estimated emission amounts required to attain the ozone standard by the year 2010 (SMAQMD, 1991a). Area is in attainment of the NO_2 standards.
(d) Area currently in nonattainment of PM_{10} and CO standards. Projected attainment date for PM_{10} unknown. SMAQMD currently preparing attainment plan for PM_{10}.
(e) Area is currently in attainment of the SO_2 standards.

Construction. Fugitive dust and combustive emissions would be generated during construction activities associated with airfield, aviation support, residential, commercial, recreational, and mining land uses. These emissions would be greatest during site clearing and grading activities. Uncontrolled fugitive dust (particulate matter) emissions from ground-disturbing activities would be emitted at a rate of 1.2 tons per acre per month (EPA, 1985a). The PM_{10} fraction of the total fugitive dust emissions is assumed to be 50 percent, or 0.6 tons per acre per month.

It is estimated that construction in the various land-use areas would disturb a total of approximately 2,469 acres over the 20-year period of project development. The largest amount of land area that would be disturbed at any one time during construction activities is 1,053 acres. This level of disturbance would occur during the 5-year period from 1994 through 1998. Assuming that during a single year of this period an average of 211 acres would be disturbed, unmitigated particulate matter emissions would be emitted at an average rate of 253 tons per month (126 tons per month of PM_{10}). The impact of these emissions would cause elevated short-term concentrations of particulates at receptors close to the construction areas. However, the elevated concentrations would be a temporary effect that would fall off rapidly with distance.

Operation. Potential impacts to air quality as a result of air emissions from the operation of the Proposed Action were evaluated in terms of two spatial scales: regional and local. The regional-scale analysis considered the potential for project emissions to cause or contribute to a nonattainment condition in the

Sacramento County portion of the SVAB. The local-scale analysis evaluated the potential impact to ambient air quality concentrations in the immediate vicinity of the Proposed Action. The following sections present the results of these analyses and provide a comparison of the potential air quality effects of the Proposed Action to the various project alternatives.

Regional Scale

The California Clean Air Act of 1988 (CCAA) (Chapter 1568 of the California Health and Safety Code) and the federal Clean Air Act Amendments of 1990 (CAAA) establish a variety of air emission management and control requirements which will affect both existing and future sources of air pollution in the state of California. The CCAA in some respects is more restrictive than the CAAA in that the CCAA requires all air districts in California to achieve and maintain the CAAQS, which are set at lower levels than the corresponding NAAQS. The CCAA further requires each air district to achieve annual emission reductions of nonattainment pollutants of 5 percent or more until attainment is reached, compared to about 3 percent annual reductions under the CAAA. The CCAA also empowers the California air districts with the authority to impose a variety of transportation control measures and controls on indirect and area emission sources as required to reach and maintain attainment.

As a result, the evaluation of regional-scale impacts from the Proposed Action has considered the effect any new air emissions would have on the air quality attainment status of the SVAB. Because of the different requirements which apply to nonattainment pollutants versus attainment pollutants, this analysis is best subdivided by pollutant. The following paragraphs summarize the results of the regional-scale impact analysis.

Ozone. The SVAB currently does not meet the CAAQS for ozone, and portions of the basin do not meet the NAAQS for ozone. However, since ozone is not a directly emitted pollutant, emissions of its precursor pollutants NO_x and ROG are regulated instead. The SMAQMD has recently released a 1991 AQAP which describes the methods by which the SMAQMD plans to reduce the emissions of NO_x and ROG in the SVAB to meet the requirements of the CCAA (SMAQMD, 1991b). The emission reductions do not meet the stipulated 5 percent reductions as mandated under §40914 (a) of the CCAA. The SMAQMD meets those requirements under §40914 (b) (2) of the CCAA. This section states that a district may achieve less than a 5 percent per year reduction if the district demonstrates to the state board that it is unable to achieve 5 percent per year reductions despite the inclusion of every feasible measure in its plan, each with an expeditious adoption scehdule. The SMAQMD anticipates a 5 percent per year reduction for criteria pollutants by the AQAP update year, 1994, due to the inclusion of future emission reduction control measures that are not part of the 1991 AQAP.

The potential NO_x and ROG emissions from the Proposed Action were evaluated in terms of how those emissions would affect the SMAQMD's progress toward attainment of the CAAQS for ozone, and maintenance of CCAA goals. Emissions of NO_x and ROG were calculated for the direct sources that would be associated with each alternative reuse action, as well as for the mobile sources and other indirect sources linked to population growth associated with each reuse alternative. The resultant emission increases, after accounting for source-specific reductions associated with the SMAQMD-planned control measures, are not accounted for in the emission levels considered in the AQAP. These emissions, therefore, require special consideration to ensure that they would not interfere with the attainment plans.

Table 4.4-9 summarizes the results of the emission calculations for the Proposed Action for 5, 10, and 20 year increments after closure (i.e., for the years 1999, 2004, and 2014, respectively). This table also provides a comparison of the magnitude of the reuse-related emissions in relation to the attainment level (the level of emissions above which the area would be in nonattainment), the 1989 emission inventory amounts for the SVAB and the Sacramento County portion of the SVAB, and the Mather AFB preclosure emissions level.

These results show that emissions of NO_x and ROG could interfere with the process of reaching ozone attainment. All NO_x and ROG emissions associated with the Proposed Action will therefore have to be mitigated to the fullest extent possible, and the portions remaining after mitigation will have to be fully offset by the reduction of emissions from other sources in the area. Potential mitigation measures and the offset process are discussed below in the mitigation section of this text.

PM_{10}. The Sacramento County portion of the SVAB does not currently meet the CAAQS for PM_{10}. The SMAQMD is currently preparing an AQAP for PM_{10} to evaluate the emission control measures which are necessary to achieve attainment. This information was not available for this EIS, so the PM_{10} attainment level was estimated by assuming that the ratio of the second-highest observed PM_{10} concentration during the period 1988-1990 to the PM_{10} standard was equal to the ratio of the PM_{10} emission baseline to the PM_{10} attainment level. The attainment level calculated in this fashion is 35 tons per day, compared to the 1989 baseline PM_{10} emission level of 130 tons per day. However, since approximately 60 percent of the PM_{10} emissions in the SVAB are attributable to difficult-to-control sources such as farming, construction, demolition, road and windblown dust, attainment of the CAAQS for PM_{10} will be difficult to achieve by controlling the small contribution of emissions from other sources.

Table 4.4-9 provides a comparison of the magnitude of the Proposed Action PM_{10} emissions in relation to the estimated attainment level for PM_{10}, the 1989

basin and county emissions totals, and the Mather AFB preclosure emissions level. These results show that emissions from the Proposed Action are small in comparison to either the existing level of PM_{10} emissions or the attainment level. Nonetheless, these Proposed Action emissions would interfere with the process of reaching attainment of the CAAQS for PM_{10}. PM_{10} emissions associated with the Proposed Action will therefore have to be mitigated to the fullest extent possible and the remainder offset by the reduction of PM_{10} emissions from other sources in the area.

CO. The Sacramento County portion of the SVAB does not currently meet the NAAQS and CAAQS for CO. The SMAQMD has recently released a 1991 AQAP which describes all feasible controls for CO and considers emission reduction from a combination of sources to achieve the 5 percent annual reduction required by the CCAA (SMAQMD, 1991b). Until a valid modeling analysis is available, the AQAP provides for implementing all possible controls and contains a commitment to develop an updated plan with adequate modeling to allow an attainment demonstration to be made.

Table 4.4-9 provides a comparison of the magnitude of the Proposed Action CO emissions in relation to the estimated attainment level for CO, the 1989 basin and county emissions totals, and the Mather AFB preclosure emissions level. These results show that emissions from the Proposed Action are small in comparison to either the existing level of CO emissions or the attainment level. Nonetheless, the *Proposed Action* emissions would interfere with the process of reaching attainment of CO standards. CO emissions associated with the Proposed Action would, therefore, have to be mitigated to the fullest extent possible and the remainder offset by the reduction of CO emissions from other sources in the area.

NO_2 and SO_2. The SVAB currently meets the NAAQS and CAAQS for NO_2 and SO_2. Because the area is in attainment for SO_2, the SMAQMD has not made detailed estimates of future emissions of this pollutant, and has not been required to establish specific emission reduction measures. Control measures for NO_2 have been established despite its attainment status because NO_2 is also managed in conjunction with its precursor role in ozone formation, as described above. The process by which emissions of these attainment pollutants are prevented from creating a nonattainment condition is called Prevention of Significant Deterioration (PSD). This process limits the allowable ambient impact of emissions from new major stationary sources or major modifications to specific increments designed to prevent any significant degradation of the area's acceptable air quality. However, the PSD process does not provide a mechanism for dealing with non-stationary sources such as motor vehicles and aircraft. A large fraction of the SO_2 emissions associated with the Proposed Action and alternatives would arise from aircraft and motor vehicle sources. Because mobile sources do not trigger PSD analysis, this analysis examines the potential for these emissions to cause a nonattainment

situation at some future time. To do this, it was necessary to estimate the emission level for SO_2 which would result in a nonattainment condition for the county. This was accomplished by comparing baseline emissions to ambient concentrations for this pollutant as described above for PM_{10}. The "attainment level" calculated in this fashion is 17 tons per day for SO_2, compared to 1989 baseline emission level of 7.8 tons per day.

Table 4.4-9 summarizes the calculated emission rates for SO_2 and also provides a comparison of the magnitude of the reuse-related emissions in relation to the estimated attainment level, the 1989 basin and county emissions totals, and the Mather AFB preclosure emissions level.

These results show that the Proposed Action emissions of SO_2 will not be sufficient to jeopardize the attainment status for this pollutant. Current baseline emissions in the county are well below the level which would cause nonattainment, and the Proposed Action emissions are only a small fraction of the baseline. In addition, long-term emission trends prepared by the U.S. EPA indicate that SO_2 emissions are declining across the nation and will continue to decline (EPA, 1991b). The SO_2 emission decreases are attributed primarily to three general changes: (1) installation of flue gas desulfurization controls, (2) reduction in the average sulfur content of fuels, and (3) implementation of emission controls on various industrial processes.

Local Scale

The impacts of emissions associated with operation of the Proposed Action commercial airport were assessed by use of the EDMS. Peak-hour scenarios for emissions from both aircraft operations and vehicle traffic serving the airport were modeled. A variety of worst-case meteorological conditions which combined 1, 5, and 10 meter per second windspeeds with A, D, or F stability class were used in conjunction with wind directions both parallel and perpendicular to the runways and major terminal roadways as input to the model. Ambient temperature was assumed to be 70°F, and traffic on the roadways was assumed to be operating in a 10 to 20 percent cold start mode, while traffic in the parking areas was assumed to be 80 percent cold start.

One-hour impact concentrations were predicted at various receptors located at the ends of the runways, outside the perimeter of the airfield property, and around the terminal roadway and parking areas. U.S. EPA conversion factors were used to convert the model-predicted 1-hour impact results to conservative screening-level estimates of longer averaging period concentrations (EPA, 1977). The actual long-term averages would be less than the values produced by use of the conversion factors.

A summary of the EDMS analysis is presented in Table 4.4-10. The results of the modeling analysis indicate that for a peak hour airport operation scenario, the maximum 1-hour pollutant concentration would occur at a receptor located

along the airport property boundary downwind from the northeast end of the NE-SW runways. This receptor is located in line with the runways, and is approximately 2,300 feet from the end of the main runway. The primary contribution to the impact at this location is from the aircraft exhaust emitted during takeoffs. The modeling results indicate that NO_2 concentrations would exceed the 1-hour standard in the immediate area surrounding the airport, in particular that area extending from the ends of the runways. The annual standard may also be exceeded beginning approximately in the year 2010.

Table 4.4-10. Air Quality Modeling Analysis of Airport Activity for the Proposed Action ($\mu g/m^3$)

		Project Impact [a]				
Pollutant	Averaging Time	1999	2004	2014	Background Concentration[b]	Limiting Standard[c]
CO	8-hour	604	721	2,128	14,600	10,000
	1-hour	863	1,030	3,040	16,820	40,000
NO_2[d]	Annual	29	52	72	36	100
	1-hour	290	317	414	204	470
SO_2	Annual	1.4	2.1	7.1	4	80
	24-hour	5.5	8.6	28.4	34	131
	3-hour	12.3	19.3	64.0	115	1,300
	1-hour	13.7	21.4	71.1	115	655
PM_{10}	Annual (geometric)	0.8	0.9	2.2	31.7	30
	Annual (Arithmetic)	0.8	0.9	2.2	38.4	50
	24-hour	3.2	3.6	8.7	138	50

Notes:
(a) Maximum impact in all cases occurred at a receptor located near the property line approximately 2,300 feet downwind from the northeast end of the NE-SW runways.
(b) Background concentrations assumed to equal the mean of first-high values monitored at the Del Paso, El Camino, and Branch Center monitoring stations during 1988 to 1990 (refer to Table 3.4-4).
(c) Limiting Standard = most stringent standard (refer to Table 3.4-3).
(d) Nitrogen dioxide impact concentrations calculated by use of the ozone limiting method of Cole and Summerhays (1979). Ten percent of NO_x assumed to be thermally converted to NO_2. Conversion of the remainder of NO_x to NO_2 is limited by the background concentration of ozone. Background ozone concentrations assumed to be equal to the mean of first-high values monitored at the Del Paso monitoring station during 1988 to 1990: 1-hour ozone background = 265 $\mu g/m^3$ (13.3 ppm); annual ozone background = 57 $\mu g/m^3$ (0.029 ppm).

CO and PM_{10} concentrations would also exceed standards when added to the background concentration. However, standards are exceeded by the background concentrations alone. The actual CO and PM_{10} background concentrations which would occur in future years is not known with certainty. The CO background should continue to decline as more stringent tailpipe exhaust emission standards come into effect in future years and older model

vehicles are retired. The PM_{10} background may also decline in future years if new control strategies are implemented and successful, but this does not seem likely given the large amount of difficult-to-control sources of PM_{10} within the SVAB, i.e., farming, construction, demolition, mining and road dust.

Cumulative Impacts. Emissions of NO_x, ROG, PM_{10}, and CO associated with the Proposed Action would require mitigation and offsetting in order to avoid interference with the attainment of ozone, PM_{10}, and CO standards. Successful mitigation and offsetting of the emissions would result in no net increase in the SVAB, and therefore, no cumulative impact with emissions of these pollutants from other projects on a regional basis. Project-related emissions of SO_2 would not be sufficient to interfere with attainment of standards or cause cumulative impacts on a regional basis.

Project-related emission impacts of all pollutants could be increased somewhat in the local area due to the cumulative impact of emissions associated with construction and vehicular traffic, particularly in the vicinity of the airport.

Mining operations on the base would not cause a significant local impact. Mining on base would replace existing mining operations currently occurring outside of the base property. Mining industry representatives have stated that if higher-grade resources were available for extraction on Mather AFB property, these resources would be mined in preference to the lower-grade resources currently mined off base. The existing mining operations would, therefore, be shut down and the operations moved to the new on-base location. However, screening of this aggregate would occur at the off-base site currently utilized for the off-base mining operations. As a condition of moving the mining operations, the owner would have to obtain a new permit to construct and permit to operate from the SMAQMD. These permits would not be granted unless the applicant could show that the facility "... would operate without emitting or without causing to be emitted air contaminants in violation of the rules and regulations of the SMAQMD or of the state or federal statutes as may be enforceable by the Air Pollution Control Officer," (SMAQMD Rule 201, Part 303).

In addition, as part of the New Source Review process for obtaining the new permits, the mining operations would be required to utilize Best Available Control Technology (SMAQMD Rule 202, Part 301) and to offset all net emission changes of any affected pollutant or precursor (SMAQMD Rule 202, Part 302). Most of the offsets would come from the shutdown of existing operations. However, the required offsetting at a ratio of greater than 1:1 would result in a net emissions reduction in the area.

Mitigation Measures. Air quality impacts during construction would occur because of fugitive dust emissions from ground-disturbing activities and combustive emissions from construction equipment. The future project proponent (e.g., redevelopment authority or airport authority) would have the responsibility of mitigating these impacts. Vigorous water application during

ground-disturbing activities would mitigate fugitive dust emissions by at least 50 percent (EPA, 1985a). Decreasing the time period during which newly graded sites are exposed to the elements would further mitigate fugitive dust emissions. Combustive emission impacts could be mitigated by efficient scheduling of equipment use, implementing a phased construction schedule to reduce the number of units operating simultaneously, and performing regular vehicle engine maintenance. Implementation of these measures would substantially reduce air quality effects from construction activities associated with the Proposed Action. In addition, all aviation development during the construction phase would comply with measures contained in the *FAA Standards for Specifying Construction of Airports* (FAA, 1990).

Air quality operational mitigation measures and offset purchases would be necessary to eliminate any interference with attainment and maintenance of the CAAQS and NAAQS due to increased emissions from the Proposed Action. As previously discussed, mitigations and offsets will therefore be required to eliminate emission increases of NO_x, ROG, PM_{10}, and CO. Mitigation measures would have to be developed by the project proponent (the redevelopment agency or the airport authority). These measures would have to be coordinated with the SMAQMD and the ARB in order to ensure consistency with local and/or regional air quality attainment plans.

Potential mitigation measures would most likely focus on some type of land use or transportation planning and management measures to reduce motor vehicle pollution. The purpose of the measures would be to reduce vehicle miles travelled, vehicle trips, and peak hour travel. These reductions would, therefore, reduce both regional and localized vehicle-related emissions of NO_x, ROG, PM_{10}, and CO.

The types of operational mitigation measures that could be implemented include: (1) development of a comprehensive airport shuttle system to reduce personal vehicle use; (2) use of off-site parking and parking lot shuttles for long term parking needs; (3) development of a light rail or trolley (electric) transportation system to service the airport; (4) promotion of carpools and vanpools by providing a rider matching service, preferential parking and financial incentives; (5) financial incentives to encourage the use of public transit; (6) improvements such as bicycle lanes, pedestrian networks, storage facilities and showers to increase the use of bicycling and walking as modes of transportation; and (7) on-site location of service facilities that would reduce the need for off-site travel (e.g., childcare facilities, cafeterias, postal machines, automated tellers, etc.).

Mitigation measures to reduce emissions associated with stockpiled soil and mining operations would include use of water trucks, and sprinkler systems during clearing, grading, earth moving, excavation, or transport of material. After clearing, grading, earth moving, or excavation is completed, the entire

area of disturbed soil, and any stockpiled areas, should be treated by watering, vegetating or spreading of soil binders to prevent wind pickup of the soil. Trucks transporting materials from the mining area should be tarped.

The amount of emission reduction achieved would depend on the particular mitigation measures selected. Emissions remaining after application of all practicable mitigation measures would have to be offset by reducing similar pollutant emissions from other area sources by a ratio greater than one for one. Emission offsets are generally obtained by methods such as: (1) direct purchase and shutdown of an emitting source; (2) installation on existing sources of new or additional control equipment beyond that which is currently required by regulation; and (3) innovative and non-traditional methods such as construction of bus shelters to induce increased mass transit ridership, buying and removing from service older model on-road vehicles, or paving of unpaved parking and road areas to reduce particulate emissions.

The SMAQMD recently proposed regulations that would establish a system for acquiring, banking, and transferring air emission reduction credits (ERCs) for nonattainment and other affected pollutants. These rules are expected to be approved in 1992 by the Sacramento Air Quality Board of Directors.

ERCs have become valuable to air permit applicants for new or modified air pollutant emission sources. Under the new source review (NSR) process, the applicants must somehow provide emission reductions that will offset anticipated emissions from new or modified stationary sources as a prerequisite to obtaining permits. ERCs fulfill the role of offsetting emission reductions.

The SMAQMD rules would allow the owner or operator of air pollutant emission sources to apply for ERCs for permanent cessation of permitted or nonpermitted sources within 60 days of shutdown of operations. Nonpermitted sources include mobile and indirect sources. Those credits not claimed within 60 days are deposited into the Community ERC Bank. The rules disallow ERCs from cessation of retail dry cleaners and gasoline stations.

Credits are calculated by subtracting 10 percent of the creditable emissions as a surcharge that is deposited into the Community ERC Bank. An additional reduction would result if the emitting source did not use control technology equal to or better than reasonably available control technology (RACT) prior to shutdown. In such a case, the amount of emissions used to calculate ERCs will be further reduced to reflect the amount of emissions that would have resulted from use of RACT. This RACT reduction will not exceed 50 percent of the total creditable ERC or 250 pounds of pollutants per day, whichever is lower. RACT is technology required by Section 172 of the Clean Air Act to be installed on existing major sources in nonattainment areas and reflects controls identified in EPA guidance to the states as necessary in ozone nonattainment areas. Any portion of ERCs forfeited as a result of the RACT reduction will be deposited into the Community ERC Bank.

ERCs may be used, held for later use, or transferred in whole or in part. When eventually used to offset emission increases from a new or modified stationary source, a penalty in the form of varying offset ratios (ratio of ERCs to increased emissions from a new or modified source) may be imposed, depending on the distance of the new or modified source from the shutdown or curtailed source that generated the ERC. For ERCs obtained from shutdown sources located outside the SMAQMD, the SMAQMD Air Pollution Control Officer (APCO) must review and approve such ERC offsets. The APCO will review the permit conditions issued by the other air pollution control district and must certify that the impact of using such offsets meet the requirements of SMAQMD rules and regulations. The following table lists the offset ratios based on distance of the shutdown or curtailed source that generated the ERC from the new or modified source requiring the offset:

Location	Non-Attainment Pollutants Offset Ratio	Other Affected Pollutants Offset Ratio
Within the same source	1 to 1	1 to 1
Within 15 mile radius	1.2 to 1	1.2 to 1
Greater than 15 but within 50 miles	2 to 1	1.2 to 1
Greater than 50 or outside Air Basin	2 to 1	1.2 to 1

The SMAQMD will use the ERC program as part of its Air Quality Attainment Plan to reduce overall air emissions and attain compliance with the state and federal air quality standards. As described above, the ERC program obtains reductions in overall emissions by imposing a RACT forfeiture and offset penalties.

The permanent shutdown or curtailment of existing stationary and mobile sources of air pollutants at Mather AFB could result in a significant amount of available ERCs for most criteria pollutants, including carbon monoxide and precursors to ozone. Preliminary estimates indicate that, in 1990, permitted facilities at Mather AFB emitted approximately 59 tons/year of ROG, 31 tons/year of NO_x, and 12 tons/year of CO. Due to the RACT forfeiture and offset penalties, the permanent shutdown or curtailment of all or a portion of existing permitted and nonpermitted sources at Mather AFB could contribute to reductions in overall emissions within the district. The extent of impact would depend on the extent the reuse and development activities are subject to NSR and where they obtain any necessary emission offsets prior to construction or modification of major sources of air pollutant emissions.

Transfer or conveyance, without permanent shutdown or curtailment, of existing emitting sources at Mather AFB to reuse organizations would not result in generation of ERCs for these emitting sources. A change of ownership of the emitting sources without permanent shutdown or curtailment of emissions

would require that the new owner apply to the SMAQMD for a permit to operate. New owners would not be subject to NSR requirements as long as they propose to operate the existing emitting source without modification or change in operating conditions.

Emission offsets are often difficult to obtain and may require a large commitment of time and money in order to do so. As was the case for mitigation measures, the future project proponent must therefore establish a dialogue with the SMAQMD and the ARB well in advance of project initiation in order to ensure that the necessary amount of offsets will be established, found, and properly credited.

4.4.3.2 Non-Aviation with Mixed-Density Residential Alternative. The primary difference between this alternative and the Proposed Action is replacement of the airfield with residential land uses. Air traffic and vehicle traffic associated with the operation and passenger use of the airfield, terminal, and aviation support areas would be eliminated. Since these sources contributed a large portion of the Proposed Action emissions inventory, the air quality impacts associated with operation of this alternative are less than for the Proposed Action, as described below.

Construction. Construction impacts from this alternative would be greater than under the Proposed Action primarily because of the larger amount of disturbance which would occur in the residential land use areas. It is estimated that a total of 3,648 acres will be disturbed by construction over the 20 year period of project development. A maximum of approximately 275 acres would be disturbed at any one time during this period, resulting in unmitigated particulate matter emissions of 330 tons per month (165 tons per month of PM_{10}). The impact of these emissions would cause elevated concentrations of particulates at receptors close to the construction areas. The concentrations would fall off rapidly with distance from the construction areas.

Operation. Total estimated emissions associated with implementation of the Non-Aviation with Mixed-Density Residential Alternative, including emissions associated with aggregate mining, are presented in Table 4.4-11 for the years 1999, 2004, and 2014. Emissions associated with aggregate mining are not included in 2014, as the full potential yield associated with this alternative will be accomplished in 2010. For emissions associated exclusively with aggregate mining operations during 1999, and 2004, see Table 4.4-8. This table also provides a comparison of the magnitude of the reuse-related emissions in relation to the attainment level (the level of emissions above which the area would be in nonattainment), the 1987 emission inventory amounts for the SVAB, the Sacramento County portion of the SVAB, and the Mather AFB preclosure emission levels.

Table 4.4-11 shows that emissions of NO_x, ROG, PM_{10}, and CO, although small in comparison to existing and nonattainment level emissions, could still interfere

with the process of reaching and maintaining attainment of the CAAQS and NAAQS. All NO_x, ROG, PM_{10}, and CO emissions associated with the Non-Aviation with Mixed-Density Residential Alternative will therefore have to be mitigated to the fullest extent possible, and the portions remaining after mitigation will have to be fully offset by reducing emissions of these pollutants from other sources in the area. Non-Aviation with Mixed-Density Residential Alternative will therefore have to be mitigated to the fullest extent possible, and the portions remaining after mitigation will have to be fully offset by reducing emissions of these pollutants from other sources in the area.

Table 4.4-11. Pollutant Emissions Associated with the Non-Aviation with Mixed-Density Residential Alternative (tons/day)

Pollutant	Estimated Attainment Level	1989 Emissions Inventory Amount [a]			Reuse Alternative Emissions [b]		
		SVAB	County	MAFB	1999	2004	2014
NO_x	<33 [c]	270	88	1.2	0.31	0.36	0.17
ROG	<46 [c]	280	100	2.9	0.09	0.12	0.17
PM_{10}	35 [d]	480	130	0.13	0.56	0.74	0.93
CO	<243 [d]	1,500	480	5.6	0.35	0.43	0.58
SO_2	17 [e]	24	7.8	0.08	0.04	0.04	0.03

Notes:
(a) Refer to Table 3.4-5.
(b) See Appendix P for emission inventory information by source category.
(c) NO_x and ROG are precursors to ozone formation. Attainment levels shown here are the estimated emission amounts required to attain the ozone standard by the year 2010 (SMAQMD, 1991a). Area is in attainment of the NO_2 standards.
(d) Area currently in nonattainment of PM_{10} and CO standards. Projected attainment date for PM_{10} unknown. SMAQMD is currently preparing attainment plans for PM_{10}.
(e) Area is currently in attainment of the SO_2 standards.

Table 4.4-11 indicates that the Non-Aviation with Mixed-Density Residential Alternative emissions of SO_2 would not be sufficient to jeopardize the attainment status for this pollutant. Current baseline emissions in the county are well below the level which would cause nonattainment, and the Non-Aviation with Mixed-Density Residential Alternative emissions are only a small fraction of the baseline. In addition, long-term emission trends prepared by the EPA indicate that SO_2 emissions are declining and will continue to decline throughout the nation (EPA, 1991b).

Cumulative Impacts. Potential cumulative impacts are the same as those discussed for the Proposed Action, except that there would be no airport operations (Section 4.4.3.1).

Mitigation Measures. With the exception of airport-related mitigation measure, mitigations and offset purchases are the same as those recommended for the Proposed Action (Section 4.4.3.1).

4.4.3.3 General Aviation with Aircraft Maintenance Alternative. This alternative is similar to the Proposed Action in that the airfield operations are retained and used for both civilian and transient military activities. Also, like the Proposed Action, commercial, institutional, and residential land use areas will be developed, as described in Section 2.3.2.

Construction. Construction impacts for this alternative would be approximately the same as for the Proposed Action. It is estimated that a total of 2,549 acres will be disturbed over the 20-year life of the project. A maximum of approximately 153 acres would be disturbed at any one time during this period, resulting in unmitigated particulate matter emissions of 184 tons per month (92 tons per month of PM_{10}). The impact of these emissions would cause elevated concentrations of particulate matter at receptors located close to the construction areas. However, the elevated concentrations would be a temporary effect that would rapidly decrease with distance from the construction areas.

Operation. Total estimated emissions associated with implementation of the General Aviation with Aircraft Maintenance Alternative, including emissions associated with aggregate mining, are presented in Table 4.4-12 for the years 1999, 2004, and 2014. Emissions associated with aggregate mining are not included in 2014, as the full potential yield associated with this alternative will be accomplished in 2010. For emissions associated exclusively with aggregate mining operation during 1999, and 2004 see Table 4.4-8. This table also provides a comparison of the magnitude of the reuse-related emissions in relation to the attainment level (the level of emissions above which the area would be in nonattainment), the 1989 emission inventory amounts for the SVAB and the Sacramento County portion of the SVAB, and the Mather AFB preclosure emission levels.

Table 4.4-12 shows that emissions of NO_x, ROG, PM_{10}, and CO, although small in comparison to existing and nonattainment level emissions, could still interfere with the process of reaching and maintaining attainment of the CAAQS and NAAQS. All NO_x, ROG, PM_{10}, and CO emissions associated with the General Aviation with Aircraft Maintenance Alternative will, therefore, have to be mitigated to the fullest extent possible, and the portions remaining after mitigation will have to be fully offset by reducing emissions of these pollutants from other sources in the area.

Table 4.4-12 indicates that the General Aviation with Aircraft Maintenance Alternative emissions of SO_2 would not be sufficient to jeopardize the attainment status for this pollutant. Current baseline emissions in the county are well below the level which would cause nonattainment, and the General Aviation with

Table 4.4-12. Pollutant Emissions Associated with the General Aviation with Aircraft Maintenance Alternative (tons/day)

Pollutant	Estimated Attainment Level	1989 Emissions Inventory Amount [a]			Reuse Alternative Emissions [b]		
		SVAB	County	MAFB	1999	2004	2014
NO_x	<33 [c]	270	88	1.2	0.61	0.74	0.59
ROG	<46 [c]	280	100	2.9	0.64	0.72	0.81
PM_{10}	35 [d]	480	130	0.13	0.75	0.98	1.09
CO	<243 [d]	1,500	480	5.6	7.66	9.30	11.35
SO_2	17 [e]	24	7.8	0.08	0.70	0.08	0.07

Notes:
(a) Refer to Table 3.4-5.
(b) See Appendix P for emission inventory information by source category.
(c) NO_x and ROG are precursors to ozone formation. Attainment levels shown here are the estimated emission amounts required to attain the ozone standard by the year 2010 (SMAQMD, 1991a). Area is in attainment of the NO_2 standards.
(d) Area currently in nonattainment of PM_{10} and CO standards. Projected attainment date for PM_{10} unknown. SMAQMD is currently preparing attainment plans for PM_{10}.
(e) Area is currently in attainment of the SO_2 standards.

Aircraft Maintenance Alternative emissions are only a small fraction of the baseline. In addition, long-term emission trends prepared by the EPA indicate that SO_2 emissions are declining throughout the nation and will continue to decline (EPA, 1991b).

The impacts of emissions associated with operation of the airport under this alternative were assessed by use of the EDMS. Peak hour scenarios for emissions from both aircraft operations and vehicle traffic serving the airport were modeled. A variety of worst-case meteorological conditions which combined 1.0, 5.0, and 10.0 meter per second windspeeds with A, D, or F stability class were used in conjunction with wind directions both parallel and perpendicular to the runways and major terminal roadways as input to the model. U.S. EPA conversion factors were used to convert the model-predicted 1-hour impact results to conservative screening-level estimates of longer averaging period concentrations (EPA, 1977). The actual long-term averages would be less than the values produced by use of the conversion factors.

A summary of the EDMS analysis is presented in Table 4.4-13. The results of the analysis indicate that for a peak hour airport operation scenario, the maximum 1-hour pollutant concentration would occur at a receptor located along the airport property boundary downwind from the northeast end of the northeast-southwest runways. This receptor is located in line with the runways, and is approximately 2,300 feet from the end of the main runway. The primary contribution to the impact at this location is from the aircraft exhaust emitted during takeoffs. The modeling results indicate that CO and PM_{10} concentrations would exceed standards when added to the background concentration. However, the standards are exceeded by the background

concentrations alone. The project emissions in each case are only a fraction (less than 8 percent) of the total standard.

Table 4.4-13. Air Quality Modeling Analysis of Airport Activity for the General Aviation with Aircraft Maintenance Alternative ($\mu g/m^3$)

Pollutant	Averaging Time	Project Impact [a] 1999	2004	2014	Background Concentration[b]	Limiting Standard[c]
CO	8-hour	363	570	784	14,600	10,000
	1-hour	518	814	1,120	16,820	40,000
NO_2[d]	Annual	14	20	25	36	100
	1-hour	142	196	248	204	470
SO_2	Annual	0.8	1.0	1.4	4	80
	24-hour	3.4	4.2	5.4	34	131
	3-hour	7.6	9.4	12.2	115	1,300
	1-hour	8.4	10.4	13.5	115	655
PM_{10}	Annual (geometric)	0.6	0.7	0.8	31.7	30
	Annual (arithmetic)	0.6	0.7	0.8	38.4	50
	24-hour	2.5	2.7	3.2	138	50

Notes:
(a) Maximum impact in all cases occurred at a receptor located near the property line approximately 2,300 feet downwind from the northeast end of the NE-SW runways.
(b) Background concentrations assumed to equal the mean of first-high values monitored at the Del Paso, El Camino, and Branch Center monitoring stations during 1988-1990 (refer to Table 3.4-4).
(c) Limiting Standard = most stringent standard (refer to Table 3.4-3).
(d) Nitrogen dioxide impact concentrations assume complete conversion of NO_x to NO_2.

The actual CO and PM_{10} background concentrations which would occur in future years is not known with certainty. The CO background should continue to decline as more stringent tailpipe exhaust emission standards come into effect in future years and older model vehicles are retired. The PM_{10} background may also decline in future years if new control strategies are implemented and successful, but this does not seem likely given the large amount of difficult-to-control sources of PM_{10} within the SVAB, i.e., farming, construction, demolition, and road dust.

Cumulative Impacts. Potential cumulative impacts are the same as those discussed for the Proposed Action (Section 4.4.3.1).

Mitigation Measures. Mitigation measures and offset purchases are the same as those recommended for the Proposed Action (Section 4.4.3.1).

4.4.3.4 Non-Aviation with Low-Density Residential Alternative. This alternative differs from the Proposed Action in that substantially greater acreage is devoted to low-density residential use in the area previously occupied by the airfield and in the areas to the north, south, and east of the existing housing areas. Air traffic and vehicle traffic associated with the operation of an airfield and aviation support areas would be eliminated under this alternative. Since aviation sources contributed a large portion of the Proposed Action emissions inventory, the air quality impacts associated with operation of this alternative are less than for the Proposed Action, as described in the discussion below.

Construction. Construction impacts from this alternative would be greater than under the Proposed Action because of the large amounts of acreage which would be disturbed in the proposed residential areas. It is estimated that a total of 3,492 acres will be disturbed by construction over the 20-year period of project development. Approximately 241 acres would be disturbed at any one time during this period, resulting in unmitigated particulate matter emissions of 289 tons per month (145 tons per month of PM_{10}). The impact of these emissions would cause elevated concentrations of particulates at receptors close to the construction areas. The concentrations would fall off rapidly with distance from the construction areas.

Operation. Total estimated emissions associated with implementation of the Non-Aviation with Low-Density Residential Alternative, including emissions associated with aggregate mining, are presented in Table 4.4-14 for the years 1999, 2004, and 2014. Full potential aggregate yield associated with this alternative will not be accomplished prior to 2014. For emissions associated exclusively with aggregate mining operations, see Table 4.4-8. This table also provides a comparison of the magnitude of the reuse-related emissions in relation to the attainment level (the level of emissions above which the area would be in nonattainment), the 1989 emission inventory amount for the SVAB and the Sacramento County portion of the SVAB, and the Mather AFB preclosure emission levels.

Table 4.4-14 shows that emissions of NO_x, ROG, PM_{10}, and CO, although small in comparison to existing and nonattainment level emissions, could still interfere with the process of reaching and maintaining attainment of the CAAQS and NAAQS. All NO_x, ROG, PM_{10}, and CO emissions associated with the Non-Aviation with Low-Density Residential Alternative will, therefore, have to be mitigated to the fullest extent possible, and the portions remaining after mitigation will have to be fully offset by reducing emissions of these pollutants from other sources in the area.

Table 4.4-14. Pollutant Emissions Associated with the Non-Aviation with Low-Density Residential Alternative (tons/day)

Pollutant	Estimated Attainment Level	1989 Emissions Inventory Amount [a]			Reuse Alternative Emissions [b]		
		SVAB	County	MAFB	1999	2004	2014
NO_x	<33 [c]	270	88	1.2	0.33	0.38	0.50
ROG	<46 [c]	280	100	2.9	0.12	0.15	0.21
PM_{10}	35 [d]	480	130	0.13	0.62	0.84	1.38
CO	<243 [d]	1,500	480	5.6	0.43	0.51	0.72
SO_2	17 [e]	24	7.8	0.08	0.04	0.05	0.07

Notes:
(a) Refer to Table 3.4-5.
(b) See Appendix P for emission inventory information by source category.
(c) NO_x and ROG are precursors to ozone formation. Attainment levels shown here are the estimated emission amounts required to attain the ozone standard by the year 2010 (SMAQMD, 1991a). Area is in attainment of the NO_2 standards.
(d) Area currently in nonattainment of PM_{10} and CO standards. Projected attainment date for PM_{10} unknown. SMAQMD currently preparing attainment plans for PM_{10}.
(e) Area is currently in attainment of the SO_2 standards.

Table 4.4-14 indicates that the Non-Aviation with Low-Density Residential Alternative emissions of SO_2 would not be sufficient to jeopardize the attainment status for this pollutant. Current baseline emissions in the county are well below the level which would cause nonattainment, and the Non-Aviation with Low-Density Residential Alternative emissions are only a small fraction of the baseline. In addition, long-term emission trends prepared by the U.S. EPA indicate that SO_2 emissions are declining throughout the nation and will continue to decline (EPA, 1991b).

Cumulative Impacts. Potential cumulative impacts are the same as those discussed for the Proposed Action, except that there would be no airport operations (Section 4.4.3.1).

Mitigation Measures. With the exception of airport-related mitigation measures, mitigations and offset purchases are the same as those recommended for the Proposed Action (Section 4.4.3.1).

4.4.3.5 Other Land Use Concepts. Several proposals for the transfer of DOD facilities or parcels of land at Mather AFB have been made by various federal, state, and local agencies, as described in Section 2.3.4. Implementation of these transfers is assumed to be in conjunction with either the Proposed Action or a selected alternative. Potential air quality effects resulting from implementation of one or more of these transfer actions would be primarily in the form of increased vehicle emissions associated with additional employees or residents. The overall heating and power requirements of the planned reuse scenarios are assumed to be relatively unaffected by the transfers.

Two facility-specific proposals for partial utilization of the base property have been proposed, as described in Section 2.3.4. The two proposals are: (1) a Caltrans R&D Center and (2) a Theme Park. Implementation of any one of these proposals would not require the entire land area of the base. Each proposal is therefore assessed independently as an overlay to the Proposed Action and alternatives. The potential air quality effects of these overlays are discussed below.

Caltrans R&D Center. The Caltrans R&D Center would generate stationary source air emissions associated with heating and power requirements, and mobile source emissions related to employee, student, research personnel, and resident vehicle traffic. With the exception of the loss of emissions associated with the displacement of commercial and/or residential area, these emissions would be in addition to the total emissions already calculated for the Proposed Action and alternatives, and would be subject to the same requirements of mitigation and offsetting needed to prevent interference with the attainment and maintenance of the air quality standards as previously described. The exact amount of emissions associated with the Caltrans R&D Center, and proposals for mitigation and offsetting, would be described in detail in the project-specific Environmental Assessment (EA)/EIR which would have to be prepared prior to construction of the facility. At this time the project is still in the conceptual stage.

Theme Park. The proposed Theme Park would generate a large amount of emissions which have not been included in the calculations of total emissions for the Proposed Action and alternatives. Some of the emissions calculated for the Proposed Action and alternatives would be eliminated due to displacement of other land use areas. However, the amount of emissions generated by 2,000 employees and 15,000 to 25,000 visitors per day at the Theme Park would far exceed the amount of emissions eliminated, regardless of the alternative. Detailed estimates of the stationary and mobile source emissions associated with the Theme Park would have to be included in an EA/EIR prepared specifically to address the impacts associated with a project of this magnitude and nature.

Other Transfers and Conveyances

In addition, some of the proposed transfers would involve an increase of aircraft based at the airfield (i.e., the State of California Department of Forestry proposal would include 3 to 6 administrative aircraft, 18 air tankers, 13 air attack aircraft, and 10 helicopters; the State of California Department of Justice, Bureau of Narcotic Enforcement seeks hangar and ramp space for an unspecified number of aircraft; and the Sacramento County Sheriff's Department, Aero Bureau/Airbourne Law Enforcement seeks to base 4 helicopters, and 2 fixed wing planes). These aircraft would add an additional amount of emissions to the total calculated for the particular alternative under which the transfer would take place.

4.4.3.6 No-Action Alternative. The No-Action Alternative would not require further use of the base after closure. The Air Force would place the base in a caretaker status intended to minimize deterioration of the existing utilities and structures. There would be no active uses of the property.

Impacts. The No-Action Alternative would have no adverse impact on air quality. Air quality conditions at the time of closure would not be significantly affected by continued maintenance of the base at the closure level of activity. In fact, there may be some level of air quality benefit associated with maintaining the base at a reduced level of activity compared to the levels of activity associated with either the Proposed Action or reuse alternatives.

Cumulative Impacts. Since the air quality impact of the No-Action Alternative is negligible, and perhaps beneficial, no other projects would have an adverse cumulative impact.

Mitigation Measures. Air quality mitigation measures are not required for the No-Action Alternative because there are no adverse impacts associated with this alternative.

4.4.4 Noise

Environmental impact analysis related to noise includes the potential effects on the local human and animal populations. This analysis for noise will estimate the extent and magnitude of noise levels generated by the Proposed Action and alternatives using the predictive models discussed below. The effects of noise, including potential annoyance, speech interference, sleep disturbance, hearing loss, health, and land use impacts, will be discussed. The predicted noise levels will then be assessed with respect to the use guidelines developed by the FAA.

Noise Effects. Methods used to quantify the effects of noise such as annoyance, speech interference, sleep disturbance, health, and hearing loss have undergone extensive scientific development during the past several decades. The most current and reliable measures are noise-induced hearing loss and annoyance. Extra-auditory effects (those not directly related to hearing capability) are also important, although they are not as well understood. The current scientific consensus is that evidence from available research reports is suggestive, but does not provide definitive answers to the question of health effects, other than to the auditory system, of long-term exposure to noise (National Academy of Sciences [NAS], 1981). The effects of noise are summarized here and a more detailed description is provided in Appendix L.

Annoyance. Noise annoyance is defined by the U.S. EPA as any negative subjective reaction to noise on the part of an individual or group. Table 4.4-15 presents the results of over a dozen studies of transportation modes, including airports, investigating the relationship between noise and annoyance levels.

Table 4.4-15. Percentage of Population Highly Annoyed by Noise Exposure

DNL Interval	Percentage of Persons Highly Annoyed
<65	<15
65-70	15-25
70-75	25-37
75-80	37-52

Source: Adapted from National Academy of Sciences, 1977.

This relationship has been suggested by NAS (1977) and recently reevaluated (Fidell et al., 1988) for use in describing peoples' reactions to semi-continuous (e.g., transportation) noise. These data are shown to provide a perspective on the level of annoyance that might be anticipated. For example, 15 to 25 percent of persons exposed to DNL of 65 to 70 dB would be highly annoyed by the noise levels.

Speech Interference. One of the ways that noise affects daily life is by prevention or impairment of speech communication. In a noisy environment, understanding of speech is diminished when speech signals are masked by intruding noises. Reduced intelligibility of speech may also have other effects, for example, if the understanding of speech is interrupted, performance may be reduced, annoyance may increase, and learning may be impaired. Research suggests that aircraft flyover noises exceeding approximately 60 dB interfere with speech communication. Increasing the level of the flyover noise maximum to 80 dB will reduce the intelligibility to zero even if the speaker speaks in a loud voice.

Sleep Interference. The effects of noise on sleep are of concern primarily in assuring suitable residential environments. Early studies suggest that various noise levels between 25 and 50 dBA were associated with an absence of sleep disturbance. Because no known health affects were associated with either waking or sleep-stage changes, either measure was potentially useful as metrics of sleep disturbance.

The noise descriptor that may best describe the effect of noise on sleep is the SEL. The SEL takes into account an event's sound intensity, frequency content, and time duration, by measuring the total A-weighted sound energy of the event and incorporating it into a single number. Unlike DNL which describes the daily average noise exposure, SEL describes the normalized noise from a single flyover, called an event.

Studies (Lukas, 1975; Goldstein and Lukas, 1980) showed great variability in the percentage of people awakened by exposure to noise. A recent review (Pearsons et al., 1989) of the literature related to sleep disturbance, including field as well as laboratory studies, suggests that habituation may reduce the effect of noise on sleep. The authors point out that the relationship between

noise exposure and sleep disturbance is complex and affected by the interaction of many variables. The large differences between the findings of the laboratory and field studies makes it difficult to determine the best relationship to use. The method developed by Lukas would estimate seven times more awakening than the field results reported by Pearsons.

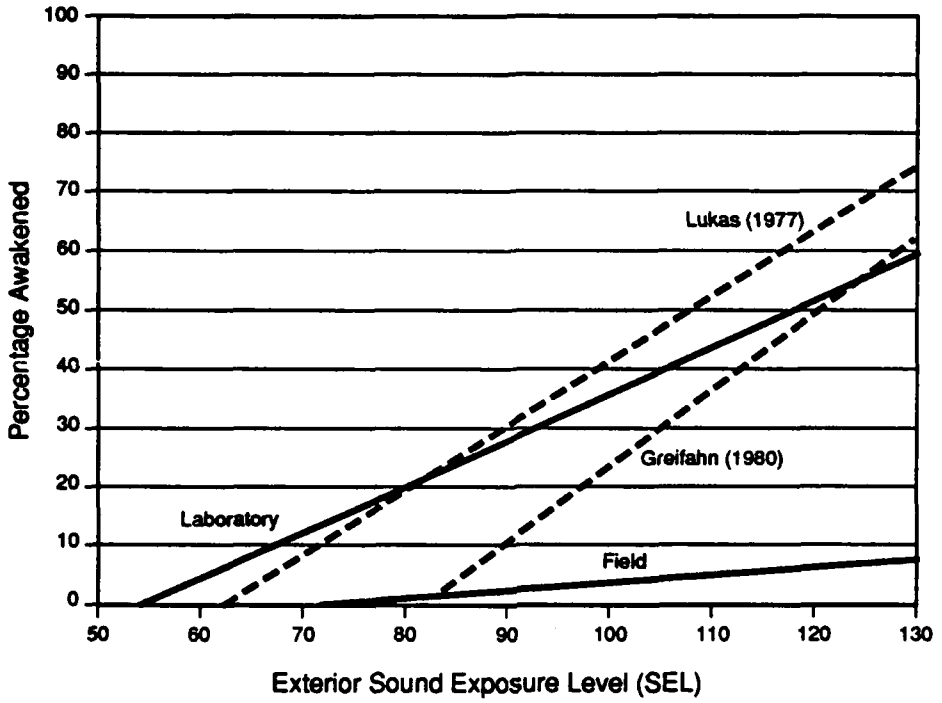
The relationship between percent awakened and SEL are presented in Figure 4.4-5. These relationships consider the sound attenuation provided by a residential building with the windows open. Appendix L contains further information on the derivation.

Hearing Loss. Hearing loss is measured in decibels and refers to a permanent auditory threshold shift of an individual's hearing in an ear. In order to protect against hearing impairment, the U.S. EPA recommended that daily noise exposure be limited to a DNL value of 75 dBA or less (EPA, 1974). Based on recommendations, hearing loss is not expected in people exposed to 75 dBA or less.

Health Effects. Research investigating the relationship between noise and adverse extra-auditory health effects have been inconclusive. Alleged extra-auditory health consequences of noise exposure which have been studied include birth defects, psychological illness, cancer, stroke, hypertension, and cardiac illnesses. Although hypertension appears to be the most biologically plausible of these consequences, studies addressing this issue have failed to provide adequate support. Studies that have found negative consequences have failed to be replicated, thereby questioning the validity of those studies (Frerichs et al., 1980; Anton-Guirgis et al., 1986). Studies that have controlled for multiple factors have shown no, or very weak, associations between noise exposure and extra-auditory effects (Thompson and Fidell, 1989). The current state of technical knowledge cannot support inference of a causal or consistent relationship, nor a quantitative dose-response, between residential aircraft noise exposure and health consequences.

Animals. The literature on the effects of noise on animals is not large, and most of the studies have focused on the relation between dosages of continuous noise and effects (Belanovskii and Omel'yanenko, 1982; Ames, 1974). A literature survey (Kull and Fisher, 1986) found that the literature is inadequate to document long-term or subtle effects of noise on animals. No controlled study has documented any serious accident or mortality on livestock, despite extreme exposure to noise.

Land Use Compatibility. Estimates of total noise exposure resulting from aircraft operations, as expressed using DNL, can be interpreted in terms of the compatibility with designated land uses. The Federal Interagency Committee on Urban Noise developed land use compatibility guidelines for noise (U.S. Department of Transportation, 1980). Based upon these guidelines, suggested compatibility guidelines for evaluating land uses in aircraft noise



Source: Pearsons, 1989

Sleep Disruption (Awakening)

Figure 4.4-5

exposure areas were developed by the FAA and are presented in Section 3.4.4. The land use compatibility guidelines are based on annoyance and hearing loss considerations previously described. Part 150 of the FAA regulations prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs. It prescribes the use of yearly DNL in the evaluation of airport noise environments. It also identifies those land use types that are normally compatible with various levels of exposure. Compatible or incompatible land use is determined by comparing the predicted DNL level at a site with the recommended land uses.

In addition to federal guidelines, local noise guidelines exist which would be applicable to some of the alternative reuses investigated. The Noise Element of the Sacramento County General Plan recommends that land use compatibility guidelines be used to help evaluate noise impacts of proposed projects on the surroundings.

The Zoning Code of Sacramento County, Chapter 35, Article 4, Section 235-60, places limits on the noise produced by mining activities. The code states:

"The sound level along the property line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand or aggregates. A violation of the noise standard will occur if the noise level at the property line exceeds:

(a) The noise limit for a cumulative period of more than thirty minutes in any hour, or:

(b) The noise limit plus 5 dBA for a cumulative period of more than one minute in any hour, or the noise limit plus 20 dBA for any period of time (Sacramento County, 1986)."

The code uses "dBA" to denote A-weighted levels.

Noise Modeling. To define the noise impacts from aircraft operations at Mather AFB, the FAA-approved *Noise Exposure Model (NOISEMAP) Version 6.0* was used to predict 65, 70, and 75 DNL noise contours and SEL values for noise-sensitive receptors. Appendix L defines these descriptors. The contours were generated for the Proposed Action and General Aviation Alternative for the baseline year (1994) and three future year projections (1999, 2004, and 2014) and overlaid on a U.S. Geological Survey map of the base and vicinity. Input data to NOISEMAP include information on aircraft types; runway use; takeoff and landing flight tracks; aircraft altitude, speeds, and engine power settings; and number of daytime (7 a.m.-10 p.m.) and nighttime (10 p.m.-7 a.m.) operations.

Surface vehicle traffic noise levels for roadways in the vicinity of Mather AFB were analyzed using FHWA's Highway Noise Model (1978). This model

incorporates vehicle mix, traffic volume projections, and speed to generate DNL. Noise levels due to operation of mining equipment typically associated with mining operations were estimated based on information presented in *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (EPA, 1971) and *Power Plant Construction Noise Guide* (Bolt, Beranek and Newman Inc., 1977). Typical construction equipment noise levels are presented in Appendix L.

Major Assumptions. Aircraft operations were assumed to include equal numbers of takeoffs and landings. Flight tracks (incoming and outgoing), aircraft operations, and mix are given in Appendix L. All civilian and commercial operations were assumed to follow standard glide slopes and takeoff profiles provided by the INM database (FAA, 1982). Military operations were assumed to follow standard glide slopes and takeoff profiles provided by NOISEMAP.

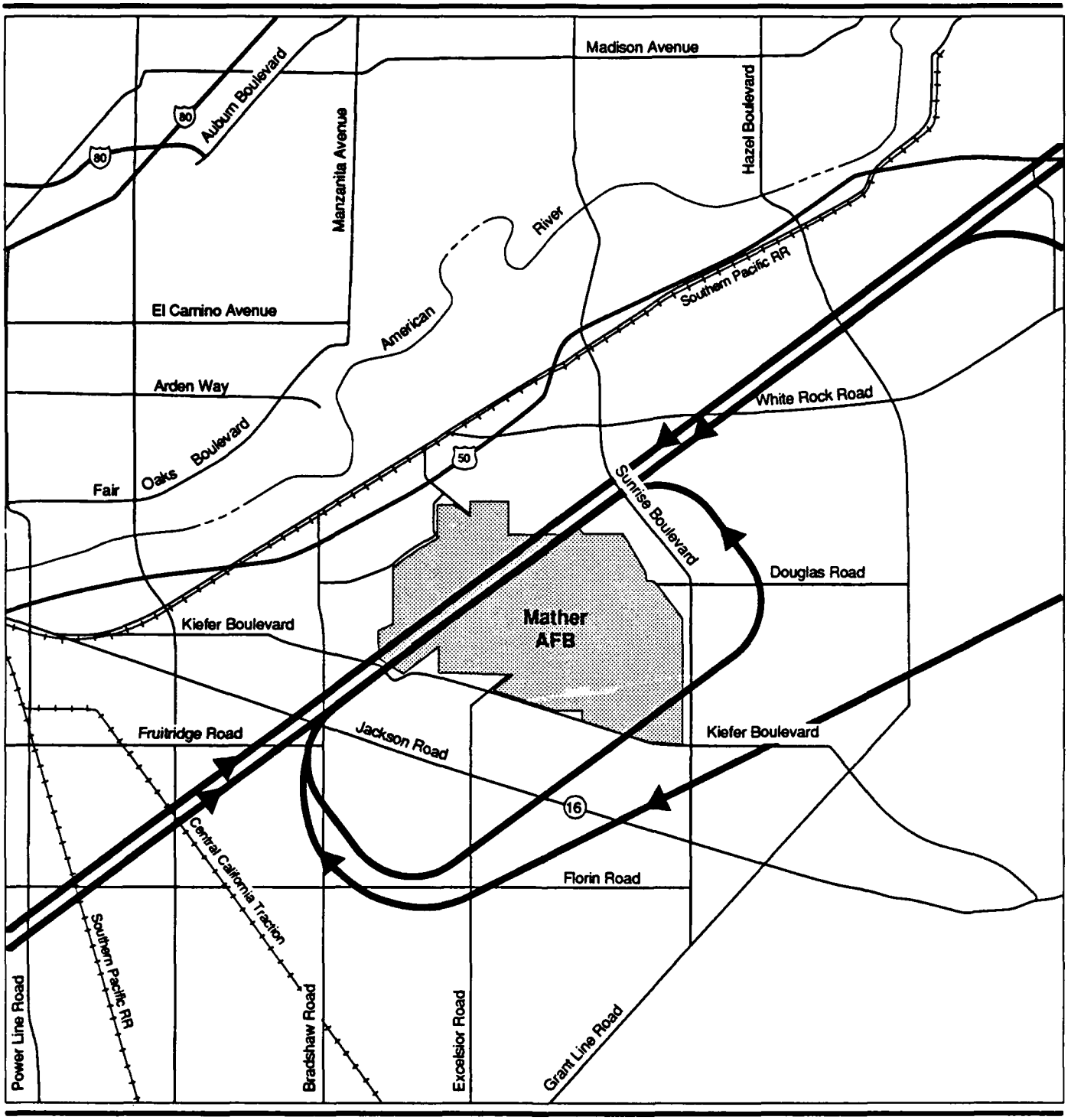
Major roads leading to or around the base were analyzed. Traffic data derived from information gathered in the traffic study presented in Section 4.2.3 for major roads leading to or around the base were used to project future noise levels. Traffic data used in this analysis are presented in Appendix L.

Typical mining equipment and corresponding source noise levels are presented in Appendix L. Because of the nature of this activity, the types, numbers, and locations of the equipment will vary with time.

4.4.4.1 Proposed Action. Figures 4.4-6 through 4.4-8 show the flight tracks for the Proposed Action and General Aviation with Aircraft Maintenance Alternative. The results of the aircraft noise modeling for the Proposed Action are presented as contours in Figures 4.4-9 through 4.4-12. The contribution due to runup operations is evident as a bump on the contours located along the southeast side of the runway. Table 4.4-16 contains data on the area exposed to aircraft noise of DNL 65 or more and the estimated population exposed for each of the study years.

The FAA required conversion of Stage II to Stage III aircraft are accounted for in the modeling. The modeled aircraft operations reflect the phaseout by replacing the 727-200 (Stage II) with MD-80 (Stage III). Based on the certificatin test results presented in the FAA Advisory Circular 36-1E (FAA, 1988b) the MD 80 is approximately 10 dB quieter than the 727-200 for departures and approximately 12 dB quieter for approaches. Note that military aircraft are exempt from the phaseout.

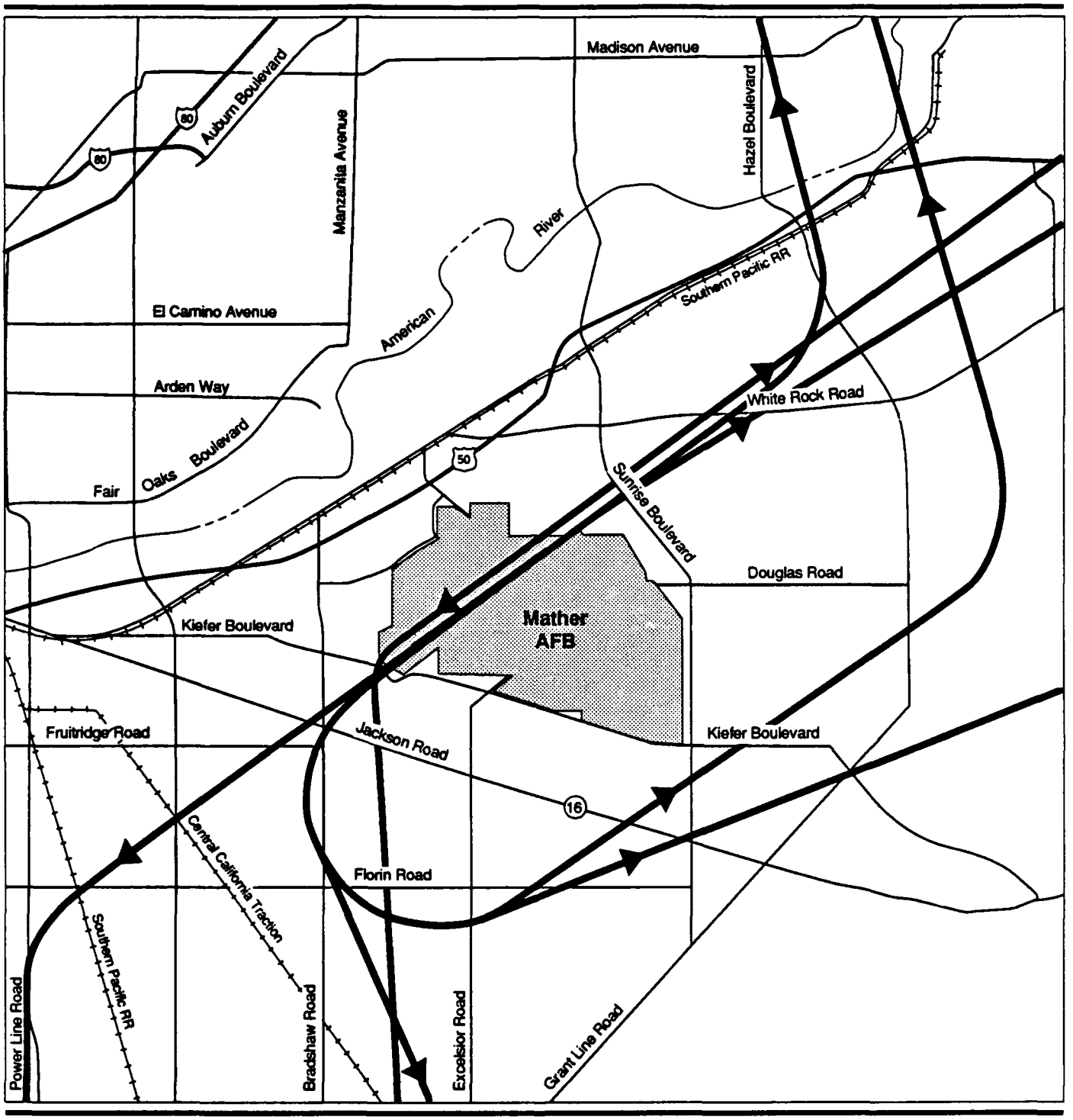
Analysis suggests that for the Proposed Action, some aircraft overflights would affect the sleep of some residents in the area. For all years, the noisiest plane overall would be the military transport C-5A, while the noisiest civilian aircraft would be the 747-200. The most common military aircraft for all years is the KC-135E. The most common civilian aircraft for the years 1999 and 2004 would



Arrival Flight Tracks

0 1/2 1 2 Miles

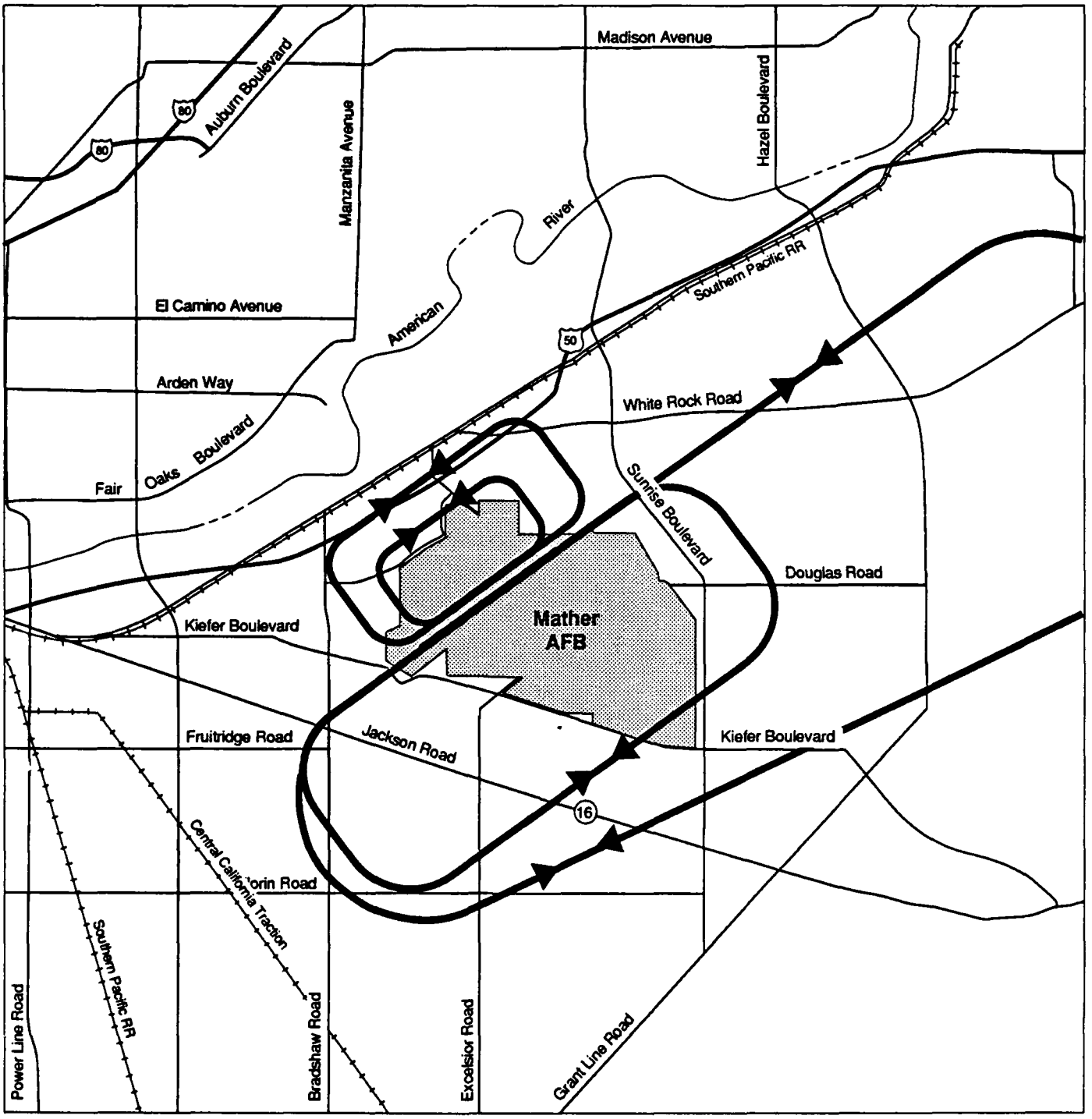
Figure 4.4-6



Departure Flight Tracks

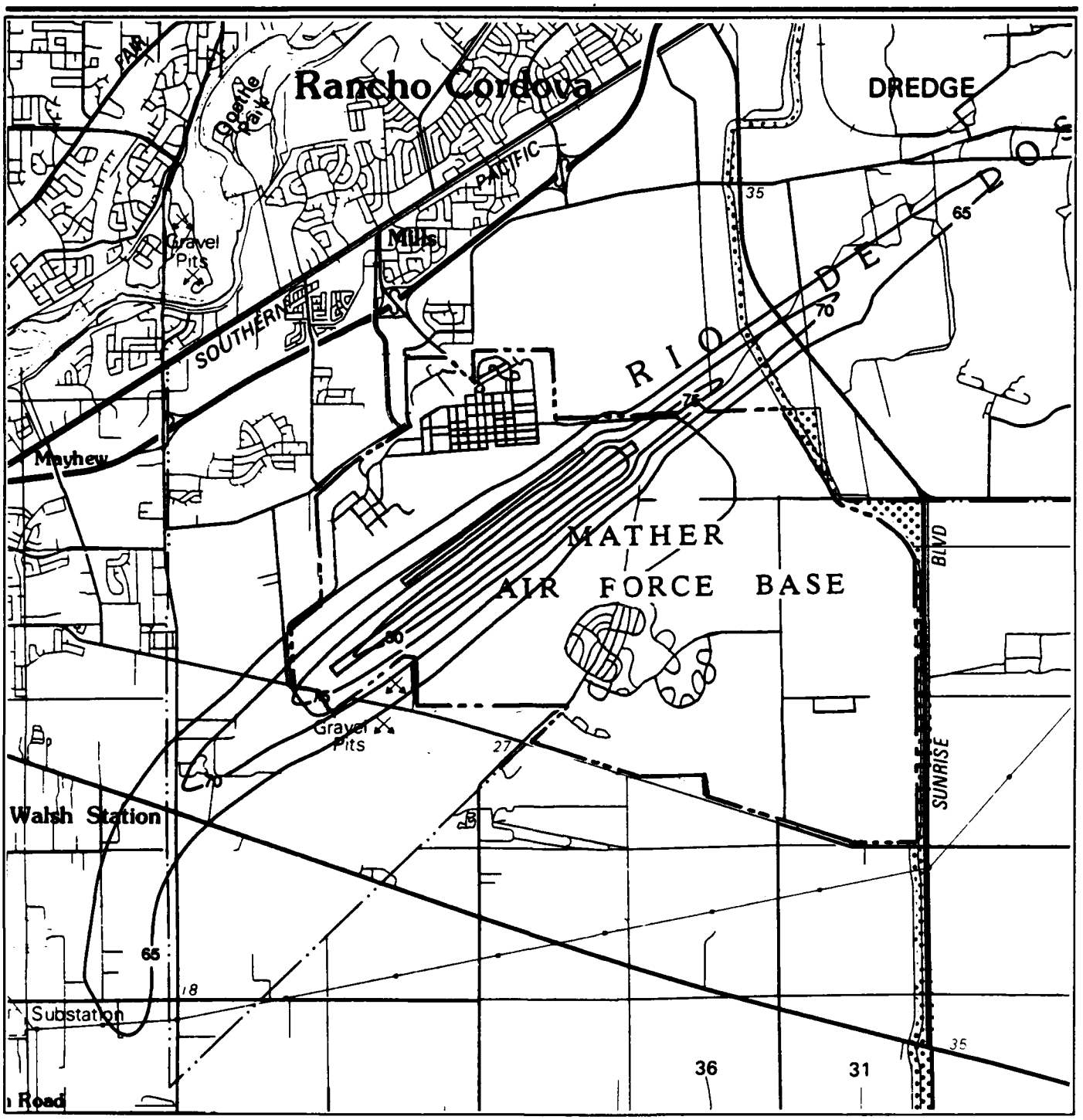
0 1/2 1 2 Miles

Figure 4.4-7



Touch and Go Flight Tracks

Figure 4.4-8



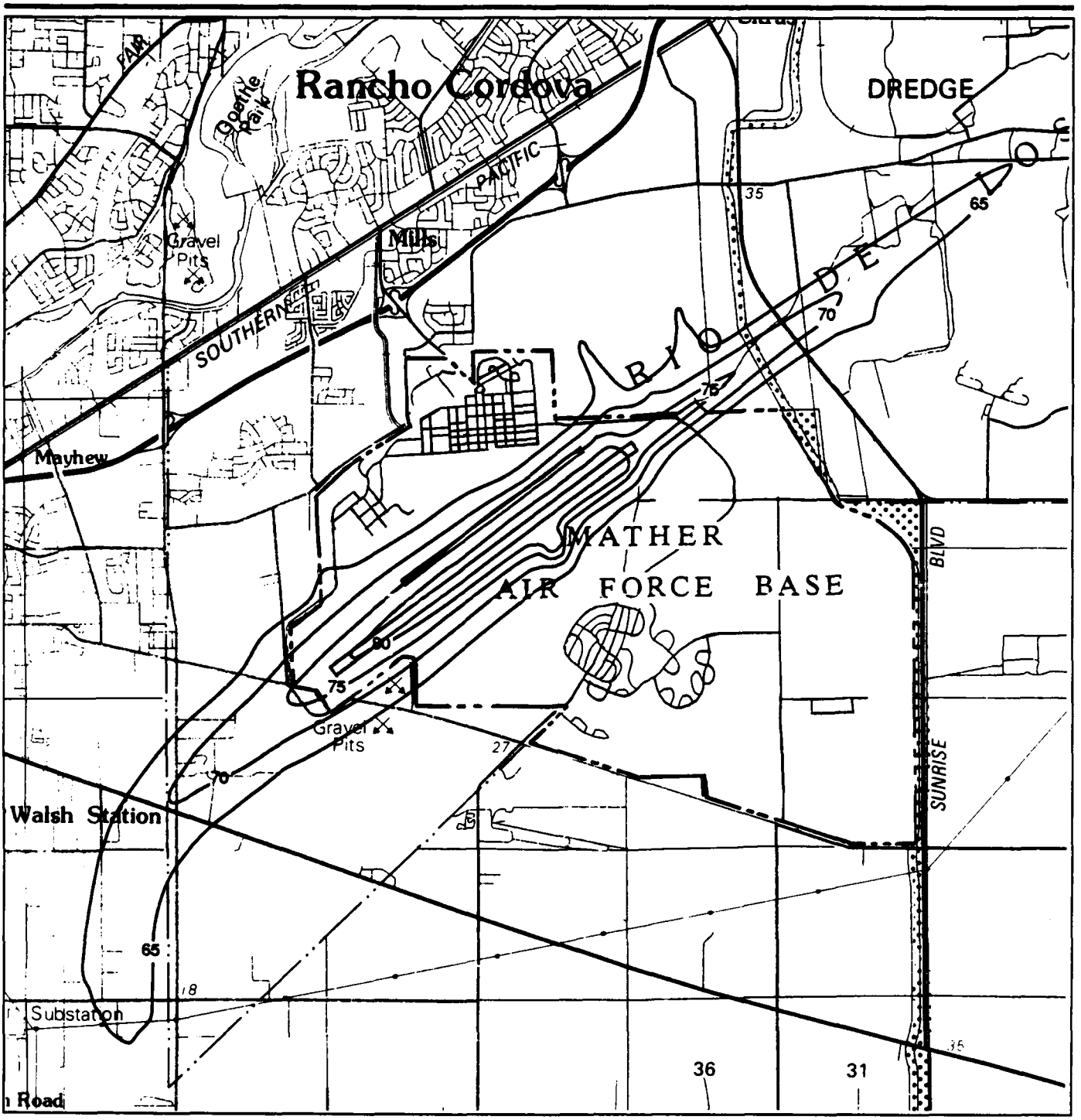
EXPLANATION

—65— Contours of Aircraft Noise (DNL in dBA)

DNL Noise Contours-Proposed Action (1994)

0 .25 .5 1 Mile

Figure 4.4-9



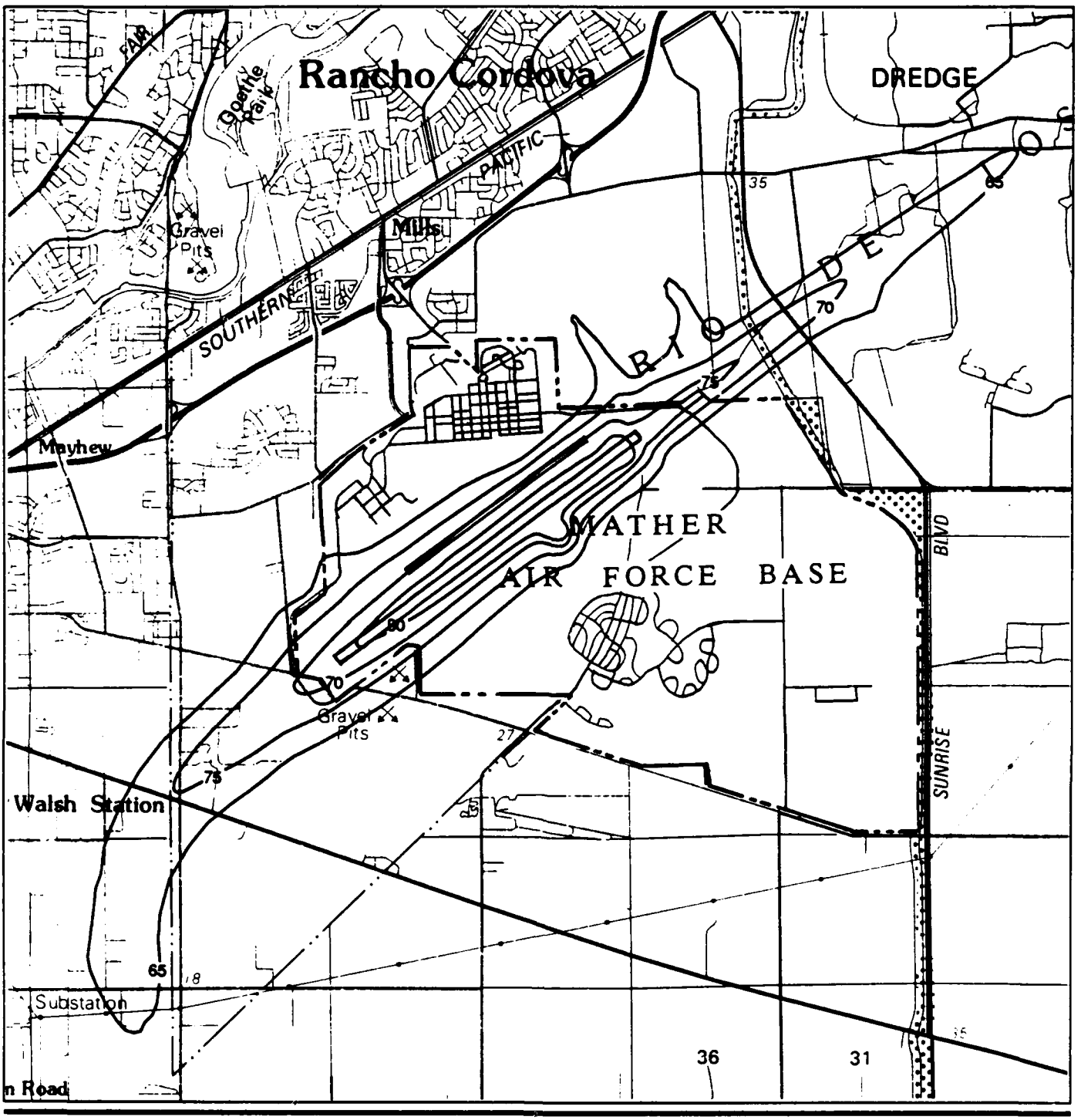
EXPLANATION

—65— Contours of Aircraft Noise (DNL in dBA)

DNL Noise Contours- Proposed Action (1999)

0 .25 .5 1 Mile

Figure 4.4-10



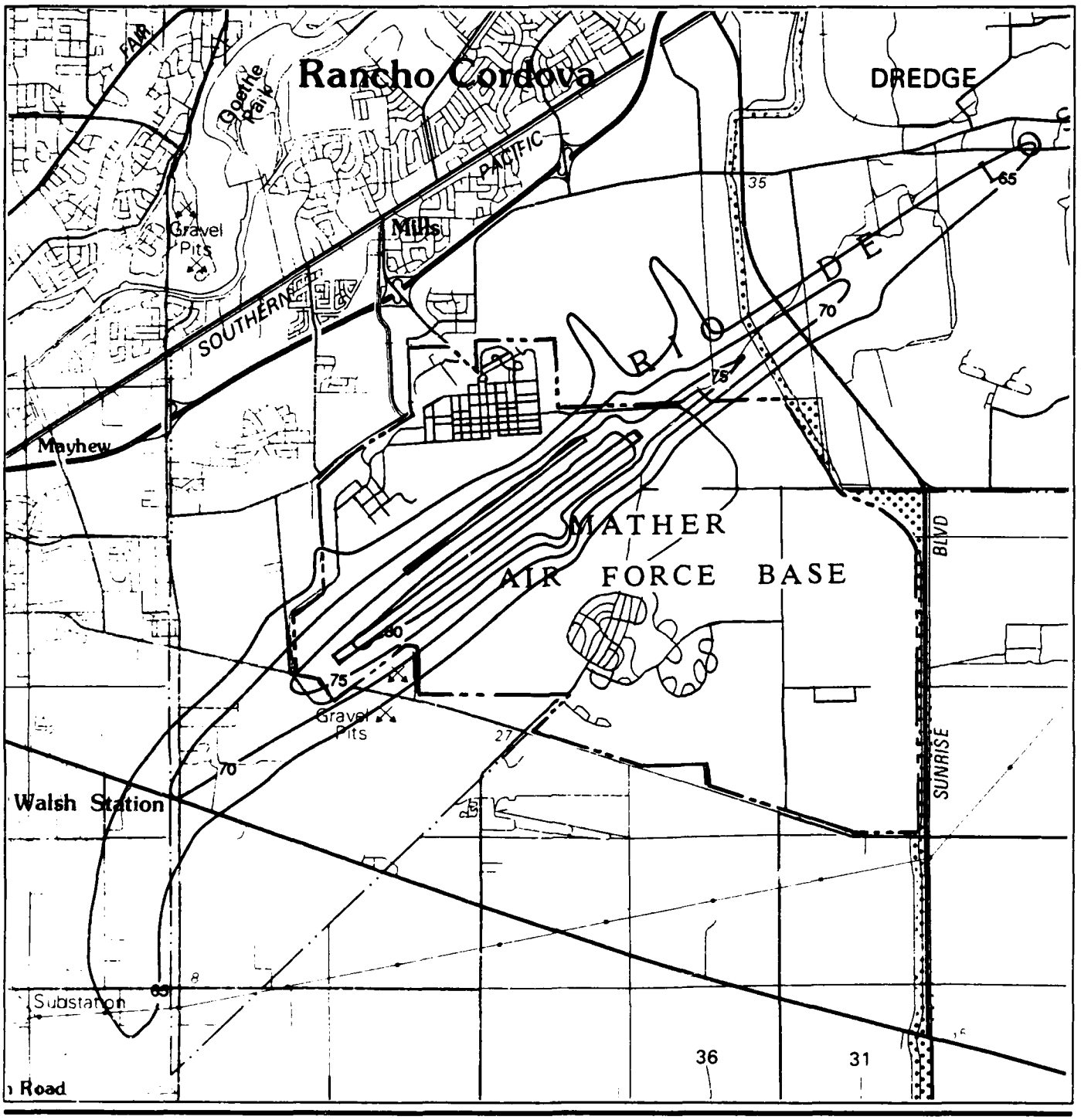
EXPLANATION

—65— Contours of Aircraft Noise (DNL in dBA)

DNL Noise Contours - Proposed Action (2004)

0 .25 .5 1 Mile

Figure 4.4-11



EXPLANATION

—65— Contours of Aircraft Noise (DNL in dBA)

DNL Noise Contours-
Proposed Action (2014)

0 25 5 1 Mile

Figure 4.4-12

be the business jet. By the year 2014 the 757-200 would be the most common civilian aircraft. The noisiest civilian aircraft were determined from the

Table 4.4-16. Noise Exposure Greater than 65 DNL for the Mather AFB Alternative Development Plans

Year	Alternative	Area within Noise Contour (acres)		Approximate Population Exposed[(a)]
		Off-Base	On-Base	
1994	Proposed Action	1,441	1,252	60-70
	General Aviation with Aircraft Maintenance Alternative	1,489	1,257	60-70
1999	Proposed Action	1,707	1,376	60-70
	General Aviation with Aircraft Maintenance Alternative	1,635	1,346	60-70
2004	Proposed Action	1,761	1,386	60-70
	General Aviation with Aircraft Maintenance Alternative	1,664	1,362	60-70
2014	Proposed Action	1,878	1,417	60-70
	General Aviation with Aircraft Maintenance Alternative	1,714	1,180	60-70

Note: (a) population exposed to aircraft noise.

A-weighted maximum sound level (Lmax) as presented in the FAA Advisory Circular AC-36-3E (FAA, 1988). The noisiest military aircraft were determined using the NOISEMAP database. The SEL was calculated at representative residential locations for the noisiest and most common jet aircraft and the results are presented in Table 4.4-17.

Surface traffic sound levels are presented by representative year in Table 4.4-18. These levels are presented in terms of DNL as a function of distance from the centerline of the roadways analyzed. By the year 1999, it is estimated that no people will reside within areas exposed to DNL 65 and above due to surface traffic; this number would increase to 127 people by the year 2014.

A further site specific envirnonmental impact analysis would be required to identify potential mining noise impacts and mitigation measures. Based on the county code, noise levels at the property line would be limited as a condition of the permit; therefore, it was assumed that there would be no noise impacts due to mining activities.

Cumulative Impacts. No cumulative impacts have been identified from noise sources for the Proposed Action.

Mitigation Measures. Measures that could be considered to reduce the effects of airport noise include:

- **Operational measures** - Change takeoff, climbout, or landing procedures; change flight tracks, limit or rotate primary runway usage; enforce

Table 4.4-17. Approximate SEL (dB) Levels for Selected Locations (Noisiest and Most Common Aircraft)

Receptor No.	Community	Receptor Location Description	Sound Exposure Level Aircraft Type					
			B-727	B-747	B-757	Business Jet (Citation I)	KC-135E	C-5A
1	Sheldon	Intersection of Grant Line Road and Wilton Road	92	88	72	63	87	64
2	Walsh Station	Intersection of Bradshaw Road and Jackson Road	109	98	89	84	105	112
3	Walsh Station	Intersection of Bradshaw Road and Elder Creek Road	97	83	76	78	92	103
4	Florin	Intersection of Florin Road and Power Inn Road	93	85	76	69	63	66
5	Rosemont	Intersection of Rosemont Drive and Kiefer Boulevard	83	67	63	51	73	79
6	Rosemont	County Juvenile Center	93	76	74	68	86	94
7	Rosemont	Intersection of Old Placerville Road and Happy Lane	85	70	73	66	79	91
8	Rancho Cordova	Intersection of Mills Park Drive and White Rock Road	78	64	61	53	71	82
9	Mather AFB	Anders Drive (northernmost point)	87	74	70	59	81	97
10	Mather AFB	Base Hospital	85	71	68	61	78	93
11	Mather AFB	Dormitory on Base	88	74	70	65	81	97
12	Mather AFB	Alert Apron	94	81	76	76	88	109
13	Fair Oaks	Intersection of Madison Ave and Hazel Ave	78	70	72	46	72	63
14	Folsom	Intersection of Folsom Boulevard and Bidwell Street	81	75	62	53	74	69
15	Other	Intersection of Douglas Road and Sunrise Boulevard	78	75	61	53	71	97

Table 4.4-18. Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the Proposed Action

		Distance (ft) DNL 65	Number of People	Distance (ft) DNL 70	Number of People	Distance (ft) DNL 75	Number of People
1999	Mather Field Drive	70	0	•	N/A	•	N/A
	Old Placerville Road	70	0	40	0	•	N/A
	Zinfandel Drive	90	0	30	0	•	N/A
	Excelsior Road	70	0	30	0	•	N/A
	Douglas Boulevard	60	0	•	N/A	•	N/A
	Kiefer Boulevard West	50	0	•	N/A	•	N/A
	Routiers Road North	30	0	•	N/A		N/A
2004	Mather Field Drive	100	5	40	0	•	N/A
	Old Placerville Road	100	0	40	0	•	N/A
	Zinfandel Drive	140	0	50	0	30	0
	Excelsior Road	110	0	40	0	•	N/A
	Douglas Boulevard	90	0	30	0	•	N/A
	Kiefer Boulevard West	80	0	30	0	•	N/A
	Routiers Road North	50	0	•	N/A	•	N/A
2014	Mather Field Drive	150	89	50	0	•	N/A
	Old Placerville Road	140	0	60	0	•	N/A
	Zinfandel Drive	210	0	70	0	30	0
	Excelsior Road	160	3	60	0	•	N/A
	Douglas Boulevard	130	0	50	0	•	N/A
	Kiefer Boulevard West	120	0	40	0	•	N/A
	Routiers Road North	90	35	30	0	•	N/A

• Contained within roadway.

prescribed flight track use and fan out departure flight tracks; prohibit or limit Stage 2 aircraft operations.

- **Preventive measures** - Acquire undeveloped land adjacent to the runway that is exposed to aircraft noise of DNL 65 dBA or greater; restrict residential and hospital development to areas outside the DNL 65 contour.
- **Management measures** - Impose curfews, impose noise-related landing fees, develop noise monitoring systems, establish a community relations office.
- **Remedial measures** - Acquire mobile home sites and single-family housing areas exposed to aircraft noise of DNL 70 dB or greater; redevelop mobile home sites to other compatible uses; establish and conduct a sound attenuation program for single-family residences, schools, hospitals, and churches in areas exposed to aircraft noise of 65 dB or greater.

Barrier walls could be used to mitigate surface traffic noise along roadways with impacts. A noise barrier analysis would be necessary to determine the optimum locations, height, and/or feasibility of the barrier wall. Other mitigation measures such as a sound attenuation program could be implemented to reduce interior noise levels for sensitive receptors exposed to DNL 65 dB or greater. Preventive measures such as restricting residential development to areas outside DNL 65 dB and incorporating barriers into community development can be used for future development. The effectiveness of the operational and management mitigation measures presented here cannot be completely determined without extensive modeling.

4.4.4.2 Non-Aviation with Mixed-Density Residential Alternative. For this alternative, there would be no airport activity and, therefore, no aircraft noise impacts.

Surface traffic sound levels are presented by representative year in Table 4.4-19. These levels are presented in terms of DNL as a function of distance from the centerline of the roadways analyzed. By the year 1999, approximately 459 people are estimated to reside within areas exposed to DNL 65 and above; this number would increase to 1,042 people by the year 2014.

As in the Proposed Action, a further site specific environmental impact analysis would be required to identify potential mining noise impacts and mitigation measures. Based on the county code, noise levels at the property line would be limited as a condition of the permit, therefore it was assumed that there would be no noise impacts due to mining activities.

Cumulative Impacts. No cumulative impacts have been identified from noise sources for surface traffic from this alternative.

Mitigation Measures. Barrier walls could be used to mitigate surface traffic noise along roadways with impacts. A noise barrier analysis would be necessary to determine the optimum locations, height, and/or feasibility of the

Table 4.4-19. Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the Non-Aviation with Mixed-Density Residential Alternative

		Distance (ft) DNL 65	Number of People	Distance (ft) DNL 70	Number of People	Distance (ft) DNL 75	Number of People
1999	Mather Field Drive	250	203	90	0	60	0
	International Drive	160	116	60	0	*	N/A
	Routiers Road South	150	0	50	0	*	N/A
	Excelsior Road	120	0	40	0	*	N/A
	Kiefer Boulevard West	140	0	50	0	*	N/A
	Routiers Road North	130	140	40	0	*	N/A
	Zinfandel Drive	100	0	30	0	*	N/A
2004	Mather Field Drive	300	273	110	27	50	0
	International Drive	190	173	70	0	*	N/A
	Routiers Road South	180	0	60	0	*	N/A
	Excelsior Road	140	0	50	0	*	N/A
	Kiefer Boulevard West	170	0	60	0	*	N/A
	Routiers Road North	150	189	50	0	*	N/A
	Zinfandel Drive	120	0	40	0	*	N/A
2014	Mather Field Drive	400	513	140	68	60	0
	International Drive	260	278	90	16	*	N/A
	Routiers Road South	240	0	80	0	*	N/A
	Excelsior Road	190	0	70	0	*	N/A
	Kiefer Boulevard West	230	0	80	0	*	N/A
	Routiers Road North	210	251	70	5	*	N/A
	Zinfandel Drive	170	0	50	0	*	N/A

* Contained within roadway.

barrier wall. Other mitigation measures such as a sound attenuation program could be implemented to reduce interior noise levels for sensitive receptors exposed to DNL 65 dB or greater. Preventive measures such as restricting residential development to areas outside DNL 65 dB and incorporating barriers into community development can be used for future development. The effectiveness of the operational and management mitigation measures presented here cannot be completely determined without extensive modeling.

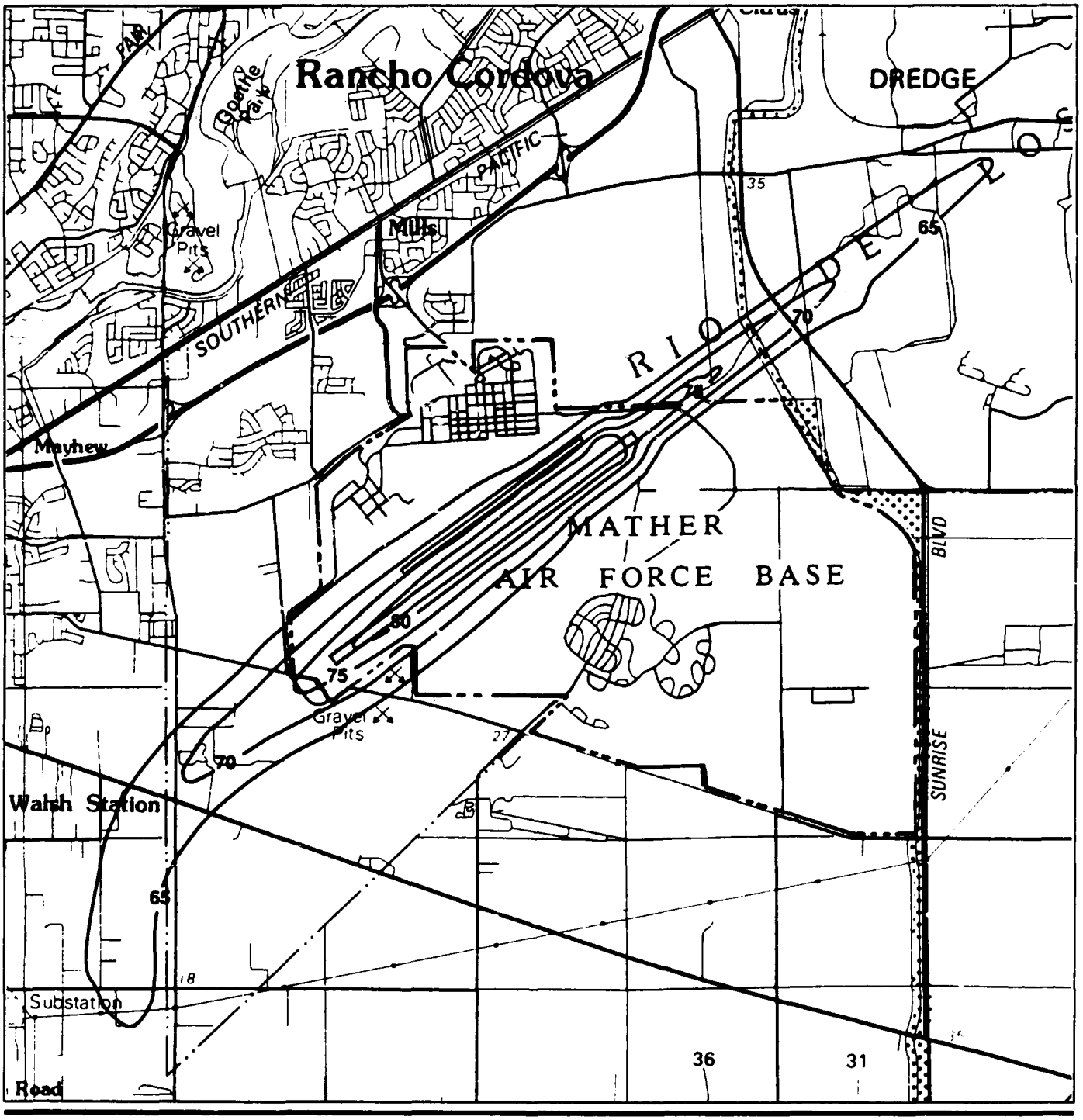
4.4.4.3 General Aviation with Aircraft Maintenance Alternative. Flight tracks for this alternative are shown in Figures 4.4-6 through 4.4-8. The results of the aircraft noise modeling for this alternative are presented as contours in Figures 4.4-13 through 4.4-16. The contribution due to runup operations is evident as a bump on the contours located along the southeast side of the runway. Table 4.4-16 presents the area exposed to aircraft noise of DNL 65 or more and the estimated population exposed for each of the study years.

The FAA required conversion of Stage II to Stage III aircraft are accounted for in the modeling. The modeled aircraft operations reflect the phaseout by replacing the 727-200 (Stage II) with MD 80 (Stage III). Based on the certification test results presented in the FAA Advisory Circular 36-1E (FAA, 1988b) the MD 80 is approximately 10 dB quieter than the 727-200 for departures and approximately 12 dB quieter for approaches. Note that military aircraft are exempt from the phaseout.

Analysis suggests that for this alternative some aircraft overflights would affect the sleep of some residents in the area. For all years, the noisiest plane overall would be the military transport C-5A, while the noisiest civilian aircraft would be the 747-200. The most common military aircraft for all years is the KC-135E. The most common civilian aircraft for all years would be the business jet. The noisiest civilian aircraft were determined from the Lmax as presented in the FAA Advisory Circular AC-36-3E (FAA, 1987). The noisiest military aircraft were determined using the NOISEMAP database. The SEL was calculated at representative residential locations for the noisiest and most common jet aircraft and the results are presented in Table 4.4-17.

Surface traffic sound levels are presented by representative year in Table 4.4-20. These levels are presented in terms of DNL as a function of distance from the centerline of the roadways analyzed. No people are estimated to reside within areas exposed to DNL 65 and above due to surface traffic for the year 1999; this number would increase to 140 people by the year 2014.

As in the Proposed Action, a further site specific environmental impact analysis would be required to identify potential mining noise impacts and mitigation measures. Based on the county code, noise levels at the property line would be limited as condition of the permit, therefore it was assumed that there would be no noise impacts due to mining activities.



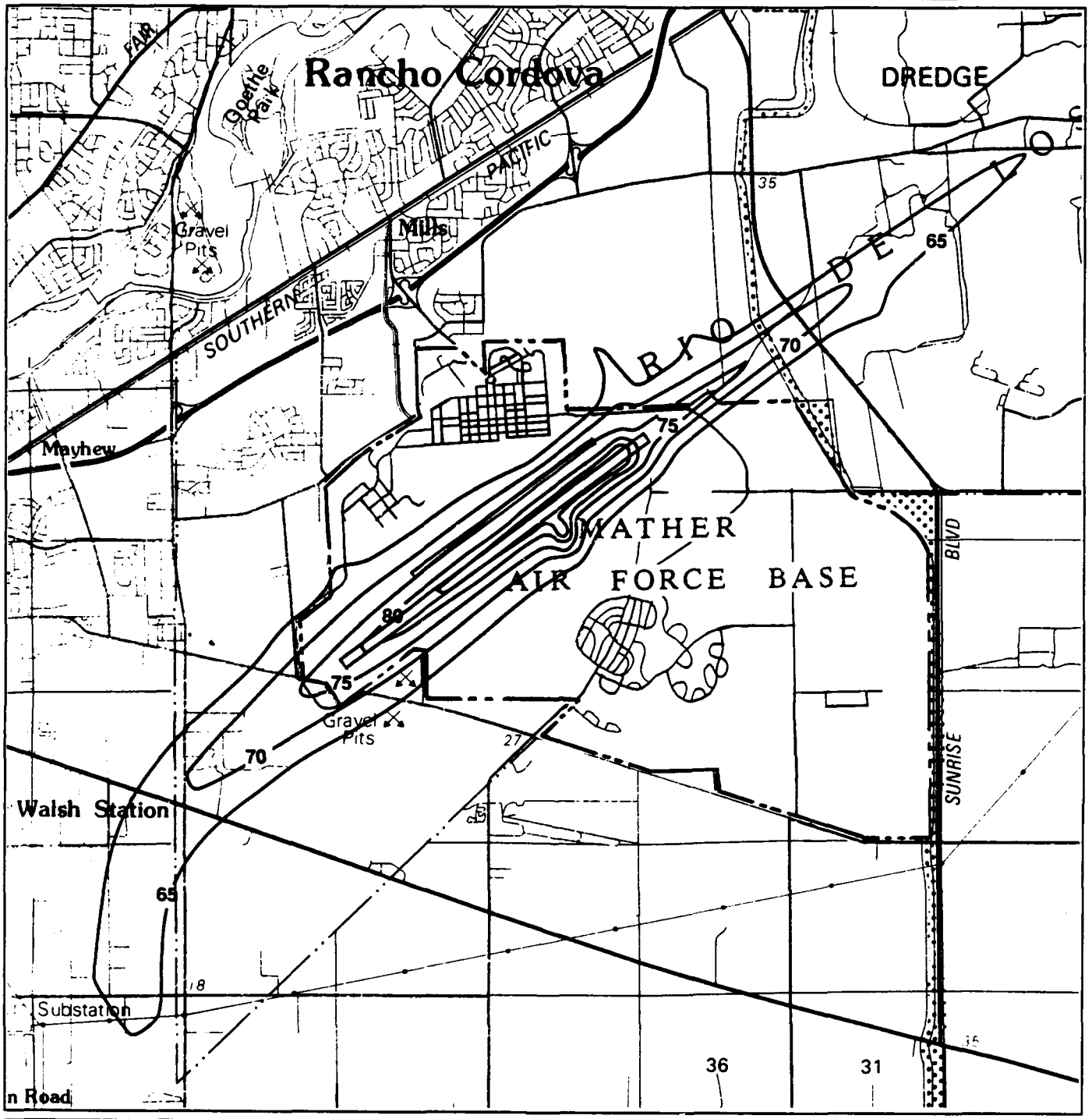
EXPLANATION

—65— Contours of Aircraft Noise (DNL in dBA)

DNL Noise Contours - General Aviation with Aircraft Maintenance Alternative (1994)

0 .25 .5 1 Mile

Figure 4.4-13



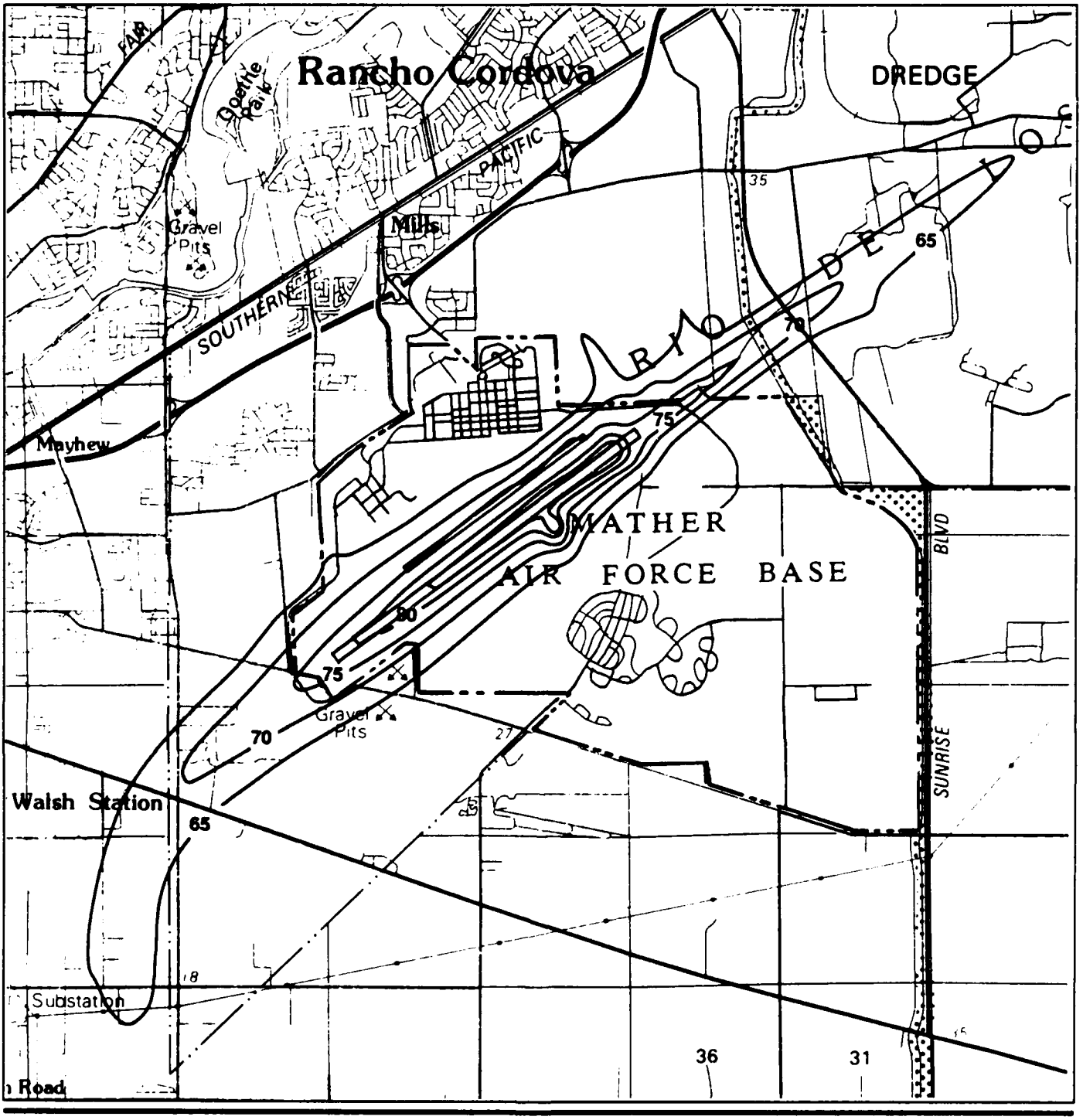
EXPLANATION

—65— Contours of Aircraft Noise (DNL in dBA)

DNL Noise Contours - General Aviation with Aircraft Maintenance Alternative (1999)

0 .25 .5 1 Mile

Figure 4.4-14



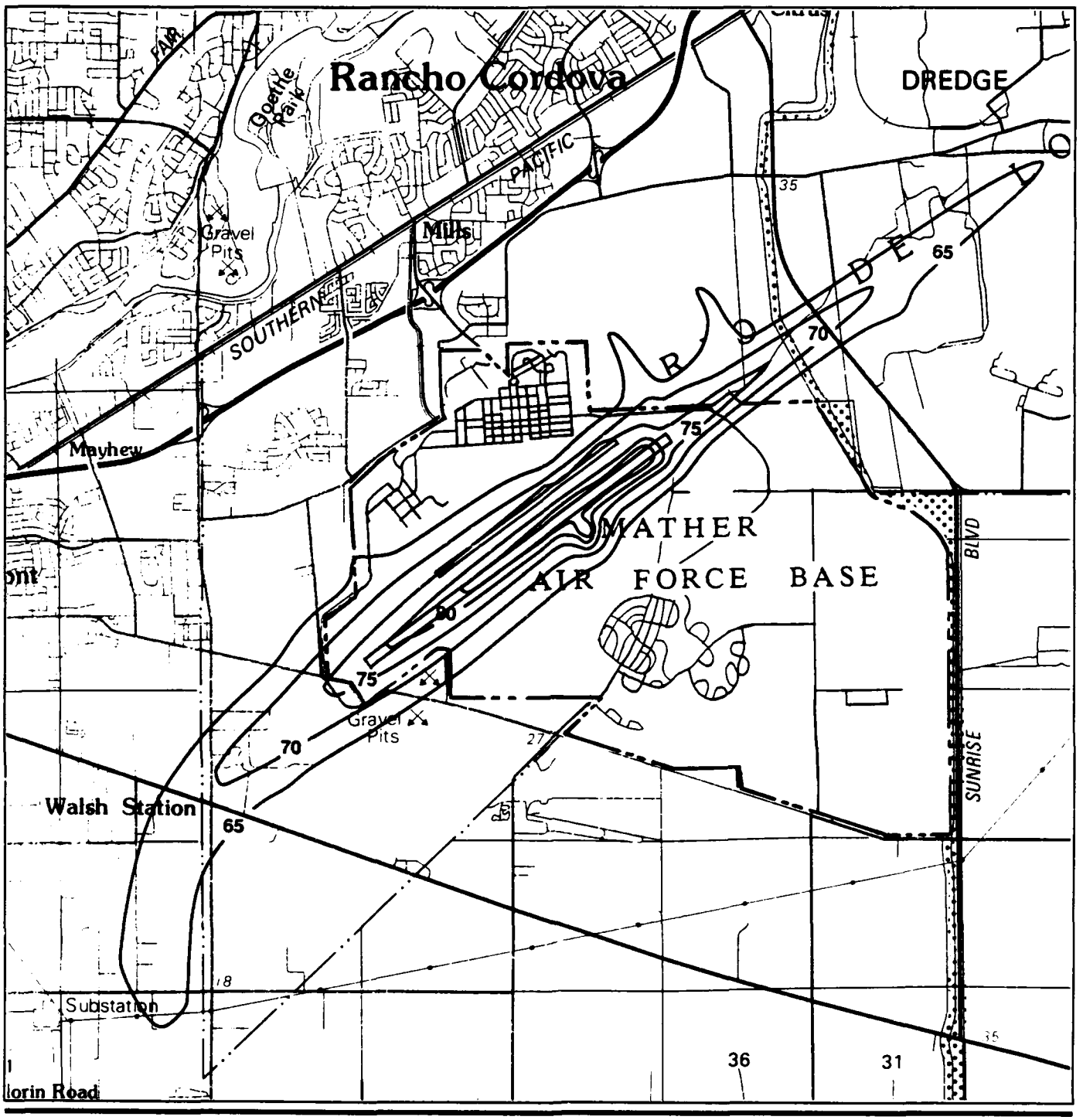
EXPLANATION

—65— Contours of Aircraft Noise (DNL in dBA)

DNL Noise Contours - General Aviation with Aircraft Maintenance Alternative (2004)

0 .25 .5 1 Mile

Figure 4.4-15



EXPLANATION

—65— Contours of Aircraft Noise (DNL in dBA)

DNL Noise Contours - General Aviation with Aircraft Maintenance Alternative (2014)

0 .25 .5 1 Mile

Figure 4.4-16

Table 4.4-20. Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the General Aviation with Aircraft Maintenance Alternative

		Distance (ft) DNL 65	Number of People	Distance (ft) DNL 70	Number of People	Distance (ft) DNL 75	Number of People
1999	Mather Field Drive	70	0	*	N/A	*	N/A
	Old Placerville Road North	70	0	40	0	*	N/A
	Zinfandel Drive	100	0	40	0	*	N/A
	Excelsior Road North	70	0	30	0	*	N/A
	Douglas Boulevard	60	0	30	0	*	N/A
	Kiefer Boulevard West	60	0	*	N/A	*	N/A
	Routiers Boulevard North	40	0	*	N/A	*	N/A
2004	Mather Field Drive	100	5	40	0	*	N/A
	Old Placerville Road	100	0	40	0	*	N/A
	Zinfandel Drive	140	0	50	0	*	N/A
	Excelsior Road North	110	0	40	0	*	N/A
	Douglas Boulevard	90	0	30	0	*	N/A
	Kiefer Boulevard West	80	0	30	0	*	N/A
	Routiers Road North	60	0	*	N/A	*	N/A
2014	Mather Field Drive	160	105	60	0	*	N/A
	Old Placerville Road	150	0	60	0	*	N/A
	Zinfandel Drive	230	0	80	0	30	N/A
	Excelsior Road North	180	0	60	0	30	N/A
	Douglas Boulevard	140	0	50	0	*	N/A
	Kiefer Boulevard West	130	0	50	0	*	N/A
	Routiers Road North	90	35	30	0	*	N/A

* Contained within roadway.

Cumulative Impacts. No cumulative impacts have been identified from noise sources for this alternative.

Mitigation Measures. Measures which could be considered to reduce the effects of airport noise would be the same as for the Proposed Action.

Barrier walls may be a possible way to reduce the surface traffic noise along roadways for which impacts have been identified. A noise barrier analysis would be necessary to determine the optimum locations, height, and/or feasibility of the barrier walls.

4.4.4.4 Non-Aviation with Low-Density Residential Alternative. For this alternative there would be no airport activity and therefore no aircraft noise impact.

Surface traffic sound levels are presented by representative year in Table 4.4-21. These levels are presented in terms of DNL as a function of distance from the centerline of the roadways analyzed. Approximately 600 people are estimated to reside within areas exposed to DNL 65 and above in the year 1999; this number would increase to 1,331 people by the year 2014.

As in the Proposed Action, a further site specific analysis would be required to identify potential mining noise impacts and mitigation measures. Based on the county code, noise levels at the property line would be limited as a condition of the permit, therefore it was assumed that there would be no noise impacts due to mining activities.

Cumulative Impacts. No cumulative impacts have been identified from noise sources for surface traffic from this alternative.

Mitigation Measures. Barrier walls could be used to mitigate surface traffic noise along roadways with impacts. A noise barrier analysis would be necessary to determine the optimum locations, height, and/or feasibility of the barrier wall. Other mitigation measures such as a sound attenuation program could be implemented to reduce interior noise levels for sensitive receptors exposed to DNL 65 dB or greater. Preventive measures such as restricting residential development to areas outside DNL 65 dB and incorporating barriers into community development can be used for future development. The effectiveness of the operational and management mitigation measures presented here cannot be completely determined without extensive modeling.

4.4.4.5 Other Land Use Concepts. This section discusses the noise effects of each independent land use concept described in Section 2.3.4 of this study. For two transfers with adequate traffic data (Caltrans R&D Center and the Theme Park), noise effects due to traffic are estimated using data from Section 4.2.3 of this report. For three other plans (U.S. Department of Agriculture Forest Service, State of California Department of Forestry, and Sacramento County

Table 4.4-21. Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the Non-Aviation with Low-Density Residential Alternative

		Distance (ft) DNL 65	Number of People	Distance (ft) DNL 70	Number of People	Distance (ft) DNL 75	Number of People
1999	Mather Field Drive	290	262	100	5	50	0
	International Drive	180	149	60	0	*	N/A
	Routiers Road South	170	0	60	0	*	N/A
	Excelsior Road North	140	0	50	0	*	N/A
	Kiefer Boulevard West	160	0	60	0	*	N/A
	Routiers Road North	150	189	50	0	*	N/A
	Zinfandel Drive	120	0	40	0	*	N/A
2004	Mather Field Drive	360	424	130	57	50	0
	International Drive	230	235	80	5	40	0
	Routiers Road South	210	0	80	0	40	0
	Excelsior Road North	170	0	60	0	*	N/A
	Kiefer Boulevard West	200	0	70	0	*	N/A
	Routiers Road North	180	216	60	0	30	0
	Zinfandel Drive	150	0	40	0	*	N/A
2014	Mather Field Drive	460	624	170	108	60	0
	International Drive	310	386	110	27	40	0
	Routiers Road South	280	0	100	0	40	0
	Excelsior Road North	220	0	80	0	30	0
	Kiefer Boulevard West	270	0	90	0	*	N/A
	Routiers Road North	240	321	80	8	30	0
	Zinfandel Drive	200	0	60	0	*	N/A

* Contained within roadway.

15.0 BIOLOGICAL RESOURCES

15.1 Comment: The giant garter snake, formerly a candidate species, was proposed for listing as endangered on December 27, 1991. (15-1)

Response: The text has been revised in response to the comment. Text has been added to Section 3.4.5.3 and 4.4.5.1 describing the proposed listing of the giant garter snake, and Appendix N has been amended to reflect the change in status of that species.

15.2 Comment: The U.S. Fish and Wildlife Service has been petitioned to list the three fairy shrimp and one tadpole shrimp species as threatened or endangered. Findings have indicated that the petitions may be warranted. (15-2)

Response: The text in Section 3.4.5.3 and in Appendix N has been revised in response to the comment.

15.3 Comment: Several candidate species for federal listing were omitted from Section 3.4.5.3, threatened and endangered species. (15-3)

Response: The text has been revised in response to the comment. Section 3.4.5.3 provides a summary discussion of candidate species. Appendix N contains the updated listing of threatened and endangered species.

15.4 Comment: The FEIS should include the results of studies of vernal pools and calculate the acreage of wetlands located on base. (15-4)

Response: The delineation of wetlands on Mather AFB was completed after publication of the DEIS. The text in Sections 3.4.5 and 4.4.5 have been updated accordingly.

15.5 Comment: The filling of wetlands under the Proposed Action would eliminate all invertebrate inhabitants in the 62 acres of vernal pools and drainage channels subject to impact. (15-5)

Response: The text has been revised in Section 4.4.5.1 in response to this comment.

15.6 Comment: The giant garter snake and western spadefoot toad would be adversely affected by implementation of the Proposed Action, since both species are dependent upon wetland habitat. (15-6)

Response: The text has been revised in Section 4.4.5.1 in response to this comment, and specific reference to the giant garter snake and western spadefoot toad has been added.

15.7 Comment: Cumulative impacts associated with the Proposed Action should include a calculation of the total wetland acreage potentially impacted by gravel mining and urban development projects in Sacramento County. The Proposed Action's contribution to regional wetland losses should be addressed in quantitative terms. (15-7)

Response: The text has been revised to identify the number of acres of wetlands potentially impacted by each land use category including aggregate mining. However, estimates of potential adverse impacts to regional wetlands by future developments is highly speculative and difficult to ascertain. Such projects are subject to wetland protection or restoration requirements under provisions of Section 404 of the Clean Water Act. Wetlands consisting of less than one acre (generally, isolated wetlands of dubious function and biological productivity) are allowed to be developed without restoration requirements under the provisions of U.S. Army Corps of Engineers Nationwide Permit 26.

Wetlands potentially affected by the Proposed Action will be subject to the provisions of Executive Order 11990 and/or the provisions of Section 404 of the Clean Water Act. In either event, protection or mitigation requirements for affected wetlands will be required of the future property owners.

15.8 Comment: The likelihood of success of mitigation measures designed to minimize impacts to wetlands and proposed and candidate species should be addressed in the document. (15-8)

Response: The probability of success of given mitigation measures has been incorporated into Chapter 4.0, Environmental Impacts, where such a discussion is appropriate. However, only general mitigations have been provided for this analysis. The development of specific, detailed measures is premature at this time, due to the conceptual nature of the reuse scenarios. When actual specific project-related impacts are identified by the reuse project proponent, then detailed mitigation measures must be identified. As is emphasized in Section 4.4.5.1 under Mitigation Measures, Executive Order 11990 requires appropriate restrictions on the use of properties containing wetlands when conveying such lands to non-federal parties. Actual mitigations will be determined through negotiations between the project proponent and involved regulatory agencies including USFWS, CDFG, and Corps of Engineers.

15.9 Comment: The EIS does not provide sufficient direction to ensure protection of sensitive biological resources. The project proponent

must survey the area for wetland habitats and develop a plan to avoid or mitigate negative impacts. The mitigation measures in Section 4.4.5.1 should be expanded accordingly. (17-1)

Response: The Air Force has completed a wetlands and vernal pool survey. The text has been updated to reflect the latest results. The reuse proponent will be required to develop a plan and implement mitigation measures to minimize or eliminate adverse effects. The general mitigation measures in the document are sufficient to support the Air Force decision regarding property disposal. As reuse plans mature, the reuse proponent will be able to develop more detailed mitigation measures.

15.10 Comment: The FEIS should include a plan that either ensures impacts to sensitive species will be avoided or specific mitigation will be required as development occurs. Permits may be necessary if impacts to threatened or endangered species are anticipated. (17-2)

Response: As with the discussion of wetlands (See response to Comment 15.9), the reuse proponent will be required to develop a plan and specify these plans in any necessary permit application.

15.11 Comment: Based on information provided in the DEIS, the project does not comply with Section 404 of the Clean Water Act. (19-30)

Response: The DEIS addresses potential impacts based on possible reuse alternatives. When the eventual project proponent clarifies the scope of the actual project, environmental impact analyses will be conducted. Any potential impacts to "waters of the United States" will be identified at that time.

15.12 Comment: Pursuant to Section 4 of the Executive Order on Wetlands (E.O. 11990), the Air Force must ensure, prior to disposal of the federal lands, that wetlands are fully protected. (19-31)

Response: Placing restrictions on federal lands prior to conveyance to non-federal interests is a possible means of mitigating or avoiding adverse impacts to wetlands. This is discussed in Section 4.4.5.1, under Mitigation Measures.

15.13 Comment: The DEIS has not clearly demonstrated whether the Proposed Action or any of the alternatives is the least damaging practicable alternative for base reuse since each alternative contains several projects. The FEIS, therefore should provide a general analysis of each proposed project, pursuant to Section 404 of the Clean Water Act. This analysis should contain sufficient information to determine which of the alternative configurations best meets the least-environmentally damaging criteria while achieving each project's basic purpose. (19-33, 19-34)

Response: Section 4.4.5 of this document has been revised in response to the comment. The number of acres of wetlands potentially impacted by each land use category has been identified to assist in future decision making.

15.14 Comment: Aggregate mining should either be evaluated as an alternative or the alternatives should be presented by considering each without a mining option to accurately represent impacts to groundwater and wetlands. (19-36)

Response: See response to Comment 15.13.

15.15 Comment: The acreages representing projected wetland impacts on page S-15 and in Table S-6 are not consistent. (19-38)

Response: The text has been revised in response to the comment and those inconsistencies have been corrected.

15.16 Comment: The FEIS should delineate all "waters of the United States" and provide data on expected wetland losses by specific impact type. (19-39)

Response: See response to Comment 15.13.

15.17 Comment: The FEIS should provide figures which show "waters of the United States" as well as non-jurisdictional wetlands, and an overlay of these wetlands and waters with each of the proposed developments. (19-40)

Response: Figure 3.4-3 shows wetlands, vernal pools, and open waters with the existing conditions at the base. As has been mentioned earlier, any potential impact to wetlands or vernal pools is speculative at this point, since changes or refinements to the eventual project may very well occur.

15.18 Comment: The Air Force should coordinate with the USFWS to ensure that federally listed species would not be jeopardized. (19-41)

Response: When the proposed project is determined, the project proponent shall be responsible for coordination with USFWS, the CDFG, and local agencies to determine impacts to endangered, threatened, and candidate species for listing. The Air Force has already consulted with USFWS on an informal basis to determine which listed or candidate species may be present on or near the base.

15.19 Comment: Actions which may further the decline of candidate species for listing should be avoided. (19-42)

Response: Measures to offset impacts are listed in the EIS. If the status of species changes, it will be the responsibility of the future owners of the property to develop avoidance or mitigation measures, in consultation with USFWS and CDFG.

15.20 Comment: Surveys for vernal pool invertebrates which are candidate species for listing as threatened or endangered have not been performed for the proposed project. Surveys should be conducted and the results included in the FEIS. (19-43)

Response: Surveys have been completed since preparation of the DEIS and the results have been incorporated in the FEIS.

15.21 Comment: The DEIS does not provide a detailed mitigation plan to compensate for unavoidable impacts to waters of the United States. Such a plan should be included in the FEIS and should be made part of the property conveyance. (19-44)

Response: The Air Force does not have proposed reuse plans that contains the specificity necessary to determine whether discharge of dredge or fill materials will, in fact, occur in wetlands. The acreage of adversely affected wetlands discussed in the EIS are estimates based on general reuse plans or hypothetical alternatives developed by the Air Force for environmental comparison to fulfill NEPA requirements. Detailing a specific mitigation plan in the EIS, at this juncture, would be premature and unreasonably speculative. Actual post-disposal development of the property may include mitigation by avoidance of wetland areas, minimization of impacts, or compensation in the form of replacement wetlands. Specific plans for implementing reuse or development of the property and for mitigation of wetlands loss will be subsequently developed by the transferee. The Air Force will fulfill its responsibilities under Executive Order 11990 (Protection of Wetlands) prior to conveying the property to reuse agencies and parties.

15.22 Comment: The DEIS should describe means of enhancement of biodiversity on the base. (19-72)

Response: The responsibility for habitat recreation or specific revegetation plans lies with the future owners of the property. At the time of planning for the development of the proposed project, it would be appropriate for the project proponent to discuss revegetation schemes with USFWS and CDFG and develop plant palettes which could incorporate native vegetation in landscaping and restoration plans.

15.23 Comment: The document should address the impacts of surface aggregate mining in vernal pools to a greater extent. (22-26)

Response: Aggregate mining plans are speculative at this point but were mentioned in order to assess potential impacts. Vernal pools, as wetlands, would fall under the provisions of Executive Order 11990, which requires protective restrictions for wetlands prior to conveyances of federal lands to non-federal interests.

15.24 Comment: The statement that the loss of hardpan structure cannot be reasonably mitigated does not provide supporting data. Restoration experience indicates that vernal pools can be recreated. (23-4, 23-5)

Response: A pilot project for vernal pool restoration has been undertaken south of Mather Air Force Base in conjunction with an aggregate mining project. Construction and monitoring was initiated in 1990 to test vernal pool construction techniques on a small scale prior to full scale project development.

Six vernal pools were constructed, and analysis of monitoring data for the first year indicates that all six pools met hydrologic success criteria, and an average of 14 wetland species were observed in each pool. Monitoring is to continue through the 1995-96 growing season. Ultimate success of the methods employed will be clearer after the conclusion of the pilot program.

15.25 Comment: Vernal pools have yet to be successfully recreated. (24-5)

Response: Literature does exist on the success of vernal pool restoration in the state of California. Vernal pools differ in composition throughout the state owing to variations in soil pH and other factors, but vernal pools have been recreated successfully (R. Mitchell Beauchamp, Pacific Southwest Biological Services, personal communication). The criteria for the success of vernal pool restoration are established in consultation with the USFWS and CDFG and are designed to ensure that at a minimum, no net loss in vernal pool acreage and habitat quality occur. In most instances, more replacement acreage is required in order to ensure that these criteria are met.

16.0 CULTURAL RESOURCES

16.1 Comment: The term "negative results" in reference to consultation with the Native American Heritage Commission should be more clearly defined. (19-79)

Response: The text has been revised in response to the comment.

17.0 SOCIOECONOMIC IMPACT ANALYSIS STUDY

No comments were received concerning the SIAS.

INDEX OF COMMENTORS

Page	Document #	Author	Title Agency
9-53	1	Transcript of Public Hearing	
9-59	2	Patricia K. Sledge	Chief, Site Selection and Environmental Review Branch, U.S. Department of Justice, Federal Bureau of Prisons
9-59	3	Rita Nogaj	Individual
9-60	4	Robert M. O'Loughlin	Chief, Planning Research Branch C, Department of Transportation, Dist. 3
9-60	5	Earl Workman	Commander of VFW Post 10125
9-61	6	Hugh H. Line	Individual
9-61	7	Ann Dahlquist and Family	Individual
9-61	8	Ann Dahlquist and Family	Individual
9-63	9	Norman C. Miles	Individual
9-64	10	Karen A. Juten	Individual
9-65	11	Judy Pease	Individual
9-65	12	Kenneth W. Holt	Special Programs Group, Department of Health & Human Services
9-66	13	Marcella A. Carey	Individual
9-66	14	Samuel R. Decker	Individual
9-66	15	Patricia Sanderson Port	Regional Environmental Officer, U.S. Department of the Interior
9-67	16	Carol Whiteside	Assistant Secretary, Intergovernmental Relations, The Resources Agency of California
9-68	17	Boyd Gibbons	Director, California Department of Fish and Game
9-68	18	Jack R. Stevens	Faber & Associates
9-71	19	Deanna Wieman	Director, Office of External Affairs U.S. Environmental Protection Agency
9-78	20	R.E. Anderson	Individual
9-80	21	Tracie L. Billington	Associate Waste Management Engineer, Site Mitigation Branch, Department of Toxic Substances Control
9-8C	22	R. Dee Reynolds	Executive Director, Base Reuse and Realignment, County of Sacramento Office of the County Executive
9-87	23	John M. Taylor	Hackard, Taylor & Phillips
9-88	24	Barbara Renzi	Individual
9-88	25	Rob Gregg	Planning Manager, Sacramento Regional Transit District

The hearing commenced at 1900 hours, 14 January 1992.

MATHER AFB DISPOSAL AND REUSE EIS
PUBLIC HEARING - 14 JANUARY 1992

Colonel William Thompson:

Good evening and welcome to the public hearing on the Environmental Impact Statement on the disposal and reuse of Mather AFB, California. This is the public hearing on the Draft Environment Impact Statement for the disposal and reuse of Mather AFB. I am Colonel Bill Thompson and I will be the presiding officer for tonight's meeting.

This hearing is being held in accordance with provisions of the National Environmental Policy Act and implementing regulations. The Act requires federal agencies to analyze the potential environmental impacts of certain proposed actions and alternatives, and to consider the findings of those analyses in deciding how to proceed.

On the 5th of December of 1990, a scoping meeting was held at this same facility to get your input on the scope of the Environmental Impact Statement or "EIS". Now, since that meeting, the Air Force has studied the identified environmental concerns and has prepared and it has prepared and distributed a draft of the EIS.

The purpose of tonight's hearing is to receive your comments, suggestions, and your criticisms of the draft EIS. For those of you who have not had an opportunity to read or review the draft EIS, you may want to read the summary of the major findings of that EIS in the handout that was available to you as you entered the hearing room tonight. The findings of that study as presented in the Draft EIS will also be addressed by the panel members who are with me tonight.

Before introducing the members of the panel to my right, I'd like to explain a little bit about what my role will be in this hearing. I am a military judge and serve principally as the presiding judge in Air Force courts-martial cases. This is something different for me. It's sort of a welcome diversion. I normally see a panel of criminals in front of me rather than concerned citizens.

I would like to emphasize that I'm not here as an expert on this Draft EIS, nor have I had any connection with the development of the Draft EIS. I am not here to act as a legal advisor to the Air Force or to the representatives of the Air Force who will address the proposals that are in the Draft EIS. My purpose is simply to ensure we have a fair, orderly hearing -- and that everyone who wishes to speak or make an input in this process would have an opportunity to do that.

Now, I'd like to introduce the members of the public hearing panel. On my immediate right is Mr. John Carr, representing the Air Force Base Disposal Agency at the Pentagon. He will describe for you the Air Force base disposal process. To his right is Lt Col Tom Bartol. Lt Col Bartol is the Director of the Environmental Planning Division of the Air Force Regional Civil Engineer's Office at Norton AFB, California. He will brief you on the environmental

impact analysis process and also summarize for you the results reported in the Draft EIS.

This informal meeting is intended to provide a continuing public forum for two-way communication about the Draft EIS, and that's primarily with a view to improving the overall decision-making process.

Now, I did use a couple of important words in describing to you the purpose of this hearing. Please notice that I said it's a two-way communication. In the first part of the hearing process, our most knowledgeable folks will brief you on details of the actions and the anticipated environmental impacts. The second part of the process will give you an opportunity to provide information, make statements for the record, and to give your input which will ensure the decision makers may benefit from your knowledge of the local area and any adverse environmental effects you think may result from the proposed action or the alternative actions.

Now, let me say what this hearing is not. It's not a debate, it's not a referendum, and there's not going to be a vote on the alternative actions analyzed in the EIS. Those things don't add anything to the hearing and simply waste the time that's available to you to make your personal input into the decision-making process. The focus of the meeting is on the environmental impacts associated with the proposals being studied by the Air Force. Comments on non-environmental issues should not be raised at this hearing.

When you came in tonight, you were provided an attendance card and you were asked to indicate on that attendance card if you wished to speak tonight. After Mr. Carr and Lt Col Bartol have finished their presentations and we have a recess, I'm going to recognize people from the audience and give them an opportunity to make their inputs or to make any statements that they desire to make about the Draft EIS. Now, I'm going to recognize people using those meeting attendance record cards, the same ones that you were given at the door. Now, if you feel that you want to make a statement and you want to participate in the process, you are most welcome to do that, but I would ask that you fill out a card and based on my past experience in doing these, please print your name because I have difficulty reading some folks' handwriting. I'm sure they would have difficulty reading mine, too, but I will use those cards and I will call on you from the audience in a random order and I'll give you an opportunity to speak and to make your input. I will first recognize elected officials and then I will recognize folks from the public at large in a random order.

Now, if you don't feel like standing up here tonight and making a statement orally, you still have until February 4th of this year, to submit a copy of any statements you want to make for the Air Force's consideration prior to publishing the Final EIS. The Air Force will continue to accept comments after February 4th, but the Air Force cannot guarantee late comments will be included in the Final EIS. Special sheets are provided at the entrance table as you came in for your use in making these comments. Even if you make comments tonight, if you speak tonight or you give us written comments tonight, you still the opportunity to submit any written comments, in addition to what you may say tonight and you should do that to the address shown on the

slide and on the bottom of the comments sheets to the attention of Lt Col Bartol.

Whether a statement is made verbally, or submitted in writing, whether it's submitted tonight or later, the statement will have the same impact and will be considered to the same extent, so don't feel like you have to speak tonight if you prefer to wait and submit something in writing prior to the 4th of February.

Please don't be shy or hesitant to make a statement. I do want to ensure that everyone who wishes to speak does have a fair chance to be heard.

You may have noticed down in front of you that we have a court reporter here, Mrs. Judy Richardson, from Mather AFB, who will take down, verbatim, everything that is going on tonight. The verbatim record will become a part of the Final EIS. I ask you to give her a little bit of consideration and make her job a little bit easier. I sometimes forget to do that when I have her in court, and it will be a help if you could help her and me. If you want to make a statement and I recognize you, please start your statement by identifying yourself by name and giving your address so that Judy can enter that into the record and so that the record will reflect who you are and where you live and if you're representing a particular group, you can announce that you're doing that. If your speaking as a private citizen, just say that you're speaking as a private, concerned citizen. I would ask that you also assist me in enforcing some relatively simple ground rules.

First, only speak after I recognize you; and please address your remarks to me. If you have a written statement that you want to present, you can put it in the wooden box which is on the dias in front of you here, which would be immediately beside the podium for you to use if you do speak.

I ask that you speak clearly and slowly and that you talk into the microphone, starting with your name, address, and the capacity in which you appear. If you are representing a group or you're an elected official, or your just acting as a private citizen. Again, that will help Judy prepare a complete transcript of the entire hearing.

Each person will be recognized for five minutes. That includes public officials, designated spokespersons, and private individuals. We are going to have a timekeeper, Lt Ken Gray, who will be available so that you can see him while you're talking and he's going to assist you by having two cards. He'll have a yellow card and when four and a half minutes have passed, he'll hold up that yellow card so that you can see it. And then at the end of five minutes, he's going to raise a red card and I will ask you to keep in mind, please do summarize your remarks, wrap them up in the time period between the time you see the yellow card and the time you see the red card. So, when the red card comes up, you'll know that you've had your five minutes.

Please honor any requests that I may make for you to stop speaking. If you have more comments than you will be able to present in five minutes, I'd suggest you might want to prioritize your comments to ensure the most important comments are addressed first.

Please don't speak while another person is speaking. I'm only going to recognize one person at a time.

Finally, kindly refrain from smoking in this room.

I would appreciate your cooperation in abiding by all these rules. And we'll monitor the times and we'll try to enforce those rules and the rules are intended to make sure that everybody has a complete and fair and equal opportunity to be heard on this important subject.

One thing I can't stress enough -- you may have information about environmental inputs that are unknown to us. We are very interested in having and analyzing all the potential environmental impacts of the proposed action and the alternatives. You have experience that comes from living in this area, so this second part of today's communication, the part that flows from you to us, is very important. Please don't hesitate to be a part of the proceedings and to provide us with that information that only you may have.

Again, you may submit a statement in writing either tonight or at any time prior to February 4th. Statements should be mailed to the address shown on the comment sheet and in the booklet and regardless of whether you read your statement into the record tonight, or submit it in writing, it will receive equal consideration and will be equally reflected in the record of proceedings.

I do thank you all for coming tonight. Your presence is commendable in that it reflects a great interest in your community and in the proposed action and its effect on the Rancho Cordova and the Sacramento communities.

It's now my pleasure to introduce Mr. John Carr, and Mr. Carr will describe for you the Air Force Base Disposal Process.

MR. JOHN CARR

Thank you, Colonel Thompson. My name is John Carr, and I work at the office at the Pentagon created to manage the disposal of Air Force bases closed under the authorities of the two Base Closure and Realignment Laws. In discussing the Air Force's proposed action of disposing of Mather AFB, I'd like to cover four general topics.

First is disposal planning; second is the objective used by the Air Force to guide its planning; third, is disposal considerations it will use to arrive at a decision; and lastly is the Air Force decision itself. That is, what action the Air Force will take based on the findings in the EIS and the other considerations.

The Secretary of the Air Force has been delegated the authority to act as the Federal Disposal Agent under the 1988 Base Closure and Realignment Act and the Defense Base Closure and Realignment Act of 1990 to utilize or dispose of the federal property which makes up the Air Force's closing bases. Usually, this responsibility rests with the General Services Administration (GSA). Despite this change, the traditional statutes for disposal of federal property are

still in effect. The Air Force must adhere to the laws and GSA regulations that are in place at the time of the passage of the closure acts. The Air Force has also issued additional policy and procedures required to implement our delegated authority. Another provision of both acts requires us to consult with the state Governor and heads of local governments for the purpose of considering any plan for the use of such property by the local community concerned. We are meeting this consultation requirement by working with the County of Sacramento.

Finally, our plan recognizes that the Secretary of the Air Force has full discretion in determining how the Air Force will dispose of the property.

The Air Force recognizes the significant economic impact closure will have on the local communities and it is the Air Force's goal to complete closures as quickly and efficiently as possible. The federal government and the Air Force is committed to assisting communities in their efforts to replace the departing military activities with viable public and private enterprises. We are in the process of developing a comprehensive disposal plan which attempts to balance the needs of the community, the environmental consequences of our disposal decision, and the needs of the Air Force.

However, Congress only provided startup capital for implementation of the realignments and closures. Revenues from property sales will be used to offset the funding shortfall.

The disposal of property is accomplished in a three-part planning process which includes: the Air Force's preparation of an Environmental Impact Statement, which analyzes the various reasonable disposal and reuse alternatives for the base, the community's plan for the future use of the property, and the Air Force's disposal plan which analyzes the various disposal options. The disposal plan is based on a thorough real estate analysis of the base and the region, results from the EIS, interest shown by other federal agencies, and inputs from the community reuse organization. The EIS process culminates with the issuance of a record of decision, which documents the decisions for the disposal of the real property and specifies what environmental mitigations may be needed to protect human health and the environment as a result of the disposal and reuse decisions selected.

Under current law, other federal agencies and homeless assistance providers must be given priority consideration in the use and acquisition of excess base real property. It is the Air Force policy to inform the local community representatives of any expressed interest from federal agencies of homeless assistance providers. We encourage all parties to communicate openly with each other during the disposal planning process. It should be noted that federal agencies generally work with the community to solicit support for their proposal to acquire property. Moreover, it has been the Air Force's experience that such uses for a portion of the property and facilities can be accommodated within the overall community's planned future uses for the entire base.

In general, the disposal options are: federal agency transfers; public benefit conveyed to states, their political subdivisions and eligible non-profit

institutions; negotiated sales to public agencies, and competitive sales to the general public. The law and regulations governing disposal do not establish a rigid priority for disposal but provide the federal disposal agent with the broad discretion necessary to ensure that all federal real property interests are disposed of in an efficient and effective manner. Therefore, the Secretary of the Air Force will decide on the actual disposal plan. Final disposal decisions will be documented in the record of decision.

The last subject I'd like to address is that of environmental clean-up. The Air Force is committed to cleaning up all areas contaminated by past Air Force activities and protecting the health and safety of the public and any future owners of Mather AFB. In 1989, the Air Force, the Environmental Protection Agency and the State of California signed a Federal Facilities Agreement which formalizes the responsibilities to the parties involved. It specifically addresses known contaminated sources at the ultimate clean-up of the base. Additionally, this agreement contains a schedule detailing taskings and timeframes required to accomplish the clean-up. Meanwhile, interim clean-up activities are continuing and additional studies are underway which will fully characterize contamination of other sites to determine the best means to clean them up. It should be clear that if contaminated areas are not ready for disposal at the time of closure, the Air Force will retain ownership until the property is cleaned up. With others, we may require easements and rights of entry to permit long-term groundwater monitoring and treatment. Nevertheless, despite the Air Force's commitment to clean up all past contaminated areas and protecting the public, we do not expect any clean-up activities to delay the reuse of uncontaminated properties at Mather AFB.

Thank you for the opportunity to meet with you this evening. Now, I'd like to turn the meeting back to Colonel Thompson.

COLONEL THOMPSON

Thank you Mr. Carr. Now, I present Lt Colonel Tom Bartol who will brief us on the environmental process.

LT COLONEL TOM BARTOL

Thank you Colonel Thompson. Good evening, I'm Lt Colonel Tom Bartol from the Air Force Regional Civil Engineers Office at Norton Air Force Base, California. Our organization is conducting the environmental impact analysis process for the disposal and reuse of Mather AFB, as well as for the other four major installations mandated to close during Round I under the Base Closure and Realignment Act.

Tonight, I will present the schedule for this environmental process, and show how the public comment period fits into this schedule. I'll also discuss the scope of the study, and the relationship between the Environmental Impact Statement and the socioeconomic study. Last, I will present the results of our analysis by resource category.

This environmental effort was initiated in February 1989 with the publication

in the federal register of a Notice of Intent to prepare an Environmental Impact Statement, or what I'll refer to as an EIS, for base closure. As you may recall, this effort was divided into two phases, the first phase was the closure environmental work and what we are engaged in now is the disposal and reuse.

In November 1990, the Notice of Intent was filed to prepare an EIS for disposal and reuse.

A scoping meeting was held in December of 1990, to receive public input on the scope of issues to be addressed in the Environmental Impact Statement, and to identify reuse alternatives and the issues related to property disposal. During the scoping process, our office received proposals for reuse both with and without an airport. Both the aviation-oriented and the non-aviation oriented proposals also included residential development, commercial areas, parks and gravel mining. Since aviation proposals were received, the Federal Aviation Administration, or the FAA, Western Pacific Region, was invited, and subsequently agreed, to become a cooperating agency in the preparation of the EIS. The Air Force has worked with the FAA to include their environmental requirements in our environmental process and they are included in this EIS. Following the scoping period, during which we received input and reuse plans from the public and from the County of Sacramento and the Rancho Cordova Chamber of Commerce, we collected the data and conducted the environmental analysis. The Draft Environmental Impact Statement was filed with the U.S. Environmental Protection Agency on December 13, 1991.

In addition to tonight's hearing, written comments on the Draft Environmental Impact Statement will continue to be accepted at this address until February 4th, and that is postmarked on February 4th, 1992. After this period is over, we will evaluate all comments, both written and oral, and perform additional analysis or change the Environmental Impact Statement where necessary. Again, as in the scoping process, equal consideration will be given to all comments. Once the review process is complete, we will produce a Final Environmental Impact Statement, scheduled for completion in April of this year, and mail it to all those on the original Draft Environmental Impact Statement distribution list. If you are not on our mailing list, you can request your own copy of a Final EIS by writing to this address. The Final Environmental Impact Statement will include comments received during the public review period and our responses to those comments.

If appropriate, we will group the comments into categories and respond accordingly. Depending on the number and diversity of comments, the Final Environmental Impact Statement may consist of a separate volume as a companion to the Draft Environmental Impact Statement, or simply be distributed as a cover letter and errata sheets. The document will serve as input to the record of decision, which will document this by the appropriate Air Force decision-maker. As you just heard from Mr. Carr, other studies and consideration of other issues besides those addressed in the Environmental Impact Statement will enter into the final disposal decision. We expect to accomplish the record of decision in late May or June of 1992.

The Draft Environmental Impact Statement was prepared to comply with the

National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) Regulations. Efforts were made to reduce needless bulk, write in plain language, focus only on those issues that are clearly related to the environment, and to integrate with other documents required as part of the decision-making process. Reuse alternatives that were developed during the scoping process were individually analyzed to provide an environmental comparison.

This analysis focuses on impacts to the natural environment that may occur as a direct result of base disposal and reuse, or indirectly through changes in the community. Resources evaluated are geology and soils, water (both surface and groundwater), air quality, noise, biological resources, and cultural resources. Indirect changes to the community that could provide measures against which environmental impacts could be analyzed included changes to the local population, land use and aesthetics, transportation, and community utility services. In addition, the following issues related to current and future use of hazardous materials and hazardous waste clean-up are addressed in the document: hazardous materials management, the Air Force's Installation Restoration Program, asbestos, pesticide usage, polychlorinated biphenyls or PCBs, radon, and medical or biohazardous waste management.

If, as a result of our analysis, it was determined that substantial adverse environmental impacts would occur through the implementation of these proposals, potential mitigation measures were identified and included in the document.

As I mentioned earlier, this Draft Environmental Impact Statement focuses on the impacts to the natural environment that would occur, either directly or indirectly, from the disposal and reuse of Mather AFB. The document addresses socioeconomic factors where there is a relationship between base disposal and changes to socioeconomic conditions that would result in impacts to the natural environment. The Air Force has recently produced a separate socioeconomic study that is not required under the National Environmental Policy Act. It describes in greater detail how disposal and reuse of Mather AFB may economically affect the surrounding area. Specifically, the socioeconomic study addresses the following factors for each of the reuse alternatives: population, employment, housing, public finance, education, government, police and fire, medical, recreation, transportation, and utilities. Copies of this socioeconomic study were recently provided to key federal, state, and local officials and libraries in the surrounding communities. This document will also be forwarded to the decision-maker for input into this decision process.

I would now like to discuss the results reported in the DEIS. In general, the document concluded that there would be changes to the base and surrounding communities that could cause both positive and negative impacts to the natural environment. In addition, generally positive effects would be realized in the areas of hazardous materials and hazardous waste management.

I'll give you first an overview of the proposed action and alternatives that have been analyzed and secondly, I will present a synopsis of the results of our analysis by resource area.

This figure shows the land uses for the proposed action. The focus of the proposed action is the reuse and expansion of existing aviation-related facilities to establish a civilian general aviation airport with air cargo operations. I'd also like to note that the nomenclature or names of these alternatives are presented to give the reader only an overall view of the action. There are other uses that are included in each of these alternatives that are common to either one or more of the alternatives.

Now, on this slide the aviation-related land use areas are indicated in blue. Associated non-aviation land uses includes commercial areas which are in red, residential (in yellow) or in the central of the installation, parks and preserves (in the green areas), and an educational complex (in pink). These mixed land uses would be developed as transit oriented developments and would be linked to the regional transit system. The base hospital (shown in orange) will continue to be owned and operated by the Air Force, in this and all other alternatives. Also, as an integrated part of the development plan, sand and gravel will be mined from the cross-hatched areas before these areas are developed for their subsequent use.

This figure shows the land uses for one non-aviation alternative that was evaluated. The focus of this plan is on residential growth in the areas mapped in yellow again located in the center of the installation. You will notice in this alternative, as in the proposed action, that commercial core areas (in red) are situated within the residential areas. Residences within walking or bicycling distance of these commercial cores would be multi-family units -- hence the name for this alternative is non-aviation with mixed-density residential. Associated land uses include parks and preserves mapped in green, an education complex, (in pink), and the Air Force Hospital (in orange). Also, a large part of the main base will become light industrial (shown in brown). As in the proposed action, the cross-hatched areas will be available for aggregate mining before development occurs. The principal difference between this alternative and the proposed action is that the airfield is replaced by primarily residential neighborhoods.

This figure shows the land uses for a civilian general aviation airport with space for maintenance of transport aircraft. This alternative is similar to the proposed action in that it focuses on aviation reuse. However, the locations of the associated non-aviation land uses are different. The main base is principally intended to be used for commercial, light industrial, and educational purposes (shown in red, brown, and pink, respectively). South and east of the airfield, this alternative calls for low-density single family housing (in yellow), about half of which will be in areas that will be mined for sand and gravel before the housing is built. The mining area is cross-hatched. The residential area is intersected by parks and natural habitat areas (shown in green) developed around wetlands and including the Mather golf course.

This figure shows the land uses for another non-aviation a.tentative The focus of this is two-fold; it provides areas of low-density housing while preserving sensitive natural habitats. New low-density housing is located on the original airfield as well as to the north, south, and east of existing housing stock. The main base area is composed primarily of commercial, light

industrial, medical and educational areas (shown in red brown orange and pink, respectively). Parks and preserves are mapped in green. Mining is cross-hatched.

Now, along with the four plans that I've just described, other land-use concepts have been proposed, which are not part of any specific plan, but could be initiatedon an individual basis. You may think that these other proposals as overlays to be implemented with any of the land-use alternatives. These land use concepts include federal transfers and conveyances to non-federal agencies and private parties. The two spatially largest of these are shown as overlays in this figure. The red color indicates two possible 2000-acre parcels that might be used as a theme park. The northern red area would work best in a non-aviation alternative whereas the southern parcel would apply if the alternative includes an airport. The two brown loops are sites of approximately 500 acres that could be used for a regional transportation research and development center being considered by Caltrans. Again, two sites are shown to accommodate different reuse alternatives.

In the draft EIS, a third independent proposal to site a prison on the base property was identified and analyzed. Recently we received in writing notification that the Bureau of Prisons has withdrawn their request to site a Federal Correctional Facility on Mather AFB.

Hence, that proposal will be eliminated from consideration in the Final Environmental Impact Statement. In addition to these, other requests have been received for the following:

- Hangar, ramp and related office space were requested by the Bureau of Land Management, California Department of Forestry, California National Guard, California Department of Justice, and the Sacramento Sheriff's Department.

- Office space was requested by the U.S. Forest Service, Department of Veterans Affairs, and the U.S. Army.

- Specific education and health facilities were requested by the Department of Health and Human Services, police and sheriff's departments, Cal State Sacramento, State Fire Marshall, Sacramento County Education Office, various school districts and Los Rios Community College.

- Recreation and park area were requested by Sacramento County and the Cordova Park District.

- And finally the Sacramento Housing and Redevelopment Agency has asked for the existing on-base housing stock.

As required by the National Environmental Policy Act, the no-action alternative was also evaluated. The no-action alternative would result if the Air Force retained control of the base property after closure. The property would be closed and maintained in a condition to prevent deterioration. A disposal management team would be provided to ensure base security and maintain the grounds and physical assets, including the existing utilities and

structures. Only the hospital would continue to provide the same service as it does at present, although as an annex of McClellan AFB. No other military activity would be performed on the property.

I would now like to shift to the results of our analysis that are presented in the Draft EIS. You may wish to know that the proposed action and all alternatives were analyzed to the same level of detail. The baseline that we used was Mather AFB at closure. The following slides show the comparative impacts among the reuse alternatives, but don't include the no-action alternative.

Redevelopment of the base will be beneficial to the regional economy. In addition to the direct jobs on site, a substantial number of indirect jobs will be created throughout the region. These additional jobs will increase regional earnings, income and spending. Employment would be phased over a 20-year redevelopment period.

This graph shows the increase in employment in the region due solely to reuse activities at the base projected through the year 2014. In the same time period, other job opportunities in the region are expected to increase by almost 200,000 to a total of about 1,034,000. In comparison, depending on the reuse alternative followed, activities at the site could result in an additional 12,000 to 14,000 direct and indirect jobs, which would be about a one percent addition in the regional job market.

The total population loss, or out-migration, due to the closure of the base is estimated to be as high as 20,000 people of whom 16,000 are military-related. It is estimated that the redevelopment activities will lead to population in-migration to the region. The largest number of people are expected to locate in Sacramento County.

This graph shows the increase in population in the region due solely to reuse activities at the base projected again through the year 2014. In the same time period, other population growth in the region, excluding this growth is expected to increase the regional population by 708,000 to a total of nearly 2.3 million in 2014. Reuse activities at the base in 20 years would further increase the population by 7,000 to 8,000 people, depending on the alternative that is followed. This amounts again to about a one percent increase to the on-going regional population growth.

Land uses in the various development alternatives are generally consistent with zoning presently in place around the base. However, in all alternatives, some areas of proposed residential land use would be incompatible with adjacent off-base industrial zoning. Reuse of the base as a civilian airport appears to be appropriate, given the scarcity of residences in the immediate surroundings. The type and number of aircraft expected to use the airfield will result in reduced noise levels off-base as compared to the current Air Force operations, and could allow more acreage to be developed for housing than presently exist.

All of the alternatives have the potential for visual impact where residential and recreational uses are adjacent or near industrial development, such as

aggregate mining and light industry.

The redevelopment of Mather AFB will affect local and regional transportation networks. Reuse of the site will increase traffic on arterial roads near the base, especially Mather Field Drive, Old Placerville Road, Routier Road, and International Drive.

This graph shows the estimated number of annual average daily trips, projected to the year 2014. For comparison purposes, the number of trips on the roads in 1987 was about 34,000. The number of daily trips to and from the site would range from 86,000 under the proposed action to 194,000 under the non-aviation reuse.

Depending upon the redevelopment alternative implemented, additions and upgrades to the transportation network may be required. Expansion of some off-base roads will improve traffic circulation.

The runway and accompanying facilities are incorporated into two of the prospective redevelopment alternatives. In both alternatives, the majority of flight operations (well over 80%) will be by small general aviation aircraft.

This graph shows the level of annual air operations projected through the year 2014 for each plan, the two aviation alternatives. As a reference, you may want to knowthat approximately 80,000 flight operations occurred at Mather AFB in 1990. The number of annual air operations would increase to about 230,000 in the general aviation with aircraft maintenance and to about 290,000 with the proposed action by 2014. Air operations for these alternatives would include a mix of general aviation, transport aircraft and military aircraft. The number of operations is not expected to exceed the airspace capacity of the region. Under the non-aviation and no-action alternatives, of course, there would be no aviation operations.

Redevelopment of Mather AFB will place demands on local utility systems including: water, wastewater, solid waste, and electricity and natural gas. This table shows the projected utility demand increases for water, wastewater, and solid waste in the region for each of the alternatives. As a reference, the top line shows the total regional demands, projected to the year 2014. For example, total water demand in the region is projected to be 433 million gallons per day.

The bottom portion of the table shows the increases for each. For example, under the proposed action, the total regional water demand is projected to be only 2.1 million gallons per day. For all of the utilities, under all of the alternatives, the incremental increase due to reuse of the base is less than one percent of the regional demand.

This table shows the regional demands for electricity and natural gas.

Infrastructural changes would be required to meet the projected demand under all alternatives. Redesign or reconfiguration may be necessary for some utilities to accommodate particular user-related demands. Individual metering would need to be installed at most locations.

DOCUMENT 1

The Air Force is conducting investigations to identify, characterize, and remediate environmental contamination on Mather AFB that has resulted from past practices. This comprehensive effort is called the Installation Restoration Program, or IRP.

Cleanup activities will be accomplished in accordance with applicable federal and state laws and regulations. Some initial remedial actions will be completed by 1993 with monitoring to continue after base closure. Monitoring of the groundwater is usually a long-term requirement to assure the success of the clean-up.

The Air Force will take all necessary actions for environmental clean-up of the base to protect public health and the environment. Deeds of property transfer will contain this assurance and all property transfers will be conducted in compliance with the Comprehensive Environmental Response, Compensation and Liability Act, otherwise known as CERCLA.

An asbestos survey was completed on base in May 1991, and an asbestos abatement plan has been developed. Implementation of effective asbestos abatement would preclude any reuse problems associated with exposure to friable asbestos.

Polychlorinated biphenyl compounds, called PCBs, were once used extensively in electrical equipment. Recent legislation has put stringent regulations on the manufacture, distribution, and use of PCBs. Prior to base closure, the Air Force will remove from service and properly dispose of all equipment that is not PCB-free or not in compliance with EPA standards.

The Air Force has also been conducting radon monitoring surveys in residences, schools, day care, and administrative buildings at Mather AFB since 1988; final results will be reported in August of this year. At base closure there will be adequate data to recommend whether any remediation, such as additional ventilation, will be needed.

Potential impacts to soils and geology at Mather AFB under the different alternatives would be due principally to mining of sand and gravel deposits. The mining could eventually involve up to 24% of the base area, although only about 5% of the base would be disrupted at one time. As mining is completed in a given area, the ground surface will be restored by smoothing the topography, replacing the surface soils, and reconstructing the drainage channels. The restored area will then be available for permanent development as residential, commercial, park or light industrial land uses.

It is estimated that aggregate mining will extend the regional supply by five to thirteen years.

Water for Mather AFB is currently obtained from groundwater supplies through ten on-base wells. These wells together can produce 19 million gallons per day of potable water; the base uses 2.3 million gallons per day. When the base is reused, the wells will be conveyed to a local water supply district, and are expected to be the primary supply for all reuse activities on the base.

DOCUMENT 1

The projected increase in demand for the year 2014 will range from 2.0 million gallons per day to 2.3 million gallons per day. Demands on groundwater resources generated by all alternatives would add to the already existing overdraft condition in the region.

None of the reuse activities are expected to affect the quality of groundwater. IRP activities will assure that contamination at hazardous material locations is cleaned up and cannot impact water supplies.

Surface water and surface drainage will also be affected by reuse activities. As was previously noted, surface mining of sand and gravel could result in surface disturbance of up to 24 percent of the base. This will disrupt existing surface water drainage areas along the southeastern side of the airfield including several drainage channels and an area of vernal pools.

Air pollutant emissions due to or related to the reuse of the base would include carbon monoxide; nitrogen-dioxide; sulfur dioxide; particulate matter less than 10 microns in diameter, which I'll refer to as PM10; and ozone, which is formed by the reaction of nitrogen oxides and reactive organic gases, which I'll call ROG. The Sacramento Valley Air Basin currently does not meet federal and state standards for ozone and carbon monoxide, and state standards for PM10. For this reason, nitrogen oxides and reactive organic gases (in their role as ozone precursors), PM10 and carbon monoxide are considered the most significant pollutants that would be emitted during reuse activities. Increased emissions of these pollutants under each of the reuse alternatives could interfere with the attainment of air quality standards.

This graph depicts nitrogen oxide emissions for the various alternatives projected through the year 2014. And for all of the air quality slides I'll show you, there are three important pieces of information on the slide. First, is a comparative analysis of the impacts amongst the alternatives and those are the various lines going up to the right. The second piece of information is the pre-closure estimate of what the emissions were on the base in 1987; and the third piece of information is the emissions inventory for the entire air basin. For this pollutant, nitrogen oxide emissions would range from approximately 0.17 tons/day under the non-aviation with mixed-density residential alternative to 2.1 tons/day under the proposed action. As a reference, the arrow on the left side of the graph represents the preclosure emissions from Mather in 1987, which were 1.2 tons/day.

For reactive organic gases, ROG emissions would range from .2 tons/day under the non-aviation with mixed-density alternative to approximately one ton/day under the proposed action. Again, the arrow represents the pre-closure emissions at Mather which is about 3 tons/day. As a comparison, the Sacramento Valley Air Basin emissions currently total 380 tons/day.

PM10 emissions would range from 0.6 tons/day to 1.1 tons/day. The preclosure emissions are 0.1 and the entire valley air basin emissions is 480 tons/day.

Carbon monoxide emissions would range from 0.58 tons per day for the non-aviation with mixed-density residential alternative to 13.36 tons per day for the proposed action. Preclosure emissions were 5.6 tons per day for

DOCUMENT 1

Mather AFB and 1,800 tons per day for the total Sacramento Valley Air Basin.

Next, I would like to discuss the noise analysis that we performed in the Draft EIS. This chart illustrates the approximate number of people that would be exposed to what we refer to as DNL noise levels of 65 decibels or more from aircraft and vehicle traffic activity under the. DNL is the day-night average sound level expressed in decibels, with a penalty added to account for increased annoyance during night operations from aircraft. 65 decibels is equivalent to normal speech at 3 feet. These estimates are based on present locations of residences and the maximum projected noise, which is for the year 2014. Aircraft noise projections take into account the federally mandated transition to quieter aircraft.

Aircraft activity from both the proposed action and the general aviation with maintenance alternative will expose 60 to 70 residents to 65 DNL or greater. The land area exposed will be 2,900 to 3,200 acres. For comparison, preclosure operations, Mather AFB in 1987 expose approximately 15,000 residents were exposed to DNL 65 or greater in an area of over 20,000 acres.

The number of people exposed to 65 DNL or greater due to vehicle traffic would range from approximately 120 to 140 people in the proposed action,to 1,300 under the non-aviation with low-density residential alternative.

Biological resources at Mather AFB include about 2,700 acres (about 48 percent of the base) of relatively unmaintained grasslands, 81 acres of wetlands along stream courses and around Lake Mather, and 66 acres of vernal pools. Projected impacts by the year 2014 include disturbance of grassland ranging from 60 percent of the grasslands for the general aviation with aircraft maintenance to 90 percent for the non-aviation with mixed-density. In these two alternatives, five percent and 30 percent, respectively, of the disturbed grassland ultimately will become parks or recreation areas. Loss of wetland habitat ranges from 19 percent under the general aviation with maintenance to 60 percent under the proposed action. Mitigation options that future owners could exercise to protect wetland areas are discussed in the DEIS.

The Air Force has initiated consultation with the U.S. Fish and Wildlife Service to verify the presence of any listed threatened and endangered species in the vicinity of Mather AFB. The U.S. Fish and Wildlife Service has indicated that the only federally listed threatened and endangered species in the area of Mather AFB is the Valley Elderberry Longhorn Beetle. However, the base does not have any Elderberry trees, which are the preferred habitat of the beetles, so none of the reuse alternatives are expected to impact this threatened beetle.

Other species that are being considered for federal listing, or are considered threatened by the State of California, or both,may occur at the base.

And finally, based on a review of cultural resources on the base, and in consultation with the State Historic Preservation Office, it was found that there are no significant archeological or historic resources or structures at Mather AFB. Additionally, no concern was expressed by native Americans when consulted regarding reuse activities on base. Hence, reuse activities will

DOCUMENT 1

not impact these resource areas.

Now in closing, let me remind you that this study is in a draft stage. Our goal here is to present the Air Force decision-makers with accurate information on the environmental consequences of this proposal. To do this,we want your comments on the Draft EIS. This information will help you support informed Air Force decision making.

I'd now like to turn the meeting back over to Colonel Thompson.

COLONEL THOMPSON:

Thank you, Colonel Bartol. I would like to now recognize elected public officials. I know that we do have at least one who desires to speak. Mr. Johnson, if you give us just a moment, we'll set you you up a podium. I'd now like to recognize Mr. Toby Johnson, the Chairman of the Sacramento County Board of Supervisors.

MR. TOBY JOHNSON:

Thank you. Good evening Colonel Thompson, Col Bartol, and Mr. Carr, we welcome you to Sacramento and we're very pleased that you're conducting this public hearing to enable us to give you some of our views as to ways in which it might be possible for the environmental study to be more meaningful and we trust that you recognize that you have a rather important audience sitting in front of you. They are representatives of all parts of our total community. People from business, people from the government sector, members of the local community, Rancho Cordova, members of the Chamber of Commerce, veterans, a variety of representatives who are concerned about the environment and people who are looking forward with enthusiasm to some type of aviation as we proceed into the reuse program of Mather and all in all on behalf of the million people that live in Sacramento County, I'm very happy that you're here and giving us this chance to say what we have in mind about the environmental study.

The environmental documents have both been very interesting and in particular the closure and reuse study and also the socioeconomic document that you provided to us. It looks as though somebody has given a great deal of time and I understand, Col Bartol, that we're to express our thanks to you for this good piece of work and with that I do have a couple of remarks that I would like to make.

I wanted to say that Congressman Bob Matsui is in Sacramento this week and had anticipated that he might be able to attend this meeting had it been at 6 o'clock. It was changed to a later hour, and he was committed for an evening with some other people and could not attend but he did want to say to you that he's thankful that we're at the stage now that we are with the environmental study pretty much moving along to finalization and that he look forward to getting continued facts about the whole process as you proceed

Our staff represented by the administrative assistant to the County Executive, Mr. D. Reynolds, who was seated next to me, has kept us informed throughout this process as to what is happening. The other four members of the Board of

Supervisors and myself are very interested in the final outcome and the decisions that will necessarily have to be made with reference to Mather AFB and its reuse. We were particularly impressed with the fact that you did concern yourself with reuse, not merely with the disposal of the site, but you gave us some worthy comments as to your ideas about the matter. We will have our own ideas and, of course, in the final analysis as we get into the planning and development of the area after closure, it will be affected by our general plan and by decisions yet to be made by the Board of Supervisors and other people providing input, the citizens of Sacramento County.

A recent announcement that was very favorable in the opinion of many of us was the fact that the Federal Prison people have determined that it will not be to their liking to use part of the site for a federal prison. And as you may or may not be aware of, the fact that many people in this area were deeply concerned because we already have a major state prison in the area. We have a large detention facility for people who have been jailed in Sacramento County, Rio Consumnes Center, we have a youth facility that houses several hundred young people and we have a California Youth Authority Facility, so we felt that in the area at the moment, we didn't really need to accommodate more people who were in conflict with the law and we felt that your decision as proposed by the Federal Bureau of Prisons I guess it is, was a good one, and we thank you for that. And a lot of people including Assemblyman Connely, who is State Assemblyman and Senator Seymor as well as the local Chamber of Commerce and various other people who had a direct interest have expressed the fact that it was very much to their liking that this was not to be a part of the ultimate land use.

For purposes of the public record, I would like to just make a couple of comments. The county staff has received this document and are in the process at the moment of reviewing and making some general comments that they will add to the commentary that will be provided to you by the citizens and other interested parties in Sacramento County and they're going to work within the timeframe that you've suggested and will by the 4th of February have a prepared recommendation for your consideration and we trust that you and the others who are involved in the assessment and final evaluation of the

1 materials will look carefully at this document. A major concern that we have
10.1 of course, is with reference to hazardous materials and toxics and we will in particular, be interested in exactly what is done and how you plan to proceed with the clean-up to whatever degree it is needed at Mather AFB.

Water problems were mentioned by Col Bartol and I think that's pretty important to us too. We're looking at a long-lasting condition with drought conditions here which may or may not continue into the future; and if they do, then we're going to be faced with some serious problems of trying to better conserve our water and to also avoid contaminants. As you draw your water down, in particular, the groundwater of the county, you face problems that could be increasingly serious due to the greater magnitude of certain types of unwanted water minerals and so forth and at the present time, as we have moved into this, we've been getting more and more input from specific members of our staff, our environmental coordinator for the county, Mr. Al Freitas has expressed great interest in your report. Our director of planning, Mr. Tom Fleshings has also indicated his great interest in what you offered and both

will be a part of the group that will work with Mr. Reynolds in providing an input document which we want you to consider.

The comments that you made with reference to transportation and the flow of traffic are certainly going to be helpful. We probably will not fully agree with your general recognition of statistics, but nonetheless, this is a major concern in Sacramento County, as it is in every other county of the State. We're faced more and more with congestion. We're faced with the resultant problems of contamination in the air and for that reason, we're going to try to offer to you recommendations that will be helpful in your final decisions on this matter.

The conceptual reuse alternative selected in your report is one that is going to get a great deal of study by staff members and one which we will certainly hope that we can work together with the United States Air Force, you people in particular, and coming up with a plan that will be long lasting and into the future of the next century. Thank you again for giving me this opportunity to speak to you. There are a lot of people here who have input to provide, and so I will bow out now and I will be available here for the rest of the evening as well as Mr. Reynolds, who is a greater expert by far than I am on this whole matter of base closure. Thank you.

COL THOMPSON: Thank you, Mr. Johnson, we appreciate your comments. Ladies and gentlemen, in just a moment, we're going to take about a ten minute recess. Let me remind you about the comment cards. That if you do decide to speak, you might want to take this opportunity, if you haven't done so already, to fill out a comment card and make sure you give it to one of the Air Force representatives. Those cards will be provided to me; and when we do return from the recess, I'll use those cards to recognize you and give you your opportunity to speak.

Let's take ten minutes; and if you would be prepared, we'll reconvene at about 8:15.

(RECESS)

COL THOMPSON: Before I begin to recognize anybody, let me reiterate a couple of things I mentioned to you earlier. I will be using the attendance cards that you did turn in before to recognize you and call on you to make your comments. I do ask you to recall that when you are recognized, if you will please come to the podium and start by announcing your name, address, and if you are representing a group, please indicate the group for which you are speaking.

Please try to speak as clearly as you possibly can and I'll ask you, if you would please, to honor the time constraints that I mentioned to you before. The first person to be recognized will be Mr. B. Demar Hooper.

MR. B. DEMAR HOOPER: Good evening. For the record, my name is B. Demar Hooper. I'm an attorney with Hackard, Taylor and Philips in Sacramento and I'm here this evening on behalf of Granite Construction and Teichert Aggregates.

My comments are related specifically to aggregate mining as it's discussed in the EIS and three of the comments relate to assumptions that are made and another comment relates to -- it's a general comment to the EIS.

2 First with respect to the yield that is the tons per acre assumption that is
11.1 used in the EIS, two subpoints. First, the yields in tons per acre that is used in the EIS is substantially higher than the industry's experience in any of the surrounding deposits around the base. In fact, it's almost double the amount that has been the industry's experience.

3 Second, the yield in tons per acre differs between the four different
11.1 alternatives that are discussed in the EIS and it's unclear -- there is no explanation for the basis for why those assumptions are different and those variances range between 85,000 and 99,000 tons per acre. Therefore, the EIS should include a basis for those variations or it should decide on a single figure and that figure should be reconciled with the industry's experience.

4 The second assumption involves the depletion rate, that is the tons per year,
11.1 million tons per year as an assumption for how much, how quickly the aggregate would be used. The EIS indicates a substantial difference in depletion rates between the four alternatives and that depletion rate varies from 3.8 to 7.2 million tons per year and again, there is no explanation of the basis in that difference of range for the depletion and the EIS should, therefore, include either a factual basis, a evidentiary basis for that variation, or it should indicate a -- decide upon a single figure for each of the alternatives. For example, Teichert and Granite both estimate that their annual use in the surrounding area is at about 6 million tons per year.

5 Third point, relates to the assumptions regarding the mineable acres that are
11.2 used as the area that would be mined. It is important that the EIS reflect area that can actually be mined. In other words, a net figure as opposed to a gross one. There are a number of factors that would preclude mining on different areas that were shown cross-hatched as being mineable and that would affect the ultimate yield that would come out. For example, IRP land is included in the -- and shown as mineable, and that may not fit in. The clean-up may not fit in with the schedule of when mining would have to occur to allow the subsequent land use alternative to take place. Similarly, land fill areas shown for mining, and in fact, that area has already been depleted of aggregate resources. The control tower is shown as a mineable area, base housing is shown as mineable and may, in fact, not be for policy reasons as well as practical reasons. Property line setbacks should be taken into account so that each alternative reflects what is accurately or reasonably could be mined and that we have an apples/apples comparison between the alternatives.

6 The general comment relates to vernal pool recreation. The EIS contains an
inference that terrain cannot be restored to mitigate for the loss of vernal pools and we believe that is incorrect. Recent experience with the -- a vernal pool pilot project conducted on behalf of Teichert Aggregates and Granite Construction on property adjacent to Mather AFB resulted in reestablishment of vernal pools on previously disturbed soils. The purpose of that pilot project was to determine whether pools can be recreated in a

post-mining situation and the work included compaction of disrupted clay layers to create a manufactured clay pan suitable for the establishment of functioning vernal pools. Results from the first year indicate that the geomorphology of the pool train can be adequately restored. This resulted in duplication of vernal pool hydrology and subsequent growth of typical vernal pool plant species. The model train of how the vernal pools function in relation to natural pools is in the second year and soil testing was used to identify compaction characteristics of existing vernal pool hardpans to be duplicated. It was done scientifically.

7 Finally, we would like to -- as I see my time is expiring, we will be
11.3 submitting this information in written comments before or by February 4th but it would be very important if the EIS prepares contacted and we would strongly urge that they contact industry representatives to allow refinement of comments to minimize superfluous comments in order to minimize and make the an efficient process and that we don't miss each other, and miss the mark on the comments and responses we think would be very helpful to have contact with the industry before these comments are drafted. Thank you very much.

COLONEL THOMPSON: Next is Anna Liisa Rohmer.

ANNA LIISA ROHMER: Thank you. My name is Anna Liisa Rohmer. I live at 2401 La Loma Drive in Rancho Cordova. I am the current Chair for the Rancho Cordova Community Planning Advisory Council.

On November 14th, we had a community meeting with Regional Transit regarding the extension of Light Rail into Rancho Cordova and the use of Mather Air Force Base as a maintenance facility for Light Rail. There was considerable and almost unanimous opposition to the use of the base as a Light Rail maintenance facility by the residents that lived near and along the rail line that is currently in place that would be used for the Light Rail station to

8 the base. So, I would like to enforce and further give our opposition as the
3.1 community council to the use of the base as a Light Rail maintenance facility and to look for other uses for that particular Light Rail station. Thank you.

COLONEL THOMPSON: Thank you for your comments. Next is Ann Dahlquist.

ANN DAHLQUIST: My name is Ann Dahlquist. I'm speaking as a private citizen. I live on Wildrose Way in the Rosemont area of Sacramento, along with my parents, Arthur and Billy Dahlquist. We're here tonight because we're greatly concerned about the future aviation uses of Mather specifically with regard to aircraft noise problems.

9 It's imperative that we provide you with some background information so that
14.1 you will understand what has precipitated our concerns about future aircraft noise. Our neighborhood is currently badly affected by noise from the base and possibly other sources and we feel that first, you should be apprised of the current situation especially as it may relate to future aviation uses. We bought our home in Rosemont in December of 1989 and moved in in February of 1990. My parents are retired spending most of their time at home. I don't work outside the home so I've been there also most of the time with them since we bought this house. Therefore, we all became very well acquainted with the

normal and customary sounds of our neighborhood and during 1990, we did not here aircraft noise from Mather. We never heard jets taking off or other disturbing aircraft noise.

Indeed, we were so unaware of Mather that we had no idea where the runways were in proximity to our home. 1991 also passed quietly until around July or August when we suddenly began to hear very loud and very frequent jet aircraft which we'd never heard in the year and a half we'd occupied our home. The noise was chronic, loud, aggravating and intrusive. We also began to notice numerous small aircraft buzzing frequently and loudly directly over or around our home as well as increasing numbers of what appeared to be commercial airliners flying over or in the vicinity of our home from as of yet unidentified sources.

We made phone calls and wrote letters to Mather, McClellan, the FAA, the Rosemont Homeowners Association, Supervisor Toby Johnson, and Congressman Matsui expressing our distress and puzzlement about this unusual noise problem.

On October 22nd, of 1991 I made an audio cassette tape recording on our patio from 7 a.m. to 5 p.m. to document the chronic noise. Copies of which were sent to various individuals for their comment. Although the tape was not done with professional audio equipment making it somewhat difficult to capture the noise level, it nevertheless demonstrates that we have a problem. I've made two more tapes since that time showing similar noise problems for November and December. As of this date, no official has explained why we did not hear noise until the Summer of '91. We've been informed by Mather that there were 73,500 operations in 1990, but where were they? We never heard them.

Whatever the answer is to this confusing mystery, the fact is that we do currently experience aircraft noise and are now faced with a variety of new aviation proposals that have the potential to negatively affect our lives in the future. I've read portions of the Environmental Impact Report, a rather lengthy document, but it's clear that noise is going to be a continuing problem for certain residents. I noted the chart showing sound exposure levels for three representative areas in Rosemont. I'm not sure why these three areas were chosen, but for the record, our home is only about 1,000 feet from the intersection of Rosemont Drive and Kiefer Boulevard, one of the areas shown. According to another chart, a percentage of residents can be expected to experience sleep interruptions for some of the sound levels indicated at this location.

My general reaction to the report at this time is that it's one thing to draw maps on papers showing proposed noise contra lines or conduct scientific discussions of SEL and DNL levels. It's another to actually live in a home affected on a daily continuing basis by such noise. Decibel levels needn't be window shattering to cause stress and poor quality of life, although I can assure you that a fair percentage of our noise has been truly horrible and if there's time this evening I brought a tape with just a small sequence of noise if I could play it when this is finished.

But even if noise, doesn't reach a particular decibel level, if it represents

a frequent, daily presence of audible aviation noise from large or small aircraft, it is stress inducing and will damage quality of life. Currently noise has caused us to completely give up sitting on our backyard patio and it's not uncommon to hear noise every ten minutes from one source or another. Conversations in the home have been interrupted due to noise. T.V. viewing is subject to noise distraction. Telephone conversations have been interrupted. It's become annoying just to sit in a bedroom at times trying to read a book. We've heard dogs barking in response to some of the louder aircraft, etc.

It goes on all day long into the evening, seven days a week in one form or another. If our home were up for sale, we'd be obligated to disclose the problem to prospective buyers with possible harm to our property value. We were astounded that noise of this sort is permitted to invade residential neighborhoods and we're worried that future aviation uses will mean more of the same, particularly when you talk about 200,000 flights annually over the years. We're at over 70,000 flights now, and this is the kind of noise we're having. What's it going to be at 200,000. We intend to submit further written remarks as necessary during the comment period.

10 In conclusion, if after these public hearings are completed, the recommendation is to approve one of these aviation proposals, and if we continue to suffer from chronic or intrusive aircraft noise, we strongly feel
14.2 that it's going to be up to the County of Sacramento to provide a remedy for families like ours who are most affected. We've come here to make clear our feelings about aircraft noise, so that you understand that real people, with names and faces and lives, may be negatively impacted by the important decisions you make.

We sincerely hope that residents who feel as we do about this situation are not expendable and that our views will be fully taken into account in the future. Thank you. And I do have some copies of correspondence as well as a copy of the October 22 tape that I'd like to submit at this time. Can I just put it up here? And I also have, as I said, the tape recording with a sequence of noise, can I play just a sequence of noise?

COLONEL THOMPSON: I'm afraid you've already used your time Perhaps you can arrange with us to do that after the hearing if you'd like.

Our next speaker is Jack Stevens.

JACK STEVENS: Good evening. My name is Jack Stevens, Sacramento attorney representing the John Gibson Company of Rancho Cordova. I'd like to direct your attention specifically to 42 U.S. Code Section 4331, Subsection B. and Section 4332 of NEPA. These portions of NEPA direct all federal agencies to carry out their duties to the fullest extent possible to preserve and protect the environment and public health, safety, and productivity.

11 NEPA also directs that the EIS include consideration of possible conflicts
1.2 between the proposed project and other proposals known to the regulatory agency. Yet nowhere in the various pages of this EIS, or for the matter, in

11 its companion socioeconomic study can I find an analysis of a number of
1.2 significant components of the Mather reuse plan that bear directly upon the human environment safety and productivity.

12 A case in point is the proposed homeless use at Mather. Why doesn't the EIS consider the possible conflicts between this use and the general aviation, air-cargo uses planned there? Why does the EIS not address the County's plan or lack of plans concerning the upkeep of these homeless persons? For instance, will they be close enough to needed services? Will they have adequate access to transportation? Who will be eligible for the homeless program? What are the backgrounds of these persons in terms of mental
1.2 stability, substance abuse, or in terms of the cost of county services? What steps will the county be able to take to prevent substance abuse by these persons at Mather? Why does the EIS not examine the impact of a Third District Court of Appeal decision against the housing authority of the County of Sacramento in August of 1990 which prohibits the county from doing criminal background checks on persons participating in county subsidized housing programs?

Without the ability to make such background checks, how can the county avoid victimizing the homeless by placing in their residential midst persons fleeing arrest warrants for violent felonies?

What affect will placing some 200 homeless at Mather have on crime, public safety, and surrounding commercial and residential real estate values. Will the presence of these homeless persons prevent the Mather reuse from being productive?

Since the McKinley Homeless Act was on the books well before scoping for the EIS, I'm at a loss to understand why the homeless use at Mather was ignored by the EIS.

According to NEPA guidelines published by the Federal Council on Environmental Quality, I quote, "an environmental impact statement is more than a disclosure statement. It shall be used by federal officials to plan actions and make decisions."

13 What is notable about this Draft EIS is not what it says, but what it fails to
1.2 say. Among other deficiencies, it's gaping holes with regard to the homeless location at Mather would seem to preclude it from providing a meaningfull basis for any public official to make a decision concerning Mather's reuse. For those reasons, I would respectively urge that the EIS be redrafted to include consideration of those issues and their resolutions. Thank you very much.

COLONEL THOMPSON: Next is Mr. Mark I. Dupree

MARK I. DUPREE: Thank you gentlemen. My name is Mark DuPree and I'm the chairman of the Rancho Cordova Chamber of Commerce Mather Reuse Task Force. We have six members of that task force present this evening in the audience and as you undoubtedly know, we spent considerable time, energy and money on the analysis of the reuse of Mather. You have a copy of our completed study

in your office as well as many officials on base. We've worked closely with the County, Mr. Reynolds, and Supervisor Johnson, of course, and the other supervisors in our community interest.

Our task force would like to make a number of written comments and which time, of course, tonight does not allow us to include all our oral comments, I'll just make a few on the Draft EIS and on the socioeconomic impact analysis. But by February 4th, we will submit our written comments.

We hope that our comments tonight, both the oral this evening and, of course, the future written, will be constructive and assist you in the production of the Final EIS. But more importantly, we are hopeful that the final reuse of Mather will benefit the immediate community to the maximum extent possible. The accuracy of data in the EIS and in the socioeconomic analysis is paramount, as undoubtedly you agree and we feel as Demar has mentioned, as well as Jack, that we feel that there are some concerns that we have about those accuracies.

14 Our community's economic vitality is very largely dependent upon the best use of this very large property. Let me just mention with the time constraints four areas of concern. First of all the Draft EIS and the socioeconomic analysis do not address the approved community plan in September by the Board of Supervisors. Secondly, the descriptions of the potential
3.2 aviation uses are fragmented. In other words, the analysis that our task force has made is essentially an either/or situation or alternative. In other words, general aviation or cargo, or general aviation and maintenance as opposed to a mix analysis of all the various aviation uses on the large runway and ramps and support facilities that are available on the 5700 acres at Mather.

The possibility of retaining the 940th Reserve Unit until facilities are available at McClellan which has been, of course, greatly debated by various groups has not been analyzed in either document. And with the 940th potential to remain or the retention at Mather until '95, when facilities would ostensibly be available at McClellan, are there sufficient facilities available at Mather if -- for market demand, if of course, that retention
15 occurred. In other words, the perception by Mr. Reynolds and others, is that possibly the 940th would occupy too many of the prime facilities, yet we haven't seen an analysis on that.

16 And should the public as well as the private sector be targeted for a market initiative? Much has been said about the private sector marketed, but we feel
1.1 there is a good deal of an assortment of public agencies that may well be marketed to be sited at Mather.

17 And the fourth example is an assumption in the Draft EIS that 50 percent of the ultimate residential buildout on page 4-60 and it's repeated in other locations is 1,855 acres would be public assistance housing. We feel that assumption is erroneous and not sure what the source of that assumption is. Certainly the tax base would be severely reduced with that large magnitude of public assistance housing.

DOCUMENT 1

Finally, we're not sure why the Draft EIS and the socioeconomic analysis were two separate documents. As Supervisor Johnson indicated, we are very appreciative of the socioeconomic analysis which is obviously not required of the Air Force but it certainly is a very nice beginning.

18 The final point we have is jobs production is not, of course, a standard quantity issue. Repeatedly in the documents we speak of jobs, the author speaks of jobs. Obviously quantity versus quality is a very important consideration for our community. This particular issue was brought very close to home with Bill Moyers piece on public tv last week on a program entitled, 5.1 "Economy of the 1990s," maybe some of you saw it, where young families in the midwest are attempting to support themselves on $6/hour jobs. For instance a theme park that would potentially create 3,500 jobs you mentioned. I think an analysis should be made of whether these are quality jobs and whether they are sufficient of self or family support.

And, of course, conversely, as opposed to the theme park proposal a mixed use of the airfield or aviation use and other kinds of uses could very well create a large number of quality jobs that would very much greatly benefit our community.

Thank you very much for the opportunity this evening.

COLONEL THOMPSON: Thank you, sir. That exhausts the cards that have been turned in and provided to me. Is there anyone else who turned in a card that I did not recognize?

Negative response.

Is there anyone else who has now decided that he or she would like to be recognized to speak? I'll be glad to do that.

Negative response.

If not, I thank you for coming. Your attendance at this hearing is quite a reflection of your interest in your community and with the impact of this particular decision, the reuse decision on the Count of Sacramento. Thank you for your attendance.

This hearing as adjourned.

The meeting ended at 8:41, 14 January 1991.

DOCUMENT 2

U.S. Department of Justice

Federal Bureau of Prisons

December 27, 1991

Lieutenant Colonel Tom J. Bartol
Director
Environmental Planning Division
United States Air Force
AFCEE/ESE
Norton Air Force Base, California 92409-6448

Dear Colonel Bartol:

This is in response to the Draft Environmental Impact Statement (DEIS) on Mather Air Force Base that you recently forwarded for our review.

1 The Federal Bureau of Prisons is withdrawing its proposal to site a Federal correctional facility at Mather. We appreciated the 3.3 opportunity to participate in the Environmental Impact Statement process regarding the disposal and reuse of Mather Air Force Base.

If you have any questions, please let me know.

Sincerely,

Patricia K. Sledge

Patricia K. Sledge, Chief
Site Selection and Environmental Review Branch

DOCUMENT 3

Re: Mather, a landmark. Jan 25, 1992

Dear Colonel Bartol:

Recently, I studied the environmental reports @ the Sacramento Library. The plans look real good so far.

1 What will become of Mather A.F.B. to Some
" " Mather after whom the base was named after?

1.3 Will Mather be a passing memory or a landmark.

It appears the plans for closure are pretty well thought out by all concerned parties. I took that the prison plan died which draws another question toward

2 Why allow parts of Mather toward encouraging low
1.4 income and/or homeless people? Does it not present a conflict of interest? I was born @ the old hospital on Mather AFB in 1957 and lived on Dean Terrace @ base housing. Most of my life was lived ½ mile outside

DOCUMENT 3

the main gate on South Watt Ave. I was in the US Navy My brother worked @ Sac Air. the airplane noise used to drive me crazy, it was so loud and vibrant, day & night.

People live on welfare usually spend their welfare money on drugs, booze & cigarettes while the kids suffer. Why do we need to encourage this kind of lifestyle as a way of life Isn't there a better way to attract the housing to more responsible people to afford them housing? The homeless & welfare will only bring speeding cars, unwanted noises and traffic and other problems to Mather (gangs, drugs, crime, booze, litter)

3,4 Mather could be used to train Law Enforcement to
TRAIN S.W.A.T. F.B.I. FIRES MARINES etc Keep the edge on crime, gangs and subject neighborhoods rather than avoid the elements of good and bad. Everything seems broken except the low-life elements. Why mix the two?

P.S. MY MOTHER SERVED AS A NATIONAL BOARD MEMBER, A LANDMARK IN HISTORY OF M.A.F.B.

DOCUMENT 4

STATE OF CALIFORNIA — BUSINESS, TRANSPORTATION AND HOUSING AGENCY — PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION

DISTRICT 3, SACRAMENTO
P. O. BOX 911-3660
SACRAMENTO, CA 95812-3660
TDD (916) 741-4509
Telephone (916) 327-3000

January 24, 1992

03SAC004
03-SAC-50 PM 9.6
Disposal/Reuse Mather AFB
DEIS
SCH#:91112012

Mr. Tom Bartol
Department of the Air Force
AFCEE/ESE
Norton AFB, CA 92409-6448

Dear Mr. Bartol:

Thank you for the opportunity to review and comment on the above referenced document.

COMMENTS:

1
7.1 Traffic impacts on State Routes 50 and 16, along with the pertinent interchanges and intersections, should be analyzed with any subsequent changes in the use of Mather Air Force Base.

If you have any questions regarding this comment, please contact Sharon Scherzinger at (916) 324-6642.

Sincerely,

ROBERT M. O'LOUGHLIN
Chief, Planning Branch C

DOCUMENT 5

DISPOSAL AND REUSE OF MATHER AIR FORCE BASE

[AM EARL WORKMAN COMMANDER OF POST 10125 OF THE VETERANS OF FOREIGN WARS, RANCHO CORDOVA. OUR ADDRESS IS P. O. BOX 898, RANCHO CORDOVA, CALIFORNIA ZIP 95741

[WISH TO THANK ALL OF THOSE WHO HAVE MADE IT POSSIBLE FOR ME TO HAVE THE OPPORTUNITY TO ADDRESS YOU TODAY.

I WISH TO COMMEND ALL OF THE PARTIES AND EVERYONE ELSE WHO HAS BEEN INVOLVED WITH THE MATHER CLOSURE FOR THEIR EFFORTS.

I HAVE PREPARED A WRITTEN REPORT FOR THE VETERANS OF FOREIGN WARS POSITION ON THE CLOSURE OF OUR OLD MATHER. I WAS ALSO HELPFUL TO INCLUDE MANY OF THE MILITARY ASSOCIATIONS WITH WHICH WE ARE ALL ASSOCIATED, MEMBERS OF MY POST ARE ALL ACTIVE IN OTHER PUBLIC AND PROFESSIONAL ORGANIZATIONS. ONE THING APPARENT IS THAT WE ARE ALL LOOKING FOR A USEFUL, UTILITY, BUILDING ETC., THAT IS CENTRALLY LOCATED AND CONVENIENT, SAFE AND SECURE FOR ALL OF OUR PROPERTY, BOOKS, FLAGS, AND NICKNACKS.

1
I SUBMIT FOR YOUR CONSIDERATION A COALITION PROPOSAL FOR:
THE ACTIVE AND RETIRED-VETERAN MILITARY, GENEALOGICAL, HISTORICAL, LIBRARY, AND OTHER PUBLIC NON PROFIT AGENCIES
4.1 AND ASSOCIATIONS A REUSE PLAN FOR THE BUILDING THAT NOW HOUSES THE QUOTE *"MATHER AFB COMMISSARY"*

THE RANCHO CORDOVA CENTERAL CIVIC CENTER

RANCHO CORDOVA, CALIFORNIA POST 10125 LETTER 14 JANUARY 1992.

COMMANDER-EARL WORKMAN INTRODUCED, AND ALL 188 MEMBERS OF THE RANCHO CORDOVA POST INQUIRED, A LETTER PROPOSAL THAT THE EXISTING FACILITY BE FULLY UTILIZED BY THE PUBLIC ASSOCIATIONS AND AGENCIES AND ESPECIALLY FOR THE MILITARY PERSONNEL THAT WERE RESPONSIBLE FOR THE CONSTRUCTION OF THIS BUILDING. THIS FACILITY WAS NOT CONSTRUCTED FROM APPROPRIATED GOVERNMENT FUNDS, BUT WAS BUILT WITH SURTAX DOLLARS THAT WERE PAID BY ALL MILITARY AND OTHERS AUTHORIZED TO SHOP AT THE COMMISSARY.

THERE ARE/
53864 RETIRED MILLITARY PERSONNEL WITHIN A 50 MILE AREA OF SACRAMENTO ALSO THERE AT LEAST 100,000 MORE VETERANS AND MANY MILITARY WIDOWS.

ALL OF THE OTHER 23 MILITARY ASSOCIATIONS AND LOCAL GENEALOGICAL ORGANIZATIONS AND THE GENEALOGICAL HISTORICAL COUNCIL OF SACRAMENTO VALLEY ARE ALSO LOOKING FOR AFFORDABLE

DOCUMENT 5

FACILITIES TO ESTABLISH FAMILY RECORDS LIBRARIES, OFFICE SPACE, AND MEETING FACILITIES SUITABLE FOR LARGE AUDIENCES.

MAJOR JOE SHACKELFORD USAF (RETIRED) HAS BEEN A RESIDENT OF RANCHO CORDOVA FOR THE LAST 32 YEARS. HE IS A MEMBER OF THE RETIREE ACTIVITIES COMMITTEE AT MATHER AFB. HE [illegible] MATHER AFB, AT THE VIEW POD [illegible] SEVERAL OCCASIONS, ESPECIALLY AFTER CLOSURE OF THE NCO CLUB WHERE THE MOST MEETINGS WERE NORMALLY HELD. HE WAS ASKED TO PROPOSE THAT A SUITABLE BUILDING BE MADE AVAILABLE FROM MAFB ASSETS. HE WENT ON TO EXPLAIN THAT ALL OF THE OTHER 23 MILITARY ASSOCIATIONS AND LOCAL GENEALOGICAL ORGANIZATIONS AND THE GENEALOGICAL HISTORICAL COUNCIL OF SACRAMENTO VALLEY AND LIBRARIES WERE ALSO TRYING TO FIND A NEW LOCATION FOR ALL OF THEIR ACTIVITIES.

THE NATIONAL ASSOCIATION FOR UNIFORMED SERVICES (NAUS) AND THE SOCIETY OF MILITARY WIDOWS (SMW) HAVE FORMED LOCAL CHAPTERS IN THE AREA WITH LOCAL MEMBERSHIPS OF MORE THAN 800 INDIVIDUALS. FOR LACK OF OTHER REASONABLY PRICED FACILITIES, MANY MEMBERS CANNOT AFFORD TO ATTEND REGULAR LUNCHEON MEETINGS. FURTHER, IT IS COSTLY TO PAY FOR THE USE OF MEETINGS FACILITIES.

NAUS AND SMW DO HAVE A VERY BUSY LOBYIST IN WASHINGTON, MAJOR GENERAL USA (RET) JAMES PENNINGTON, PRESIDENT OF NAUS/SMW. THE PURPOSE, AS STATED IN THE ATTACHED COPY OF A TYPICAL NEWS RELEASE, IS TO:"SUPPORT LEGISLATION WHICH WILL UPHOLD THE SECURITY OF THE UNITED STATES, SUSTAIN THE MORALE OF THE ARMED FORCES, AND PROVIDE FAIR AND EQUITABLE CONSIDERATION FOR ALL MEMBERS OF THE UNIFORMED SERVICES; ACTIVE, RESERVE, VETERAN, RETIRED AND THEIR SPOUSES, WIDOWS AND WIDOWERS"

EVERY MAJOR MILITARY FACILITY, UNDER OFFICIAL AFR 211-13 GOVERNMENT REGULATIONS, HAVE ESTABLISHED A LOCAL RETIREE ACTIVITIES PROGRAM. MATHER AFB HAS A VERY ACTIVE PROGRAM WITH OVER 300 VOLUNTEERS TO SUPPORT THE ACTIVE DUTY FORCES. THE VOLUNTEERS ARE USUALLY RETIREES, SPOUSES, VETERANS AND WIDOWS. THEY MAN INFORMATION DESKS, WORK IN CLINICS THE FAMILY SERVICES, HOSPITAL, SILVER WINGS MUSEUM AND PERFORM MANY ADMINISTRATIVE TYPE DUTIES. THE DIRECTOR OF THE RETIREE ACTIVITIES OFFICE (RAO) IS PROVIDED A BUDGETE AND FUNDING TO PUBLISH LIMITED NEWS LETTERS TO KEEP THE RETIREES IN THEIR AREA INFORMED ON NEW REGULATIONS AND POLICIES WHICH AFFECT RETIREES LIVES. UPON CLOSURE OF MATHER, MANY OF THESE FUNCTIONS AND SOME OF THE VOLUNTEERS MAYBE MOVED TO McCLELLAN. HOWEVER; MANY OF THE PEOPLE SERVED IN THIS COMUNITY WILL NOT BE ABLE TO GO THERE. THE USE OF THE COMMISARY BUILDING AS A COMMUNITY CENTER COULD PROVIDE A CENTRAL LOCATION WHERE ALL OF THESE SUPPORT FUNCTIONS COULD BE CONSOLIDATED!!

WE HAVE NOT APPROACHED THE MILITARY RECRUITING SERVICES WITH THIS PROPOSAL; HOWEVER, A CENTRALLY LOCATED FACILITY COULD PROVE VERY WORTH-WHILE.

DOCUMENT 5

ALL OF THESE SUBJECTS HAVE BEEN REPEATEDLY MENTIONED AT VARIOUS MEETINGS AND AT SEVERAL COUNCIL MEETING WHERE REPEATEDLY DISCUSSED. THIS INFORMATION, HOWEVER; THEY WERE NEVER, TO OUR KNOWLEDGE, PRESENTED TO THE COUNTY BOARD OF SUPERVISORS MEETING.OR BY LETTER TO THE AIR FORCE.

[illegible]. IN SUMATION, WE OF ALL THE VETERANS, HISTORICAL,GENEALOGICAL, EDUCATIONAL ASSOCIATIONS, BELIEVE THAT THESE SUBJECTS SHOULD BE CONSIDERED IN THE FINAL DECISION MAKING PROCESS. WE FIRMLY BELIEVE THAT THE AIR FORCE OWES CERTAIN CONSIDERATION FOR THE ACTIVE AND RETIRED PARTICIPATION IN THE LONG AND GLORIOUS HISTORY OF MATHER AIR FORCE BASE !!!

THIS LETTER MAY NOT HAVE TOO MUCH TO DO WITH THE ENVIRONMENTAL IMPACT ON MATHER EXCEPT THAT BY THE ADOPTION OF THIS PROPOSAL IT WOULD MAKE LITTLE CHANGE AND WOULD NOT CREATE AN ENVIRONMENTAL PROBLEM.FOR AN INFRASTRUCTURE ONE ENTITY IN PLACE.

THIS FACILITY WOULD BE MORE THAN ADEQUATE TO PROVIDE FOR FUTURE NEEDS OF THE FEDERAL, STATE, COUNTY AND LOCAL COMMUNITY WITHOUT THE EXPENDITURE OF ADDITIONAL REUSE FUNDS.

SUBMITTED THIS DATE 14 JANUARY 1992.

WITH THE APPROVAL OF THE PLANNING TEAM-- YES ____ NO
14 JANUARY 1992.

COPIES WILL BE PROVIDED FOR
CALIFORNIA SENATORS AND CONGRESSMEN
FEDERAL DEPARTMENTS AS APPROPRIATE
UNITED STATES AIR FORCE
NATIONAL ASSOCIATION FOR UNIFORMED SERVICES
SOCIETY O. MILITARY WIDOWS
MILITARY ASSOCIATIONSIN LOCAL AREA.
GENEALOGICAL ASSOCIATIONS.
LIBRARIES
SENIOR SPECTRUM WEEKLY
SENIOR MAGAZINE
GRAPEVINE INDEPENDENT NEWS PAPER
SACTRAMENTO BEE NEWS
SACRAMENTO UNION
RETIREE ACTIVITIES OFFICE -MATHER-McCLELLAN-SAN ANTONIO
PUBLIC AFFAIRS MATHER
COMMANDER MATHER AFB AND COMMANDER McCLELLAN AFB
CHAMBER OF COMMERCE RANCHO CORDOVA
SACRAMENTO COUNTY BOARD OF SUPERVISORS
MATHER AFB CANE OFFICE
CHIRUS CLINIC NEAR COMMISSARY GATE
RANCHO CORDOVA PLANNING COMMISSION
SACRAMENTO CITY PLANNING COMMISSION
MATHER-McCLELLAN BASE HOSPITAL.
MR. DEE REYNOLDS, REUSE COMMITTEE.
MAYOR ANNE RUDIN, CITY OF SACRAMENTO

DOCUMENT 6

[redacted]

Lt. Col Thomas J. Bartol
Director, Environmental Div
AFRCE-BMS/DEV
Norton Air Force Base, CA 92409

Dear Sir:

1 Reference to "Mather Seeks Public Opinion on Base" We the Military Retired & the greater Sacramento area and we are Thousands Request Great Consideration from the Air Force & Keep the Mather Commissary open After Closure. It along with the PX and Hosp is the Life Blood of Most of the Local Retired Population. Simply put McClellan AFB Cannot take Care of Any 4.1 increase Of Shoppers, Without Extensive enlargement at Considerable expenditure Plus traffic would increase a Thousand Fold. Which is already at Peak.

Mather has a practically new Very well operated Commissary that is Well used & Supported. It is located at the extreme North West Corner of the Base & would in No Way interfere with Any Disposition of any Part of the Base. In addition the President has approved leaving the Credit Union Bldg as it is & Remain in operation. The Bldgs are next to the PX & both use Same parking facilities, but would need to be Signaled to Give Both intact. There is open Space from these Bldgs across to Base Hosp.

Enclosed is a flyer being Circulated to all the Military Active & Retired. To Keep These facilities open would Require only Minimal expenditures, Namely Fences and the Commissary is at best Half Filled Now.

Thank You in Advance for Consideration given to these Very Very important issues, I Am,

Sincerely,

Encl.
As Stated

Hugh H. Heise
CSM, USA, Ret.

DOCUMENT 6

URGENT URGENT URGENT

HELP US KEEP MATHER COMMISARY OPEN — CALL AND WRITE YOUR CONGRESSMAN.

Keeping MAFB Commissary open would not interfere with the disposition of the rest of the base when it closes in July 1993, since it is located at the extreme north end of the base. It would only require minimal cost, with a fence around the building and existing parking lot. McClellan AFB Commissary cannot handle any additional traffic as it is at capacity now.

WE HAVE STRENGTH IN NUMBERS—DO IT NOW!

Honorable Vic Fazio
US House of Representatives
2113 Rayburn Building
Washington, D.C. 20515
Local Phone: (916) 978-4381

Honorable Robert Matsui
US House of Representatives
2113 Rayburn Building
Washington, D.C. 20515
Local Phone: (916) 551-2846

Honorable John Seymour
United States Senate
367 Senator Dirkson Building
Washington, D.C. 20510-0573
Local Phone: (916) 557-2733

All of the above are running for re-election, let your opinion be known and your vote count.

CALL WRITE CALL WRITE

Encl #1

DOCUMENT 7

1-11-92

FROM: Ann Dahlquist and Family

TO: ENVIRONMENTAL IMPACT STUDY TEAM
Public Hearing Conducted Jan. 14, 1992 regarding Draft Environmental Impact Report/Mather Air Force Base Reuse

To Whom It May Concern:

Enclosed for your information are copies of correspondence which reflect my family's current problem with noise from Mather Air Force Base. We feel our current complaints may have a direct bearing on the future aviation uses of the base.

As of this date, only Maj. Alan Peissig of Mather and Supervisor Toby Johnson have responded to our concerns, in addition to the FAA. However, Congressman Robert Matsui has not responded in any way whatsoever at this point, nor has Assemblyman Lloyd Connelly, McClellan, or the Rosemont Homeowner's Assoc, whom we requested respond in written form to our complaint.

1 Also Enclosed is the Oct. 22 tape recording which I mentioned in
14.1 my Jan. 14 testimony at the public hearing. Although the noise levels may not be precisely captured, we still feel it demonstrates that we suffer from a legitimate problem in our neighborhood.

We hope to provide further written comment during the three week comment and review period.

Thank you for reading our correspondence and listening to the tape.

Sincerely,

Ann Dahlquist and Family

Ann Dahlquist and family
3709 Wildrose Way
Sacramento, CA 95826

P.S. As you will see from reading the correspondence, we do not feel Maj. Peissig or Supervisor Johnson have, in any way, satisfactorily answered our questions about the problem, nor have they explained why we never heard noise in our neighborhood until just recently. If anyone reading these letters can offer an explanation, we would be glad to hear it.

DOCUMENT 8

January 29, 1992

Lt. Col Tom Bartol
AFRCE-BMS/DEV
Norton Air Force Base, CA 92409-6448

Dear Lt. Col. Bartol:

Enclosed are my written comments in regard to the Draft Environmental Impact Report and the Public Hearing conducted Jan. 14, 1992. As per the requirements, they are being submitted prior to the Feb. 4 cut-off date.

At this time, I am requesting that the following be provided to me:

1. Copy of the completed EIR - place my name on the mailing list so that I may receive this document.

2. Copy of the transcript of the Jan. 14 Public Hearing including my verbal testimony and the testimony of others

3. If possible, a transcript of the scoping meeting(s) of 1990 in which the Air Force received over 100 verbal and written comments. I'm specifically interested in reading past verbal/written testimony regarding noise concerns. I looked for this in the library but could not seem to locate it. I'd greatly appreciate it if you could help with this.

1 Also enclosed are two more audio tapes demonstrating aircraft
14.3 noise in the Rosemont area covering Nov. 1991-Jan. 1992.

Thank you for reading these comments. We hope our participation has been of help to you in the decision-making process.

Sincerely,

Ann, Arthur and Billie Dahlquist

Ann, Arthur and Billie Dahlquist
3709 Wildrose Way
Sacramento, CA 95826

Enclosures: audio cassette tapes - 2
Copy of Rosemont Homeowner's Association Newsletter
Copy of article in Sacramento Union providing coverage of Jan. 14 Public Hearing

DOCUMENT 8

Lt. Col Tom Bartol
AFRCE-BMS/DEV
Norton Air Force Base, CA 92409-6448

January 29, 1992

Re: Comments on Environmental Impact Report for
Mather Air Force Base Closure - Aircraft Noise in Rosemont

Dear Lt. Col. Bartol:

On behalf of myself, Ann Dahlquist and my parents, Arthur and Billie Dahlquist, I herewith submit written comments regarding the Draft Environmental Impact Report and the Public Hearing conducted Jan 14, 1992 in Rancho Cordova. These written comments serve to further detail my verbal comments as presented at the hearing, as well as an addition to the correspondence and audio tape recording which were also submitted at the time of the hearing. We trust these comments will be made part of the public record, and made available to interested members of the public to review, investigate, and analyze for themselves.

As a prefsce to these comments, we would like to make one observation in particular. The draft report was made available to the general public (as opposed to those already on a previous mailing list), on or about Dec. 18, 1991 - one week before the Christmas holidays. The hearing was conducted on Jan. 14, two weeks after the holidays. From our standpoint, the timing of these events seems rather unfortunate. It's doubtful that very many people were ensconced at their local libraries, pouring over an EIR just prior to, or after Christmas. December is a notoriously hectic time for most people because of the holidays. It does not seem to us that the release date of this report was designed with "the public" in mind. We were surprised that so few citizens made verbal presentations at the hearing, and we can't help but think that the low participation is, in part, related to the timing. We note that one of the hearings conducted by Randolph AFB was held December 18, 1989 - again a rather bad time.

2 Before proceeding with our comments, we feel it is important to reiterate that the aircraft noise problems we currently experience from Mather Air Force Base, are new, recent developments for us as residents in our Rosemont home. We forcefully made this point in our verbal comments, but feel that it bears repeating. If the noise we now experience had been going on from the moment we purchased this home in Dec. 1989, we would have complained long
14.1 ago. The very reason our family is now involved in this situation is because of the noise exposure we began experiencing in the summer of 1991. Had this occurred earlier, we undoubtedly would have attended earlier scoping meetings, if only to get some answers to our questions. It is because we never heard noise before, and were unaware of Mather Air Force Base operations at our home, that we were uninvolved until recently.

A lot of this noise is definitely not of the "subtle" variety; it is not something we would have overlooked for 1½ before complaining, asking questions, etc. We assert, and will continue to assert, that

DOCUMENT 8

that a change in operations has occurred at Mather AFB, beginning around the summer of 1991. The denial of this fact by Mather personnel, in particular Maj. Alan Peissig and Capt. Stephen Bonner has left us flabbergasted and we find it rather presumptuous, on the part of Mather, to insist that they (not WE, the residents of this home), are the experts when it comes to noise at our own home. We don't presume to tell them what life is like at their homes on the base, yet they have insisted on telling us what life has been like, from a noise standpoint, in our own home. As fully indicated in the correspondence we submitted, we have not been pleased with this, essentially, illogical approach.

In researching some past documents related to the base closure, I found the following remarks: "Air and ground transportation activities would be expected to increase during the scheduled period of the proposed closure action." It has occurred to us that some of the noise we hear may be related to "closure activities" but no one at Mather has ever confirmed this in any way.

I spoke with an individual at a local school in December 1991 who informed me that she had had a conversation with another local resident in relation to Mather activities. Apparently, this resident stated that a lot of the aircract activity in the area was due to "planes coming back from the war." Although you might classify this as a minor, anecdotal remark, I found it odd. If the noise were, indeed, "always here" as Mather asserts, why would two citizens be holding a conversation in which they theorize that it is due to "planes coming back from the war."? The war had ended some months prior, so it makes no sense for the noise to be caused by war-related activities.

3 Regarding the EIR, our family shares the opinion as expressed by one of the speakers at the hearing - it is as interesting for what it doesn't say as for what it does. For instance, the report focuses exclusively on jet noise, but says nothing about annoyance caused by small aircraft noise, many of whom fly low and buzz noisily overhead. It's unclear if the flight tracks shown in the report reflect the routes that will be taken by small, private aircraft if a general aviation facility is added. It is our understanding that small aircraft will be part of the fleet mix.
14.4 Nor is the type of noise generated by helicopters discussed. Each of these aircraft produces an entirely different character of noise than does jet aircraft. Naturally, the most "dramatic" noise comes from jets, but as homeowners who have now experienced annoyance from small aircraft and helicopters, such noise can also damage quality of life and should be discussed in your report, whether it reaches certain decibel levels or not. We'd like to see more discussions of noise in which less dramatic noise is also described (not just noise that results in hearing loss, conversation interruption interruption of tasks, etc.)

4 At the hearing, Col. Bartol, you stated that an effort had been made to write the report in "plain language". We found most of the noise discussions to be technical, vague and indecipherable to
14.5 the average reader. Example: "The SEL takes into account an event's sound intensity, frequency content, and time duration, by measuring the total A-weighted sound energy of the event and incorporating it into a single number."

DOCUMENT 8

5 Or: "The SEL value represents the A-weighted sound level integrated over the entire duration of the noise event and referenced to a duration of a second." In our opinion, it would be nearly impossible
14.5 to truly determine the future noise impact in real terms from reading this report. The EIR simply doesn't spell out, in everyday language, what's going to happen. How will it really sound to have "20-minute aircraft run-ups" while people are on their patio? I have no idea. We can't help but wonder what the reality will be on a warm, sunny day, trying to have a barbecue or a family gathering in the summer with an airport in operation. Our family has little confidence in this report as a reflection of the future and we strongly feel many unexpected surprises await residents in 1994. Our fears, in particular, are compounded by the great difficulty we have already experienced in trying to receive straightforward, clear, detailed answers from Mather AFB regarding our current noise problems. Is it any wonder that we are concerned?

6 Apparently, it is not uncommon for citizens to have difficulty receiving information from the Air Force which is accurate. The testimony of John Parnell at the 1989 Hearing indicates that the Air Force provided incorrect information about the C-135 aircraft and he states, "it took some tracking to determine
14.4 what engine was actually installed on this aircraft." His office was asked to look at the technical details of the noise section of the EIS. He states, "We found that it was difficult to do this because there were no supporting data included in the EIS." If a noise expert can't even receive straightforward data, you can imagine what the average citizen is dealing with.

7 In addition to our noise concerns, our family is also worried about safety considerations. The Rosemont Homeowners Association, in their November 1991 Newsletter to members, expressed concerns about the mixture of private planes with commercial aircraft. We have enclosed a copy of this discussion by the RHOA for your information. We share their concerns. Although no one from the RHOA presented any verbal testimony at the hearing, it is probable that the Association remains concerned about this
8.1 aspect of the Mather conversion. At the hearing, there was no real effort to fully describe the mix of aircraft except in rather vague terms. Over the past few years, there have been any number of air crashes involving large and small aircraft collisions. As stated in our verbal testimony, we already have small aircraft flying over our home in Rosemont, exposing us to noise and potential safety hazards. Planes do crash - that's a fact. Needless, to say, we don't want a fiery air crash in our backyard, and would be totally against a mix of large and small aircraft.

Since attending the hearing, we have now verified that our home is subject to noise from at least one flight track involving Metro Airport. I spoke with Mr. Jon Long of the Dept. of Airports and he provided me with background information about an FAA decision from two years ago which routed flights away from downtown and sent them, instead, over Arden, Natomas and Rosemont. The flights start at around 6:00 a.m. every morning, 7 days a week, causing sleep disturbance. He stated that the Dept. of Airports has presented a plan to the FAA to route planes over the Yolo bypass and

DOCUMENT 8

away from residential neighborhoods. According to him, a report should be issued in 30 days from the FAA which would indicate if
8 the Dept. of Airport's plan is acceptable. As per my testimony at the hearing, my neighborhood is already subject to aircraft noise from a variety of sources. Yet, the current plan is to allow 200,000 flights annually when Mather closes, which will undoubtedly add to the impact. The EIR includes no discussion
14.1 about what residents in certain areas are already exposed to. Yes, - you print the maps of flight tracks in the report. But, once again, how those tracks translate into reality is missing. Real people like our family have had to come forward and point out the everyday reality.

In terms of the "sociological" aspects of noise annoyance, we were particularly struck by the EIR's inclusion of a "response bias" discussion. According to studies done over the years, neighborhoods consisting of wealthy, more affluent, well-educated, homogenous populations may report more noise "annoyance" than the "less complementary" neighborhoods. We're assuming that
9 "less complementary" means less affluent, less well-educated and less homogenous. We certainly hope that the implication of this research is not that less affluent, less well-educated people have less sensitivity to noise - as if their economic status somehow causes their hearing to be less sharp. Your report should, perhaps, indicate that less-affluent areas often "put up with" noise because they feel powerless to do anything about it. Their powerlessness is the true underpinning for the apparent lack of complaint about noise, not a failure of their ears to pick up annoying sound.

14.6 The Rancho Cordova/Rosemont area is not Fair Oaks, Carmichael, Gold River, Land Park, etc. Undoubtedly, the Air Force and the County are aware of this. Your report indicates that if the source of the noise provides economic benefit, the complaints are fewer. Our family can't help but wonder if a particular approach is being taken with this community that one wouldn't see in more solidly affluent or homogeneous communities. We hope that the noise issues are not being given short shrift due to some "societal" impression that people in this area are willing to put up with it for the sake of jobs, economic growth, etc.

10 The socio-economic portion of the EIR predictably concentrates on the positives and downplays the negatives. Jobs and economic growth are paramount; true quality of life secondary. Our family is certainly not anti-job - we fully understand why a large portion of the Rancho Cordova/Rosemont area would favor an aviation facility. However, such short-sighted thinking is leading, more and more frequently in Sacramento, to problems of such severity that quality of life is utterly ruined for many residents. After all the academic talk and pseudo-scientific analysis, the residents are the ones who ultimately have to live in the real world - not in a research lab. They are the ones who will have to live with noise, traffic congestion, safety problems, rock mining dust and other potential problems. Our family does not wish to become "habituated" to noise (i.e. "get used to"). We certainly have not gotten "habituated" to the current noise problems, and we don't intend to "get used to" future noise problems.

DOCUMENT 8

Page 5

11 The EIR discusses certain "mitigation measures" that could be considered to "reduce the effect of airport noise." Operational measures include: change takeoff, climbout or landing procedures, change flight tracks, enforce prescribed flight track use, etc. Our family wonders just how easy it would be to accomplish any of these "mitigation measures" once the airport is in operation. And - we need to "enforce" prescribed flight tracks? Does this 14.2 imply that sometimes planes don't fly precisely where they are supposed to? Do they deviate? Management measures include: "impose curfews, develop noise monitoring systems, establish a community relations office." Again, one wonders what the reality of these measures will be. These, and many more unanswered questions, abound.

12 We are aware that the "general aviation" proposal is not the only one, but it's certainly the one the County is pushing for. From our point of view, anything would be better than the general aviation proposal. However, we doubt that Mather is going to be utilized as a "repair facility" or cargo services. We'd just like to go on record as stating that IF the general 3.5 aviation plan is going to damage our quality of life due to noise or safety problems, we would be against it and in favor of alternative plans which are of lesser scope and impact. As stated in my verbal testimony, if we're already having noise problems with 73,500 flights from Mather, what is life going to be like with 200,000 flights from an airport?

Finally, I'd like to make a few remarks about the Oct. 22 audio tape recording, as well as the Nov.-Dec. tapes, which are being included with these written remarks. The tapes were not made as a technically perfect representation of aircraft noise. They were made to indicate that this neighborhood is experiencing problems with noise and frequency of aircraft operations. It has been very difficult for me, and my family, to spend days running in and out with a tape recorder. Such taping is a very unpleasant activity and frustrating as well because noise that is audible to my ear is sometimes difficult to pick up on the tape. If the tapes are played on a good, high quality recorder it will probably be easier to hear some of the more subtle noise. While listening to some of the more dramatic noise, it would be good for you to reflect: "how could this family have lived in their home for 14 and not heard THIS?" The logical response to this question is: they couldn't have.

If anyone from Norton AFB would like to clear up this mystery for our family, we would be more than happy to hear what you have to say. Please feel free to correspond with us about any aspect of our comments.

It's has been our privilege to be involved with the Public Hearing, and to provide these written comments. We say "privilege" because we greatly respect the fact that citizens in this country have the right to share their views in open forums such as public hearings.

DOCUMENT 8

Page 6

13 It was unclear to us whether there were going to be any more public hearings conducted on this matter. There was certainly no future hearing date announced. If there are more hearings planned, our family will be in attendance to add any further comments we deem necessary.

We feel that our appearance helped to put a "face" and a "name" on a dry, technical report which was fairly devoid of the human element. We are very surprised that, apart from our testimony, there was no one else at the hearing speaking on behalf of "regular folks" - all other speakers belonged to formal organizations. Yet, "organizations" are not going to be affected, people are going to be affected, with "names and faces and lives" as stated in the verbal testimony. We are glad we could provide a much-needed injection of human reality into the proceedings.

Thank you for reading these comments, and don't hesitate to contact us if you would like further information.

Sincerely,

Ann, Arthur and Billie Dahlquist

Ann, Arthur and Billie Dahlquist
3709 Wildrose Way
Sacramento, CA 95826

DOCUMENT 9

Nov. 1991 - Rosemont Homeowners Association

Mather Issues

The future of Mather Air Force Base is a familiar topic to all Sacramentans, but it is especially significant to Rosemont residents, due to our proximity to the facility. At the October 1st RHOA Board of Directors meeting, President Ruth McLaughlin appointed board member Ron Darlington to head an Ad Hoc Mather Committee to study the issues.

Several Board members expressed concerns about the safety aspects of a general aviation facility at Mather. The concerns are that private pilots have less training and are not as constrained by pre-ordained flight paths as military or commercial aviation. Also, their hours of operation are not as easily restricted.

To learn the latest developments in this complex issue, the three Mather Committee members attended a "Town Hall Meeting" on the subject in Rancho Cordova on October 8th. The purpose of the meeting was to inform area residents about the aviation use option for Mather and to garner support for that option. The Panel Members at the meeting urged the community to support this option because they feel that it makes sense, and is the best defense against what they consider to be undesirable uses of Mather, such as a federal prison or low cost housing. The RHOA Mather Committee decided to support it, but with some reservations about possible general aviation use of Mather.

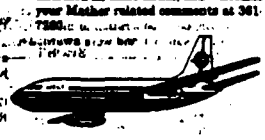
The meeting's chair, Planning commissioner and Rancho Cordova resident, Mark DePree pointed out that general aviation is only one of the aviation alternatives at Mather, the others being a commercial aircraft rehabilitation and repair facility, and cargo services. He emphasized that the possible closure of Executive Airport in south Sacramento is not linked to the aviation alternative at Mather.

During the meeting, the audience was decidedly supportive of the aviation-use option. Nevertheless, several audience members raised concerns about whether the safety of the area could be assured if general aviation, as well as larger aircraft, were allowed to exist at Mather.

The panel members responded that most airports, including Metro Airport, allow a mix of large and small aircraft. They also admitted that overflights by private planes over neighborhoods cannot be ruled out if general aviation is allowed at Mather. However, they pointed out that even private aircraft are subject to control tower regulations when they enter airspace within a certain radius of the air field.

As was reported in the Sacramento Bee (10/16/91, page B-1), on Tuesday, October 15, the Sacramento County Board of Supervisors unanimously approved favoring a county operated airport at Mather, but granted a reprieve, possibly only temporarily, to Executive Airport. The Mather issue is now relegated to discussions between County staff and Pentagon representatives.

The RHOA Mather Committee will continue to monitor and keep the Board informed on these issues, and welcomes your Mather related comments at 361-7360.



DOCUMENT 9

1-20-92

Norman Mets
4015 Tarm rd
Placerville Ca

Ref Col Thomas J Bastel
Director of Environment div.
AFAC. BMS/ DEV
Norton Air Force Base Ca. 92409-6448

Dear Sir:

I am a ex traffic Controller at Lindbergh field, Hillsair field and Radar air traffic Control Center at NAS Miramar San Diego. Now retired.

1 My thought on Mather Airport in
3.6 Sacramento Should be made into a air Cargo airport. San Francisco is now limiting and going out of air Cargo. Oakland Airport is getting to the point they must limit Cargo or expand the airport.

Mather has freeways running North East and West on which trucks can come in and go out

DOCUMENT 9

on Mach easier than the Tie up on I-999 Traffic Tie up is reduced
Mather runways are already built to handle large aircraft with heavy loads
2. in the event of war the basic could be reverted to the surface to revert to further the war effort.
1.5 This area and bay is growing and needs more air cargo handling facilities
This is just another persons thought about what to do with Mather AFB and keep the realtors hands off of the lands to be donated.

Thomas C Mule
4015 Tam road
Placerville Ca
95667

DOCUMENT 10

Jan 30, 92

Lt Col Thomas J Bartal
Director of Environmental Division
AFRC - BMS/DEV
Norton Air Force Base, CA 92409-6096

Dear Sir:

1 As a resident of Mather Air Force base I would like to respond to your request for written comments regarding reuse of the base in order of preference:

3.7 1) Sacramento County Dept of Parks and Recreation for the 18 hole golf course, aquisition center and lake, [redacted] Also the regional handicapped center sports complex picnic area and Camping and trails Especially the trails.

2) Sacto County Sheriff's dept to house their helicopters, two airplanes for helicopter crews.

3) Cordova Recreation and Park District for some athletic facilities such as softball fields and tennis courts but not all of the athletic facilities due to lack of funds for maintenance.

4) Sacto County childcare + family support center to acquire the child-care center

5) CSU Sacramento for its planetarium.

DOCUMENT 10

10 (2)

1 6. I would like to see a limited range use for aviation-related activities such as Calif Dept of Forestry, US Forest Service, Calif Dept of Justice, aviation maintenance and ground schools

2) Demolish the hospital should be kept and acreage left for expansion of it.

3) Low Density residential family housing, with mature heights and R.B.Y. Hunt schools

3.7 4) The educational complex retained for educational purposes.

I would not like to see a

1) A large aviation runways with high-frequency use.

2) A 1000-acre theme park with offices and hotels. The hotels in this area have gone under-operating in the red. for several years and a drive along White Rock Blvd. reveals a huge portion of the land used for offices. They are isolating and can become dangerous places.

3) High density apartment housing which only adjoins the nearby neighborhoods with crime and drugs and gangs. I would like to see strictly single-family residential Housing. I live near the

DOCUMENT 10

3

1 apartments on Croetto Way and Mills Park and the glass that runs the street, the guns, the drugs the unemployment, etc is a blight to the whole area.

3.7

Thank you for your consideration,

Karen A Sutton

Karen A. Sutton
2573 Robier Way
Rancho Cordova, CA 95670

DOCUMENT 11

Lt Col Thomas J Bartol Director of Environmental Division
AFRC-BMS/DEV Mather Base
Norton Air Force Base
Ca. 92409-6448

3.8 | 1 Its perfect place to help the Homeless + Pre Homeless. Its Set up is perfect - Showers - bath rooms Beds. Personal from air force, Not only Saves some Jobs but Shows Kids a good influence's. Have a person taking the messages So these people have a way of getting contacted for jobs. I'm an employer and would call and go to Mather because its safe well managed Not in dangerous area. Its a away of goverment, general public, homeless helping all together. I get So tired of Paying if you show a man how to fish instead of buying him the fish Lets Face it if you're not Shocked - pose a Show you're not going to get a job.

3.9 | 2 Mather Base Could be [redacted] answers We Need - Educational - College Students Could go to get Credits for Teaching the Kids - day care - what ever there major is Pre med Students

DOCUMENT 11

teach about Business Open + Resumes - Could make Circle in Times to call at nights while waiting for jobs Give prior employer the telephone number to make would learn - Homeless your cost goverment + us if you Nip it in Bud! Get people off food Stamps + women from having too many Babys - Everyone have Some - Some have Really problems hard to Explain - have program - [redacted] Educate people why too many children are hurting themselves and the children Use the Reward System, do good get job equals apartment that the goverment isn't paying for.

I Know Volunteers + retired people would come to a Safe - well managed place - To teach Skills donate items Restraunts would know where Sell Extras - all food Suppliers would better going to waste. Advertise Mather and especially the tax deductions were incentive with Some Security people - Drug free - Alcohol free And you'd learn that people who were Trying to not be homeless and the people who Choose that life. I Know the Next Generation would Save

DOCUMENT 11

From Judy Pease
4710 Dusty Pl
Placerville Ca
95667

DOCUMENT 12

DEPARTMENT OF HEALTH & HUMAN SERVICES — Public Health Service

Centers for Disease Control
Atlanta GA 30333
January 27 1992

Lt Col Thomas J Bartol
Director of Environmental Division
AFRCE-BMS/DEV
Norton Air Force Base, California 92409-6448

Dear Lt Col Bartol:

We have completed our review of the Draft Environmental Impact Statement (DEIS) for Disposal and Reuse of Mather Air Force Base, California. We are responding on behalf of the U.S. Public Health Service.

1 | We have reviewed the Draft EIS for potential adverse impacts on human health. We note that while Air Force Remediation of Installation Restoration Program Sites will continue to be the responsibility of the Air Force, most impacts
10.2 | associated with disposing of the property will occur during reuse by future property owners, and mitigation measures are beyond the control of the Air Force. We believe, however, that this DEIS has adequately addressed potential adverse impacts and appropriate mitigation measures regarding the reuse of
2 | this base. With regard to hazardous wastes, we concur with the recommendation
10.3 | for the formation of a cooperative planning body for hazardous materials and waste management. Such a planning body could help minimize wastes, increase recycling, and assist in spill management.

Thank you for the opportunity to review and comment on this document. Please ensure that we are included on your mailing list to receive a copy of the Final EIS, and future EIS's which may indicate potential public health impact and are developed under the National Environmental Policy Act (NEPA).

Sincerely yours,

Kenneth W Holt

Kenneth W. Holt, M.S.E.H.
Special Programs Group (F29)
National Center for Environmental
Health and Injury Control

DOCUMENT 13

Written Comment Sheet

Disposal and Reuse
Draft Environmental Impact Statement
Mather AFB, CA

Thank you for attending this Public Hearing. Please use this sheet to provide us your written comments on our Draft Environmental Impact Statement.

Date: 1-14-92

1
4.1 The intention of the Conveyance would be a great asset to the retired people who live in this area.

2
14.2 Hopefully the airport use will NOT entail the use of large cargo planes with corresponding night noise levels, especially while flying over the residential areas west of the base.

Name: Marcella A Grey

Address: 5421 Grenoble Way Sacto Ca 95826
Street Address City/State/Zip Code
4513

Please hand this form in or mail to:
AFRCE-BMS/DEV
Attn: Lt Col Tom Bartol
Norton Air Force Base, CA 92409-6448

DOCUMENT 14

JANUARY 31, 1992

LTC Thomas J. Bartol
Director Environmental Division
AFRCE - BMS/DEV
Norton A.F.B., Ca. 92409

Dear Sir,

1
4.2 I wish to request the opportunity and availability of the R.V. Storage area on Mather A.F.B., Sacramento, Ca., to become a larger area by extending it futher towards the northerly direction and east by 200 yards for a commercial area for parking Recreational Vehicles on a monthly basis. I would like to purchase this area or lease or rent it for this purpose.

The valley has too little area for this fast moving sport of "R ing" and I could help make it easier for everyone and be making use of the land at the same time.

Extending the area North or towers the front gate direction, would provide a larger number of spaces to rent. By extending the area 200 yards East towards the stables would make the roadway more accessible.

My second choice would be the SAC Alert Area, as it would give me the portection needed with the double fencing all around it. If these areas are not available for consideration I am open to alternate areas.

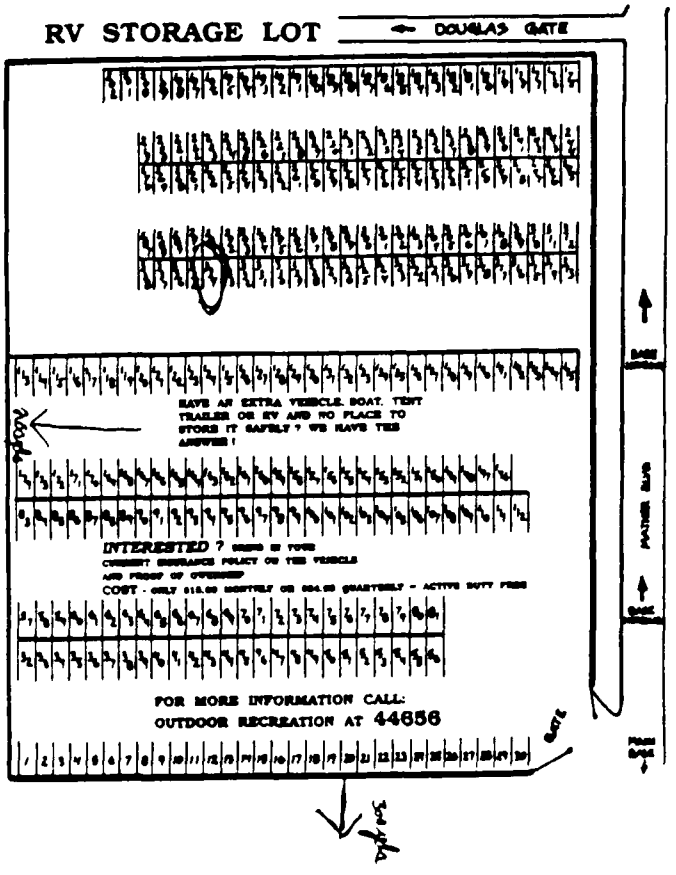
I believe this is an important issue and would be a great service and benifit to the surrounding community as well as putting to good use, the existing land for a worthy endeavor. Enclosed I have included a map of the current area, which shows the current parking area spaces. I anxiously await your response.

Thank You for your time and consideration,

Samuel R. Decker
Samuel R. Decker
124 Woodhill Rd
Folsom, Ca. 95630
Ret. USAF.
(916) 9836393

enclosures

DOCUMENT 14



DOCUMENT 15

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
Office of Environmental Affairs
600 Harrison Street, Suite 515
San Francisco, California 94107-1376

January 29, 1992

ER 91/1171

Lieutenant Colonel Gary D. Veet
Director of Environmental Division
AFRCE-BMS/DEV
Norton Air Force Base, Ca 92409-6448

Dear Lt. Colonel Veet:

The Department of the Interior has reviewed the Draft Environmental Impact Statement (Statement) for the proposed Disposal and Reuse of Mather Air Force Base. The following comments are provided for your consideration when preparing the Final Environmental Impact Statement.

GENERAL COMMENTS

1
15.1 In a letter dated May 27, 1991, the U.S. Fish and Wildlife Service (FWS) provided to the Department of the Air Force (ASAF) a list of endangered, threatened, and candidate species for listing under the Endangered Species Act of 1973, as amended (Act), that may be present on Mather Air Force Base. Included in this list were several candidate species, including the giant garter snake, and four species of shrimp found in vernal pool habitat. Since preparation of the FWS' May letter, the giant garter snake has been proposed for listing as an endangered species (December 27, 1991, Federal Register 56(249):67046).

Pursuant to 50 CFR 402.0, ... Federal agencies are required by the Act to confer with the Service on any action which is likely to jeopardize the continuing existence of a proposed species. Such a conference would result in advisory recommendations from the Service on ways to minimize or avoid adverse impacts. If the proposed species is listed prior to completion of the action, the Federal agency must review the action to determine whether formal consultation under Section 7 of the Act is required.

If requested by the Federal agency and deemed appropriate by the Service, the conference may be conducted in accordance with the procedures for formal consultation. An opinion issued at the conclusion of the conference may be adopted as the biological opinion if the species is listed, if no significant new information is developed during the rulemaking process, and if no significant changes to the Federal action are made that would alter the content of the opinion. An incidental take statement provided with the conference opinion does not become effective unless the Service adopts the opinion once the listing is final.

2
15.2 The FWS has also been petitioned to list the three fairy shrimp and one tadpole shrimp species included in our letter of May 27, 1991. On August 30, 1991, the Service made a 90-day finding that the petition to list the three fairy shrimp presented substantial information. This finding indicates that the requested action may be warranted (Federal Register (56(169):42968). The FWS' administrative finding, dated November 21, 1991, found that the petition to list the vernal pool tadpole shrimp presented substantial information. This finding also indicates that the petitioned action may be warranted.

SPECIFIC COMMENTS

3 | Page 1-91, Section 1.4.5.1 Threatened and Endangered Species. The text in this section omits several candidate species for federal listing, including the four species of vernal pool shrimp and hairy Orcutt grass. The
15.3 | northwestern pond turtle is also a candidate for federal listing. The text erroneously refers to Table 3.4-6 for a list of state and federally listed species and candidate species. The final document should correct these errors and omissions.

4 | Page 1-92, Section 1.4.5.4 Sensitive Habitats. The document indicates that the full extent of wetland and riparian habitat on Mather Air Force Base is
15.4 | unknown pending completion of ongoing studies of vernal pool biota. The final documents should include the results of this study and a final calculation of the acreage of wetlands found on the Base.

5 | Page 4-170, Section 4.4.5.1 Proposed Action, Effects on Aquatic Biota. The document states that under the proposed action about 62 acres of vernal pools and drainage channels would be lost but impacts on common invertebrates
15.5 | inhabiting these waters would be minimal. Filling of these wetlands would eliminate all invertebrate inhabitants. The document should be corrected accordingly.

6 | Page 4-171, Section 4.4.5.1 Proposed Action, Threatened and Endangered Species. The document states that overall impacts on sensitive species could be adverse, particularly for fairy shrimp, the tiger salamander, and tricolored blackbird. The document gives no rationale for not including the
15.6 | giant garter snake and western spadefoot toad as species likely to be adversely impacted by the project. Because both of these species are dependent on wetlands, it is likely that they would also be adversely impacted by disposal and reuse of the Air Force Base. The document should be revised accordingly.

7 | Page 4-172, Section 4.4.5.1 Proposed Action, Cumulative Impacts. This section should be revised to include a perspective on the uniqueness, importance and scarcity of wetlands in California, particularly vernal pools. Simply stating
15.7 | that the proposed action would "add" to the loss of wetlands inadequately quantifies cumulative impacts. To adequately address this important impact, the document should calculate the acreage of wetlands potentially impacted by other proposed gravel mining and urban development projects in Sacramento County and address how (in quantitative terms) the proposed action contributes to ongoing regional wetland losses.

8 | Page 4-173, Section 4.4.5.1 Proposed Action, Mitigation Measures. The document provides an inadequate discussion of mitigation measures for wetland losses. The impression conveyed in the document's cursory review is that
15.8 | mitigation for losses is easily accomplished. On the contrary, wetland mitigation is an inexact science and for vernal pools, in particular, unproven to date. The document should include a discussion of the likelihood of successful replacement of vernal pool habitat and an estimate of the cost associated with this mitigation measure. The document should also address the likelihood of mitigating adverse impacts to proposed and candidate species.

SUMMARY COMMENTS

Implementation of the proposed action would result in the loss of 62 acres of wetlands, including vernal pool and riparian habitat. While these wetland types provide valuable habitat for fish and wildlife resources, they unfortunately, are also greatly limited in extent and rapidly declining in this region of California.

The FWS estimates that over 90 percent of California's wetlands has been lost primarily to agricultural and urban development. An estimated 98 percent of riparian habitat in California has also been lost. The extent of these losses is nearly unparalleled when viewed from a national perspective. The remaining wetlands are considered crucial to the maintenance of migratory fowl and shorebird populations in the Pacific Flyway, other migratory birds, and several candidate, proposed, and endangered species.

Consequently, the FWS seeks every opportunity to conserve these important habitats, and encourages all efforts to protect, improve, and restore fish, wildlife and naturally functioning aquatic and wetland ecosystems of our Nation. It is also our obligation, and that of all Federal agencies, to protect and restore populations of threatened and endangered species and prevent any species from becoming so limited in distribution and/or numbers that they may become threatened and endangered.

9 | Because of the potential for significant losses of wetlands associated with the proposed action and alternatives, potential impacts to proposed and
3.10 | candidate endangered species, and the uncertainty of adequate mitigation, the FWS must support adoption of the No-Action alternative.

We appreciate this opportunity to review and provide comments.

Sincerely,



Patricia Sanderson Port
Regional Environmental Officer

cc: Director, OEA (with incoming)
Regional Director FWS, Portland
Regional Director BLM, Sacramento

The Resources Agency

Pete Wilson
Governor

Douglas P. Wheeler
Secretary

of California

California Conservation Corps • Department of Boating & Waterways • Department of Conservation
Department of Fish & Game • Department of Forestry & Fire Protection • Department of Parks & Recreation • Department of Water Resources

January 29, 1992

U. S. Department of the Air Force
ATTN: Lt. Colonel Thomas J. Bartol
Director of Environmental Division
AFRCE-HHH/DEV
Norton AFB, CA 92409-6448

Dear Colonel Bartol:

The State has reviewed the Draft Environmental Impact Statement for Disposal and Reuse of Mather Air Force Base, Sacramento County, submitted through the Office of Planning and Research.

We coordinated review of this document with the Native American Heritage and State Lands Commissions, Central Valley Regional Water Quality Control and Reclamation Boards, and the Departments of Fish and Game, Health Services, and Transportation.

The Department of Fish and Game has provided the attached comments for your consideration.

The Department of Transportation has responded directly in correspondence dated January 24, 1992.

We support the concerns of the commenting departments and request that their recommendations be carried out to offset any adverse impacts.

The Resources Building Sacramento, CA 95814 (916) 653-5656 FAX (916) 653-5192

California Coastal Commission • California Tahoe Conservancy • California Water Board of California
Energy Resources Conservation & Development Commission • San Francisco Bay Conservation & Development Commission
State Coastal Conservancy • State Lands Commission • State Reclamation Board

Printed on recycled paper

U. S. Department of the Air Force
Page Two
January 29, 1992

Thank you for providing an opportunity to review this project.

Sincerely,



Carol Whiteside
Assistant Secretary,
Intergovernmental Relations

Attachment

cc: Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814
(SCH 91124012)

DOCUMENT 17

State of California

Memorandum

To The Honorable Douglas P. Wheeler
Secretary for Resources
Resources Agency
1416 Ninth Street
Sacramento, California 95814

Date January 21, 1992

From Department of Fish and Game

Subject Draft Environmental Impact Statement (EIS) entitled, "The disposal and Reuse of Mather Air Force Base, California" (SCH 91124012), Sacramento County

The Department of Fish and Game (DFG) has reviewed the December 1991, Draft Environmental Impact Statement (EIS) entitled, "The disposal and Reuse of Mather Air Force Base, California" (SCH 91124012).

According to the subject report, the Secretary of Defense approved the closure of Mather Air Force Base (AFB). On March 22, 1990, the Air Force released the Final EIS for the Closure of Mather AFB, which addressed environmental impacts associated with base closure. The Record of Decision was signed on May 14, 1990. The Air Force must now make a decision concerning the disposition of the base property. In support of this decision, this Draft EIS was prepared to provide information on the potential environmental impacts resulting from several alternatives for reuse of the base property after disposal.

The report identifies the sensitive resources on the base and also identifies the Federal and State laws and regulations that would apply to any proposed development of these lands.
1 However, we feel the report does not provide sufficient direction to ensure protection of these sensitive resources.

The proposed project may impact wetland habitats including riparian zones along streams, creeks, lakes, or vernal pools. It is DFG policy to oppose wetland development proposals unless, at a minimum, project mitigation assures there will be no net loss
15.9 of either wetland habitat values or acreage.

The project proponent must survey the project area to identify and assess all wetland habitats including any vernal pools, lakes, or streamside riparian/wetland zones. Based on the survey, a comprehensive plan must be developed which identifies all measures necessary to avoid or mitigate all negative impacts and provides tangible compensation for unavoidable impacts.

1 Documentation must be provided which assures that the proposal will result in no net loss of either wetland habitat values or acreage. Any nontangible compensation such as payment of fees to a wetland mitigation fund is unacceptable.

We, therefore, recommend the mitigation measures on page 4-172 be expanded to include protection of Mather Lake, existing streams, and the entire vernal pool watershed. All of
15.9 the above sensitive wildlife habitats should have a 200-foot setback. For example, the Natural Habitat designation in figure 2.2-1 (page 2-5) should be expanded to include all of the vernal pools between the existing housing and the sewage oxidation ponds (page 3-88, figure 3.4-3) and also expanded east in the grasslands to Sunrise Road. Protecting grasslands in this area would protect foraging areas of the State-listed threatened Swainson's hawk (Buteo swainsoni).

2 The Draft EIS also indicates that State-listed species may occur within the base. As recommended for wetlands above, we recommend the Final EIS include a plan that either ensures impacts to sensitive species will be avoided or specific mitigation will be required as development occurs. Fish and Game Code Section 2080 prohibits the "take" of State-listed threatened or endangered species including the take of essential habitat. The DFG can allow the take of a State-listed species pursuant to Fish and Game Code 2081 provided that the project proponent has
15.10 secured an Endangered Species Management Permit and Implementation Agreement (2081 Permit/Agreement). A 2081 Permit Agreement must ensure adequate compensation for any significant effects and must result in a net benefit to the species.

A permit pursuant to Section 10(1) of the Federal Endangered Species Act may also be required. Information regarding the requirements for this permit may be obtained by contacting Dr. Laurie Simon, U.S. Fish and Wildlife Service, 2800 Cottage Way, Sacramento, California 95825; telephone (916) 978-4866.

3 Pursuant to Public Resources Code sections 21092 and 21092.2,
1.6 the DFG requests written notification of proposed actions and pending decisions regarding this project. Written notifications should be directed to Region 2 at the address provided below.

If the DFG can be of further assistance, please contact Mr. Bob Mapes, Associate Wildlife Biologist, or Ms. Patricia Perkins, Wildlife Management Supervisor, Department of Fish and Game, Region 2, 1701 Nimbus Road, Suite A, Rancho Cordova, California 95670, telephone (916) 355-7010.

Boyd Gibbons
Director

cc: Mr. Wayne White
U.S. Fish and Wildlife Service
2800 Cottage Way, Room 1803
Sacramento, California 95825

Mr. Clyde Morris
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105-3901

Mr. Bob Mapes
Department of Fish and Game
Rancho Cordova, California

Ms. Patricia Perkins
Department of Fish and Game
Rancho Cordova, California

[illegible] Street, Suite 200 · Sacramento, [illegible] 95814 · (916) 552-[illegible]

February 3, 1992

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFCEE/ESE
Building 520, Room 137
Norton AFB, CA 92409-6448

Dear Lt. Col. Bartol:

I am an attorney for the Jon Gibson Company, Rancho Cordova, California.

Enclosed please find the written comments of the Jon Gibson Company concerning the U.S. Air Force's Draft Environmental Impact Statement for the Disposal and Reuse of Mather Air Force Base, California (December, 1991).

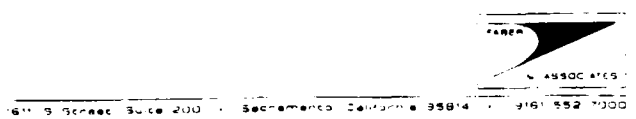
If I can supply any additional information, please contact me.

Very truly yours,

Jack R. Stevens

JRS/lmc

Enclosures



[illegible] 9 Street Suite 200 · Sacramento California 95814 · (916) 552-7300

COMMENTS BY THE JON GIBSON COMPANY, RANCHO CORDOVA, CALIFORNIA
Concerning the Inadequacy of the U.S. Air Force's Draft Environmental Impact Statement on the Disposal and Reuse of Mather Air Force Base (December, 1991)

As indicated in our oral comments concerning the Draft Environmental Impact Statement for the Disposal and Reuse of Mather Air Force Base (hereinafter "Draft EIS") made before the U.S. Air
1 Force on January 14, 1992 (Attachment A), we have concluded that the Draft EIS is inadequate because it provides no analysis of the impact on the physical or natural environment, public health, safety, and productivity of The Sacramento Housing and Redevelopment Agency's (SHRA) planned reuse of up to 60 units within the Single Officers' Housing Complex as "transitional
1.2 housing for families with children," and the entire Enlisted Men's Dormitory Complex, including the mess hall, for full-time residency by some 200 single "homeless" adults,* even though the document acknowledges the possibility of such reuse as a result of implementation of Title V of the Stewart B. McKinney Homeless Assistance Act (hereinafter, "McKinney Act") (pp. 2-1 to 2-2, "Alternatives Including the Proposed Action," Introduction).

The Council on Environmental Quality Regulations, 40 CFR Part 1500 (1987) (hereinafter "Regulations"), which governs implementation of the National Environmental Policy Act of 1969, Pub. L. 91-190, 42 U.S.C. §§4321 et seq. (hereinafter "NEPA"), states at Part §1500.2(e) (Policy) that federal agencies should use the NEPA process "to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment." Part §1502.16 ("Environmental Consequences") states that EIRs should discuss, *inter alia*, "(c) possible conflicts between the proposed action and the objectives of ... land use plans, policies, and controls for the area concerned."

* *Identified in the SHRA document, Surplus Federal Property Reuse for Homeless Assistance, Mather Air Force Base, Enlisted Men's Dormitories, Attachment B, as Officers' Quarters building #1701 and the modular family housing buildings #1751, 1752, 1753, and 1754, in addition to a mess hall/restaurant (building #1226) and dorm units/administrative offices (buildings #1210, 1214, 1216, 1218, 1220, 1222, 1224, 1228, 1230, 1234, and 1236)*

The U.S. Air Force contends that, "Effects upon the physical or natural environment as a result of potential changes in certain socioeconomic factors that are associated with or caused by the reuse of the base are addressed within this EIS" (1-7, socioeconomics). Yet nowhere in the Draft EIS does it discuss such effects, their possible mitigation, or alternative uses as pertains to the SHRA's homeless project (hereinafter "project"). Nor does the Draft EIS address potential incompatibility of the project with local land use objectives by way of its conflicts with surrounding recreational, commercial, educational and industrial uses. The Draft EIR's failure to confront the considerable potential impacts of the project upon public health, safety, and productivity is explained, presumably, by the U.S. Air Force's determination that the homeless project would have no potential adverse impacts upon the physical and natural environment or that the socioeconomic effects which would emanate from the project have no relation to primary effects upon that environment. As stated in the Draft EIS, "The socioeconomic impacts of ... reuse of Mather AFB property are analyzed only to the extent that those impacts affect the natural or physical environment" (1.4, "Environmental Impact Analysis Process"). And even the Socioeconomic Impact Analysis Study prepared by the U.S. Air Force in conjunction with the Draft EIS, which purports to comprehensively analyze the socioeconomic impacts of reuse of the base property, does not address the effects of the project.

Still, Part 1508.14 of the Regulations requires that the term "human environment" be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment" (emphasis added). The section goes on to declare that, "when an environmental impact statement is prepared and economic or social and natural or physical environmental effects are interrelated, then the environmental impact statement will discuss all of those effects on the human environment" (emphasis added).

We believe that the project would have numerous reasonably foreseeable significant adverse effects upon the human environment which NEPA requires that the U.S. Air Force examine. What is more, such effects are indissolubly interrelated with socioeconomic concerns which the draft EIR should also treat. The absence of such an examination in the Draft EIR cannot be rationalized on the grounds of incomplete information or exorbitant cost as the SHRA's plans for the project are well known and scientific information concerning the project's potential effects is readily available. And even if incompleteness or cost of information were legitimate factors in the Draft EIR's absence of a discussion regarding the project's impacts, the Air Force has not met the requirements of Part 1502.22 of the regulations, which call for an explanation of missing relevant information, a

summary of existing credible scientific evidence bearing on the matter, and some evaluation of issues by the agency, based as possible "upon theoretical approaches or research methods generally accepted in the scientific community."

For these reasons, and because the McKinney Act is not exempt from the NEPA process, we respectfully reiterate our request that the U.S. Air Force redraft the Draft EIS to analyze the project's interrelated potential physical/environmental and socioeconomic effects. These possible effects and concerns include, but are not limited to, the following:

I Attachment C cites credible recent surveys and other sources, including the SHRA itself, to provide statistics for the prevalence of mental instability, alcoholism, substance abuse, and criminality among the homeless. In addition, Attachment D, the Declaration of Stephen M. Boreman, a former Sacramento County supervising parole agent and credentialled narcotics specialist with the Federal Bureau of Investigation (FBI), demonstrates the high incidence of criminality and drug abuse among Sacramento area homeless.

A. Available statistics indicate that some 33% - 40% of the homeless are mentally unstable (Attachment C, Column A). Using these percentages to extrapolate to the project's 200 single adult residents, it is possible that some 66 to 80 of them would suffer from psychological disabilities.

B. E. Fuller Torrey, MD, a clinical and research psychiatrist in Washington, D. C. cites a 1983 study of discharges from Metropolitan State Hospital in Boston which found that 27% of all discharged patients "became at least intermittently homeless within six months of discharge." He also cites a similar study of discharges from Columbus State Hospital in Ohio showing that 36% were homeless within six months ("Who Goes Homeless?" *National Review*, August 26, 1991, p. 34.)

C. According to "How Attempts to Help the Homeless Can Backfire," *U.S. News and World Report*, February 29, 1988, "the majority of today's homeless originated ... in skid-row lockups or mental institutions" (p. 33).

D. The 1990 Annual Report of the Interagency Council on the Homeless states that the number of beds in state mental hospitals was reduced from 552,000 in 1955 to 108,000

in 1986. Given the increase in U.S. population since 1955, there would be a proportionate need for nearly 1 million beds today (Torrey, id., p. 35).

1. Is the dormitory-style location planned for the project suitable for mentally unstable persons?

2. What treatment services are planned for such persons?

3 What is the impact on public safety, fire suppression, and on the environment of having such persons located little more than 2,000 feet from aviation fuel hydrants?

4. What will be the impact of such persons on surrounding uses, some of which may include educational facilities for children?

E. Available statistics show a possibility that some 66-80 residents of the project's single adult dormitory units will be alcoholics/public inebriates (Attachment C, Column B).

1. Is the location a suitable one for such persons?

2. What treatment services are planned for these persons?

3. What is the impact on public safety, fire suppression, and on the environment of having such persons located little more than 2,000 feet from aviation fuel hydrants?

4 What will be the impact of such persons on surrounding uses, some of which may include educational facilities for children?

F Available statistics show a possibility that some 30-66 residents of the project's single adult dormitory units will be drug abusers (Attachment C, Column C).

1. Is the location a suitable one for such persons?

2. What treatment services are planned for such persons?

3. What is the impact on public safety, fire suppression, and on the environment of having such persons located little more than 2,000 feet from aviation fuel hydrants?

4. What will be the impact on groundwater and run-off water quality of the random disposal of toxic illegal drugs and pathogen vectors such as used intravenous drug syringes?

5. What is the threat to human safety posed by random disposal of toxic illegal drugs and pathogen vectors such as used intravenous drug syringes, particularly in the possible vicinity of educational and recreational uses involving children?

6. What steps can be taken by SHRA to make certain no substance abuse occurs at and around the project?

G. Available statistics show a possibility that some 40-48 residents of the project's single adult dormitory units will have criminal backgrounds (Attachment C, Column D).

H. According to Attachment D, fugitive parolees can often be found among the Sacramento County homeless. Also, the criminal and non-criminal homeless are "virtually indistinguishable" and the criminal homeless often prey on other homeless.

I. The Central Warrants Division of the Sacramento County Sheriff's Office reports that there are currently some 120,000 outstanding arrest warrants in Sacramento County, many involving violent felonies.

J. According to data compiled as of December 31, 1991 by Richard Bass, Research Analyst II, Data Unit, California Department of Corrections, there are currently 244 parolees at large (PAL's) in downtown Sacramento, North Sacramento, South Sacramento, and Natomas, alone (23 of these fugitives are classified as "releasees at large" and are considered substance abusers).

K. The Third Appellate District Court decision in Housing Authority of the County of Sacramento, et al. v. John K. Van De Kamp, August 23, 1990, COO7332 (Superior Court No. 361782)(Attachment E), prohibits the SHRA from performing criminal

background checks on prospective residents of housing projects to screen out parolees at large, fugitives from arrest warrants or other persons whose presence in a project might create a public safety risk.

1 What will be the effect on surrounding uses and land use patterns if the project houses a considerable number of persons prone to committing criminal acts?

2. What will be the effect on public safety if the project houses a considerable number of persons prone to committing criminal acts.

3 How will the project be secured to prevent predation by its criminally-prone residents upon surrounding commercial, recreational, and educational users?

4 How will SHRA secure narcotics and other drugs stored at the nearby Mather AFB Hospital from theft by criminally-prone or drug-abusing residents of the project?

5. Will SHRA control access to the project to prevent contact between its residents and outside criminal elements?

6. What will be the effect on the environment and fire suppression of housing criminally-prone persons little more than 2,000 yards from aviation fuel hydrants?

7. What are the site alternatives to housing these potentially dangerous persons so close to base medical users, commercial users along Old Placerville Road, recreational and educational users on the base, and Rancho Cordova residential areas?

8. How will the SHRA protect residents of the project from predation by other criminally-prone reside... housed in close proximity in the dormitory-style units?

9 How will the SHRA control vandalism of base premises by the criminally-prone residents of the project?

10. How will the SHRA control (by mechanical sweeping or other means) degradation of the base environment through improper solid and hazardous waste disposal by its residents?

11. How will the SHRA control noise pollution at the project such as amplified music and loud engine noises discernible to nearby users?

12. What will be the increased budgetary demands upon local law enforcement agencies due to a possible increase in the commission of criminal acts in and around the base?

13. How will a possible increase in the commission of criminal acts in and around the base affect local law enforcement response time?

14. Will the SHRA restrict travel by the project residents or will they be free to roam the surrounding area?

15. What will the SHRA do if residents fail to meet standards required for the program?

16. What studies have been done on the impact on areas surrounding homeless projects?

II. John Malloy, Executive Director of SHRA, stated to representatives of the Jon Gibson Company at a meeting in the SHRA office on January 2, 1992 that many of the residents of the project would "have their own cars." It is reasonably foreseeable, given the impecunious status of those eligible for residency in the project, that such vehicles will be older, poorly-maintained, and possibly, not in compliance with environmental or safety statutes.

A. The U.S. Environmental Protection Agency (EPA) has promulgated national ambient air quality standards (NAAQS) for a variety of pollutants as required by the Clean Air Act Amendments of 1977. The Act dictates that standards be set at a level that protects public health and welfare. NAAQS have been established for ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), and ten-micron suspended particulate matter (PM_{10}).

Mather AFB is situated in an air basin which has exceeded the primary NAAQS for O_3 and CO more than three days during a three-year period and is therefore considered a "non-attainment area" subject to more rigorous air pollution monitoring, planning, and controls. Also, the area is currently in non-attainment of state standards with respect to PM_{10}.

Photochemical oxidants are generated principally by automobiles through reactions between hydrocarbons caused by incomplete combustion and another product of combustion, oxides of nitrogen. The formation of carbon monoxide can also be traced to inefficient combustion. And production of smaller, inhalable suspended particulates find their source, too, in vehicular traffic.

1. What would be the impact on local air quality (incremental increases in O_3, CO, and PM_{10}) of daily traffic in and out of the base by older cars with inefficient combustion, equipped possibly with faulty emissions control devices or lacking such devices altogether?

2. How will the SHRA monitor and control the vehicle emissions systems of the automobiles used by residents of the project?

B. Parking lot runoff can include motor oil, gasoline, and hydraulic and radiator fluids, each of which contain toxic chemicals.

1. What would be the incremental effect on groundwater and storm drain contamination of increased parking lot runoff from older, poorly-maintained cars ! aking these toxic chemicals?

2. What would be the effect on local air quality of the evaporation of these volatile contaminates?

3. How would such evaporation be affected by the porosity of parking area surfaces?

III. Congress commissioned a 1988 National Academy of Sciences (NAS) "Homelessness, Health, and Human Needs" report, which identified tuberculosis and AIDS (in addition to alcoholism and schizophrenia) as major health problems among the homeless.

A. Tuberculosis is considered highly contagious and can be spread easily by coughing and sneezing.

B. AIDS can be transmitted through shared intravenous needles and sexual contact.

1. How will the SHRA provide medical treatment for residents of the project afflicted with tuberculosis, AIDS and other contagious diseases?

2. How will the SHRA screen residents of the project for these diseases?

3. How will the SHRA prevent infection of personnel and other residents of the project by residents afflicted with tuberculosis?

4. How will the SHRA prevent infection of personnel and other residents of the project by residents suffering from AIDS?

5. Will the SHRA seek to control sexual relations between residents of the project?

IV As described in the September 4, 1991 letter to the editor of the *Sacramento Union* written by Edi Thompson of Sacramento (Attachment F), transient/homeless persons often relieve themselves on public streets and against walls. This may be explained by the documented high percentage of the homeless who abuse alcohol and may frequently be inebriated in public (see Attachment C concerning the proportion of the homeless who abuse alcohol).

A. Significant adverse impacts on the environment, in addition to human health, can result from the random discharge of untreated human sewage. It may cause disease among humans and animals. In addition, biological decomposition of such organic matter may endanger aquatic organisms by depressing dissolved oxygen levels.

1. What would be the effects on human health of random discharges of untreated sewage at the base?

2. What would be the incremental effect on groundwater and outflow into local waterways of such contamination as regards an increase in pathogens, algal nutrients, and local biochemical oxygen demands?

3. What would be the incremental effect of such contamination upon fisheries and the aquatic population in the immediate vicinity?

4. What would be the aesthetic impact of visible human sewage and its attendant odor?

V The Proposed Action analyzed in the Draft EIS involves conversion of the base to a civilian airport accompanied by reuse of existing facilities and the development of new facilities for industrial, commercial, and residential uses in currently undeveloped portions of the base (general aviation with air cargo) (2.2, Introduction).

A. Alternatives to the Proposed Action include:

i) Non-aviation with mixed-density residential;

ii) General aviation with aircraft maintenance;

iii) Non-aviation with low-density residential;

iv) No action.

1) What would be the effects upon the natural, physical, and human environments of developing the SHRA's project in conjunction with alternatives 1), 2), 3), and 4), respectively?

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

February 4, 1992

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFRCE-BMS/DEV
Norton Air Force Base, CA. 92409-6448

Dear Colonel Bartol:

The Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the Disposal and Reuse of Mather Air Force Base, Sacramento County, California. Our review is provided pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and Section 309 of the Clean Air Act.

The DEIS analyzes the potential environmental consequences of the proposed disposal and reuse of Mather Air Force Base pursuant to the Defense Base Closure and Realignment Act of 1990 and the National Environmental Policy Act.

Within that framework, the DEIS presents a Proposed Action which includes creating a civilian airport for general aviation and air cargo, an industrial park, a residential area, and a commercial area. Portions of the property would also be designated for recreation and natural habitat. The Proposed Action, as do all alternatives to the Proposal except no action, includes mining of aggregates on a given portion of the property as a "pre-development" project.

The DEIS discusses four distinct alternatives, including two which involve non-aviation uses, and no action. In addition, the document presents three conceptual proposals for partial use of the base property, including use as a federal correctional complex, as a center for Caltrans Research and Development, and as a site for a theme park. Other minor federal transfers and State/local conveyances are also briefly discussed.

The Air Force maintains that the final NEPA document (FEIS) and Record of Decision (ROD) would be used to "state the terms and conditions of the conveyances, including mitigation measures, if any, that will be completed by the Air Force or base property recipients." This, according to the DEIS "will affect the environment by determining or influencing the nature of the future use of the property." The EPA is pleased that the Air Force has taken a proactive approach in attempting to ensure that significant environmental concerns will be addressed early-on. In keeping with that approach, we have attempted to pattern our review comments and recommendations in a manner which reflects and supports the subsequent actions to be undertaken by the Air Force in the conveyance of the Mather AFB property as stated.

After having reviewed the DEIS, we have rated the document as EO-2, Environmental Objections - Insufficient Information (refer to attached "Summary of the EPA Rating System"). Our objections are based primarily on the following:

1) the proposed project would not comply with Section 404 of the Clean Water Act (CWA) or with Executive Order (EO) 11990, specifically, wetlands have not been appropriately delineated nor afforded sufficient protection as required by the Act and EO;

2) conformity with Section 176(c) of the Clean Air Act as amended in 1990 has not been demonstrated, specifically, the project as presented would interfere with attainment and maintenance of federal ozone and carbon monoxide standards;

3) there is a potential for significant environmental degradation that could be corrected by project modification or by utilizing other feasible alternatives, specifically with respect to lowering of the aquifer and in relation to the environmental impacts associated with the proposed aggregate mining operations; and,

1 10.4 4) while this document does a much better job of characterizing hazardous waste sites than the George AFB Disposal and Reuse EIS, sufficient information is not provided on the extent of contamination and the risk factors associated with Mather's Installation Restoration Program (IRP) sites.

Although the DEIS does display some shortcomings, the EPA believes that the Air Force has an excellent opportunity to use this NEPA process to positively influence the nature of the future use of Mather Air Force Base. While we do not suggest that the Air Force is able to dictate future uses of the property, our enclosed detailed comments identify several long-term potentially significant environmental impacts which could be alleviated by providing specific terms and conditions upon

conveyance of the property. We encourage the Air Force to address our comments and carefully consider our recommendations in preparing subsequent environmental documentation and Record of Decision for the disposal and reuse of Mather Air Force Base.

We appreciate the opportunity to review this DEIS. Please send three copies of the revised EIS to this office at the same time it is officially filed with our Washington, D.C. office. We are available to work with you and your staff on any aspects of the proposed reuse action. Should you have questions, please contact Jacqueline Wyland, Chief, Office of Federal Activities at (415) 744-1584 or have your staff contact David Farrel at (415) 744-1574.

Sincerely,

Deanna Wieman, Director
Office of External Affairs

001244CL.DF

Enclosures (3)

cc: Mr. J.B. Cole, Director AFCEE, Brooks AFB, Texas
Mr. Terry Yonkers, HQ AFBDA/BDV, Washington, D.C.
Mr. Phil Lamm, AFCEE Western Region, San Francisco, CA.
Ms. Shannon Cunniff, HQ OPA

EPA COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE DISPOSAL AND REUSE OF MATHER AIR FORCE BASE, Sacramento County, California 001244

HAZARDOUS MATERIALS/WASTE

S-5 Tables S-1, S-2, and S-3 indicate that PCBs would have no impact on any of the reuse alternatives discussed in this Environmental Impact Statement (EIS). On page 3-64, the Draft Environmental Impact Statement (DEIS) suggests that the goal of Mather AFB was to be PCB free by December 31, 1991. The FEIS should provide updated information on the current status of that effort. In addition, the Final Environmental Impact Statement (FEIS) should provide information on all PG&E/SMUD equipment located on base, specifically concerning the extent of PCB contamination of that equipment. 2 10.5

P 1-7 The DEIS states that the Installation Restoration Program (IRP) is a separate process being conducted concurrently with the DEIS and consideration of the IRP is beyond the scope of this EIS. We disagree with the total segregation of these two interrelated topics. The decisions that the Air Force will make concerning IRP activities could have a direct influence on the nature of the future use of the property. Therefore, the redevelopment community, as well as the community concerned with the remediation activities, should be provided adequate information on the impending interaction of these two programs. We recommend that the FEIS include an expanded overview of IRP efforts as they would relate to potential redevelopment activities. 3 10.6

Additionally, for the Air Force to provide sufficient information to the public interested in the reuse of Mather AFB, a discussion of the risk based decision process of the IRP should be included in the (FEIS). This discussion should include the choices of risk scenarios available to the Air Force and the consequences of those decisions on future land use options. 4

P 3-47 The FEIS should clarify the meaning of the statement that "the ROI (region of influence) for the known hazardous waste disposal sites on Mather AFB has extended past the boundaries of the base." 5 10.7

P 3-49 The DEIS states that "hazardous waste cannot be shipped from Mather AFB for storage at DRMO at McClellan AFB." The FEIS should provide the rationale behind this statement. 6 10.8

P 3-51 The Air Force makes reference to the potential that other responsible parties may be required to contribute to the CERCLA clean-up at Mather AFB. This reference to other responsible parties should be substantiated. 7 10.9

P 3-54 Some of the IRP sites are identified as No Further Action (NFA). This is also done on page 3-55. These sites are more accurately described as having no further investigation required. We recommend that this modification be incorporated into the FEIS. 8 10.10

P 3-58 Reference Table 3.3-4. There should be a note that all dates subsequent to Records of Decision (RODs) are tentative dates and cannot be determined until remedial actions have been selected. 9 10.11

The dates for the RI/FS Group 3 completion are reported in error as 1992. The correct date is April 17, 1993.

P 3-66 The DEIS indicates that, among other releases, out of date pharmaceuticals are discharged to the publicly-owned treatment works (POTW), but that the permit expired in September 1991. The FEIS should provide more timely details on the status of the permit and the Air Force activities associated with discharging to this facility. 10 10.12

P 3-67 In discussing the base hospital, the DEIS suggests that "at base closure all of the infectious and biohazardous waste will be removed and properly disposed of in accordance with the appropriate federal, state, and local regulations." It is our impression that the hospital would remain operational even after base closure, and would thus continue to generate some level of infectious and biohazardous waste. If this is true, the FEIS should in its "baseline" discussion, acknowledge that all of the waste would not be removed and should identify the amounts of waste expected from the operational hospital facility. 11 10.13

P 4-61 The DEIS states that "the extent of contamination at some sites has not been delineated." This statement should be revised in the FEIS to express that the extent of contamination has not been delineated at most (not some) sites. 12 10.14

The discussion of IRP site remediation in the FEIS should reference the Federal Facilities Agreement (FFA) schedule presented on page 3-58. 13 10.15

The last full paragraph on this page references Table 3.3-3 to illustrate which remedial designs are undergoing regulatory review. Presently, there are no remedial designs undergoing regulatory review. This point should be clarified in the FEIS. 14 10.16

Text in the FEIS should be expanded to note that other aspects of the IRP work (not just remedial design) may restrict future development. It is possible that some uses (e.g. residential) may be prevented by institutional controls. The FEIS should note that implementation of remedial actions may take longer than design. In addition, this section should refer to 15 10.17 16 10.18

the CERCLA requirement that all necessary remedial actions must be taken prior to transfer of the property. An example other than capping should also be given. As written, the DEIS presents an overly optimistic picture of the extent of the work that is required to "take all necessary remedial actions." 16 10.18

Reference to a cap in the last bullet on this page should be qualified in the FEIS to discount the implication that a remedial action has already been selected, i.e., the word pending should be replaced with the word potential. 17 *

P 4-65 The EPA does support the establishment of a cooperative planning body for hazardous materials and waste management as suggested in the DEIS. 18 10.3

WATER

S-16 The DEIS Summary acknowledges that the groundwater aquifer would experience overdraft conditions but does not relate how those conditions would affect local residents. The Summary presented in the FEIS should briefly describe expected effects. 19 12.1

P 3-16 The FEIS should identify the source of the 2.1 million gallons per day (MGD) of water which is the projected increase in usage over "closure baseline conditions." It is especially important to focus on the big picture in terms of water usage because of the potential for long-term drought conditions in the Sacramento Valley and inasmuch as the DEIS acknowledges severe mining of the area's groundwater. 20 12.2

P 3-40 The FEIS should explain what would become of the "Happy Camp" water line upon base closure and reuse. 21 12.3

P 3-53 The DEIS states that "the AC&W site was the confirmed source of trichloroethylene (TCE) and tetrachloroethane (PCE) contamination in the groundwater on base." The FEIS should discuss this further and relate the contamination to the proposed source of water for any reuse development on the base. On P 3-74, the DEIS suggests that although there may be some contamination of the drinking water on-base, the contamination is below state action levels. This section also indicates that "testing results have been below laboratory detection limits." We are very concerned with the quantity and quality of water that might be available for future development at Mather AFB, and envision that the character and extent of development will, in large part, hinge on water. We recommend that the FEIS clarify the statements regarding the quality of the water available for the various development scenarios at Mather, and provide any 22 12.4

current data on the quality of the base supply wells which were last tested in 1983.

23 The DEIS notes that the Air Force has connected off-base users to the public water system as a result of TCE-contamination in excess of State drinking water standards from an unidentified
12.3 source. It is unclear, however, whether the Air Force is also financing the ongoing water distribution for the individuals noted, and what the relationship would be after base closure. This should be briefly discussed in the FEIS.

24 P 4-51 The DEIS acknowledges that increased groundwater pumpage at Mather would result in a water level cone of depression ranging from 9 to 15 miles from the base. It is also acknowledged that "very shallow" wells in the region could experience lower water levels. The FEIS should provide additional details on the extent of impact that could be
12.5 expected. Included should be discussions on the potential for exacerbating and accelerating contaminant migration; the extent of the impact, i.e., how many water users would be affected and to what extent; and the potential measures to be taken to minimize drawdown. In addition, the FEIS should define what is meant by "very shallow" as in "very shallow wells" and "lower" as in "lower water levels."

25 P 4-54 We recommend that the Air Force adopt a stronger water conservation position than that reflected by the statement on page 4-59 that water usage would be reduced "through various voluntary or mandatory water conservation programs, including rationing." While imposed water rationing could be viewed as a component of conservation, we support the use of measures which encourage reduced water use prior to the need for imposed rationing as the basis for conservation. We believe the Air Force should place a greater importance on implementation of such conservation measures in planning for base disposal. Contrary to the DEIS statement that water supply conservation mitigation
12.6 measures are not "necessary," the EPA views the base reuse as an opportunity to apply conservation and pollution prevention measures in a wide-scale, efficient manner. Wherever possible, we recommend that the Air Force include water conservation measures in the terms and conditions under which the base would be conveyed. For example, we encourage the Air Force to stipulate the use of low-flush commodes in all reuse development as a means to minimize water usage and wastewater generation. We also recommend that the Air Force promote use of water conserving landscaping for all development alternatives. The California Department of Water Resources is in the process of preparing a list of Urban Water Conservation Best Management Practices and Potential Best Management Practices (enclosure 3). We recommend the FEIS utilize as many of these concepts as is feasible in developing the previously mentioned conditions of conveyance.

26 In terms of wastewater mitigation, we recommend that the Air Force use this opportunity to strengthen the statement that
12.6 mitigation measures cannot be specified at this time (as suggested in the DEIS on P 4-59), by outlining and stipulating such measures for each alternative. This should include mandated waste minimization programs.

27 P 4-108 The DEIS states that "in evaluating the impacts to groundwater resources, no specific consideration has been given to the potential for contamination in groundwater supplies." EPA contends that this information could be critical in deciding the most appropriate development of Mather AFB, and as such, should be presented in the FEIS. We are also concerned that the DEIS
12.4 limits its discussion of preventing groundwater contamination to on-base groundwater supply wells. The FEIS should provide more details and rationale for this determination, and should discuss off-base implications as well. The potential for adverse impacts to water supplies is a critical issue which should be addressed in detail in this EIS. (Refer also to our previous comments on this topic in the Hazardous Materials/Waste Section.)

28 P 4-110 The DEIS indicates that although the Sacramento County Water Agency Water Plan (SCWAWP) contains sections which address water conservation and wastewater reclamation programs, "none of the programs are scheduled for implementation." Because of the increased demands placed on finite water resources, we question
12.6 whether significant development on Mather is practical prior to the implementation of water conservation and waste reclamation programs. The FEIS should examine and discuss optional conservation/reclamation programs and indicate those which would be included in the Record of Decision (ROD) as a precursor to property conveyance stipulations.

29 P 4-111 The DEIS briefly discusses surface water entitlement and suggests that "available surface water entitlement, if put to use as planned, will aid in mitigating the impacts from any of the alternatives." The DEIS fails, however, to address the
12.7 reality of the situation in terms of water availability and the cost associated with its delivery. Entitlements are effective only if water is available to meet the needs (of new development). The FEIS should consider the issue of water availability in terms of planning for realistic reuse alternatives.

WETLANDS

30 Based on the information provided in the DEIS, EPA believes
15.11 that the project does not comply with Section 404 of the Clean Water Act (CWA) under 40 CFR 230.10(a-d) and 230.12(a).

Approximately 146 acres of wetlands, including 65 acres of vernal pools, have been preliminarily identified at Mather Air Force Base. Section 4 of the Executive Order on Wetlands (E.O. 11990) states that "(w)hen Federally-owned wetlands or portions of wetlands are proposed for lease, easement, right-of-way or disposal to non-Federal public or private parties, the Federal agency shall (a) reference in the conveyance those uses that are restricted under identified Federal, State or local wetlands regulations; and (b) attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successor,...; or (c) withhold such properties from disposal. Although EPA recognizes that a natural area would be set aside under all project alternatives for the purpose of protecting some
31 of these resources, there will continue to be a direct wetland
15.12 loss of 28 - 81 acres. EPA believes that the Air Force must ensure, prior to disposal of these federal lands, that these wetlands are fully avoided or otherwise fully protected.

32 Due to the lack of specific plans in the DEIS, EPA cannot provide detailed comments on wetlands regarding all potential concerns, possible avoidance mechanisms, and potential mitigation. This relates to both direct and indirect impacts of the proposed alternatives. For example, it is not stated where irrigation and surface runoff from residential areas, park, and golf course will be discharged. The diversion of flows into existing wetlands or waterways may result in degradation of these environments and should be avoided. Additional detailed documentation should be provided in the FEIS.

33 The DEIS has not clearly demonstrated whether the proposed action or any of the alternatives is the least damaging practicable alternative for base reuse. It is clear, however, that each of the alternatives discussed in the DEIS contains
15.13 several projects, each having a unique purpose. The FEIS, therefore should provide a general analysis of each proposed project, pursuant to Section 404 of the CWA. This analysis should contain sufficient information to determine which of the alternative configurations best meets the least-environmentally damaging criteria while achieving each project's basic purpose.

34 EPA anticipates that all of the proposed alternatives are subject to on-site modifications as more site specific plans are developed. These modifications may result in greater avoidance
15.13 or greater impacts to wetlands. Because detailed information is lacking in the DEIS, our comments are reflective of projected gross impacts associated with the various alternatives. As noted previously, more detailed information is necessary for EPA to determine if the proposed alternative is the least damaging and in compliance with Section 404 Guidelines.

35 The DEIS includes three proposals ("Independent Concepts")
3.11 for partial use of the base: a Theme Park, a Caltrans R&D Center,

35 and a Federal Correctional Center. Selection of any of these reuse proposals would result in additional direct wetland losses.
3.11 If these proposals are still potential reuse options, we recommend that they be evaluated and presented in the FEIS as distinct alternatives to the proposed action.

36 The DEIS indicates that aggregate mining would be conducted prior to/or concurrent with partial property redevelopment. Mining would be accomplished to elevations approximately 35 feet below the original grade, affecting from 1,117 - 1,350 acres of the project site. The document does not clearly include aggregate mining as an alternative, but assumes that it will be performed under all alternatives. This action should either be
15.14 evaluated as a distinct alternative, or the alternatives presented in the DEIS should be supplemented in the FEIS by considering each without a mining option inasmuch as impacts to ground water and wetlands could be avoided if mining operations were not conducted. For each of the applicable alternatives, the FEIS should also identify where mining overburden would be stored prior to reclamation efforts.

37 The FEIS should indicate if any of the proposed reuses stated on page 2-45 (Section 2.3.4.4) of the DEIS would impact waters of the United States.

38 The acreages representing projected wetland impacts are not consistent in the text and tables. For example, the text on page
15.15 S-15 states that 47 acres of impacts may result from the proposed action versus 62 acres in Table S-6. We recommend that the Air Force closely examine and cross-reference all figures to ensure the FEIS presents accurate and consistent data.

39 The FEIS should 1) delineate (by type and acreage) all waters of United States within the project site and 2) provide
15.16 data on expected wetland losses by specific impact type (e.g., residential, mining, etc.). It would be helpful if this information was in text and table format.

40 The FEIS should provide figures which clearly show jurisdictional waters of the United States and any non-
15.17 jurisdictional wetlands, and an overlay of these wetlands and waters with each of the proposed developments.

41 The DEIS does not sufficiently address whether the proposed project would jeopardize the continued existence of federally endangered, threatened and candidate species which may be found
15.18 on-site. The presence or absence of these species within the project area has not been fully determined. The Air Force should coordinate with the U. S. Fish and Wildlife Service (USFWS) to ensure that federally listed species would not be jeopardized. This determination is necessary to ascertain compliance of the

proposed project with Section 404 Guidelines. Related information should be included in the FEIS.

Although candidate species are not formally protected pursuant to the Endangered Species Act (ESA), actions which may further their decline should nonetheless be avoided. Also, it is prudent to avoid impacts to these species due to the potential of their listing during project planning. For example, the giant garter snake, recently proposed for listing requires that the Air
42 Force conference with the USFWS. The FEIS should outline the
15.19 means to be used to ensure appropriate protection is afforded candidate species.

43 Surveys for vernal pool invertebrates have not been
15.20 performed for the proposed project. Currently three species of fairy shrimp and one species of tadpole shrimp are listed as federal candidates. Two of the fairy shrimp (Branchinecta lynchi and Linderiella occidentalis) and the tadpole shrimp (Lepidurus packardi) have been observed at nearby sites. Surveys for these species should be performed to determine if they will be impacted by the proposed project and the results included in the FEIS.

44
15.21 The DEIS does not provide a detailed mitigation plan to compensate for unavoidable impacts to waters of the United States. Without a detailed mitigation and monitoring plan, EPA is unable to determine if the project will fully compensate for direct and indirect impacts to wetlands and waters of the United States. The mitigation plan should include, but is not limited to the following information: parties responsible for implementing the mitigation; specific mitigation goals; proposed mitigation and site characteristics; composition, size, and density of vegetative species to be used; success criteria; monitoring plan (for not less than 10 years); and remedial actions should success of the proposed mitigation not be achieved. This plan should be included in the FEIS and should be made part of the property conveyance for all reuse alternatives.

AIR

As stated in the DEIS, the project area is in violation of federal standards for ozone and carbon monoxide (CO). Under the classification scheme of the 1990 amendments to the Clean Air Act (CAA), the air quality in the area is classified as "serious" for ozone and "moderate" for carbon monoxide. Therefore, attainment plans for CO and ozone are required by 1992 and 1994, respectively. EPA has substantial concerns regarding potential impacts to attainment and maintenance of federal air quality standards, since the DEIS correctly identifies interference with attainment as one of the potential impacts of all reuse alternatives.

45
13.1 EPA commends the Air Force for their attempt to quantify the air quality impacts associated with the reuse alternatives. We do, however, request that additional information be provided on the EDMS modeling system in order for us to adequately evaluate that modeling system with respect to the standard models used by EPA.

46
13.2 S-10 Tables S-4, S-5, and S-6 do not address CO emissions within the Air Quality category. In addition, on S-14, the EIS discusses emissions but does not include CO in the discussion. The FEIS should correct this omission.

47
13.3 P 1-6 The discussion on air quality should differentiate between state and federal non-attainment status.

48
10.23 P 3-65 The discussion on EPA recommendations for radon surveys and follow-on mitigation should be revised to eliminate misconceptions presented in the DEIS. For example, the DEIS suggests that "additional screening (should be conducted) within a few years" if initial screening results indicate levels between 4 pCi/l and 20 pCi/l. In actuality, EPA recommends that action be taken to reduce levels to below 4 pCi/l "within a few years, sooner if levels are at the upper end of this range." We recommend that the FEIS accurately depict the actions necessary to limit exposure to radon rather than suggesting additional screening as a mitigation. Refer to page 11 of EPA's A Citizen's Guide to Radon for action guidance.

49
10.24 P 3-66 The DEIS refers to an Air Force Radon Assessment and Mitigation Program (RAMP) study conducted at Mather during the 1990-1991 time frame. It is unclear why the results of the monitoring effort would be delayed until August 1992, inasmuch as the actual monitoring was completed in February 1991. If possible, this information should be included in the FEIS.

50
13.4 P 3-80 Use of 1987 data to approximate 1994 emissions, which the DEIS suggests would be "approximately the same..." is questionable, given that significant population increases have occurred in the Sacramento area since 1987. It is our understanding that more timely emissions data may be available in February 1992. We recommend that the Air Force replace all 1987 emissions data with that which becomes available prior to publication of the FEIS.

51
10.25 P 4-97 The DEIS suggests that vacated buildings "would likely be boarded up" to eliminate airborne exposure to releases of deteriorating asbestos-containing material (ACM). We recommend that the FEIS contain more explicit assurances that appropriate measures would be taken to prevent releases of ACM, and identify the parties responsible for implementing those measures.

52
13.5 P 4-101 In discussing mitigation measures associated with aggregate mining, it is unclear whether the stated measures would be made a condition of property conveyance or is simply a list of what "could" be done to mitigate impacts. We recommend that mitigation be expressed as commitments in the Record of Decision and included in the property conveyance. In addition, the FEIS should discuss the mitigation measures necessary to prevent stockpiled soil from exacerbating fugitive particulate emissions and to ensure generation of dust is minimized during any mining operations that might be conducted on the property.

53
13.6 P 4-119 We are concerned that construction activities are discussed in the DEIS in terms of being temporary activities, especially since the DEIS acknowledges on P 4-120 that project development would encompass a 20 year period. Although in relative terms, some of the construction phase emissions could perhaps be termed "temporary," we disagree with the approach that discounts an analysis of such emissions by focusing only on "estimating the amount of uncontrolled fugitive dust that may be emitted from disturbed areas." Temporary sources are not specifically exempted from consideration under the Clean Air Act. Such emissions should be evaluated and minimized wherever possible as part of the proposed project. This would include discussing appropriate mitigation measures to minimize "uncontrolled fugitive dust" as well as other construction-related emissions in the FEIS.

54
13.7 P 4-120 The DEIS briefly discusses cumulative impacts on air quality and discounts any cumulative effects that might occur by assuming that "successful mitigation and offsetting of the emissions" would negate any such impacts. We are concerned with this statement because it assumes that mitigation would be successful or that sufficient offsets would be available. We would not expect that sufficient emissions from any of the project alternatives would be eliminated to totally discount cumulative effects, especially in this nonattainment area. The FEIS should discuss cumulative impacts in terms of how project emissions (remaining after mitigation) combined with other emission sources within the region would comply with the conformity provisions of the new CAA.

55
13.8 P 4-126 The DEIS does not adequately address compliance with the conformity requirements of Section 176(c) of the CAA. Under that section, all federal agencies are prohibited from "support(ing) in any way...any activity which does not conform to an implementation plan after it has been approved or promulgated..." Conformity to an implementation plan means:

> "conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the National Ambient Air Quality Standards

> (NAAQS) and achieving expeditious attainment of such standards; and
>
> "...that such activities will not (i) cause or contribute to any new violation of any standard in the area; (ii) increase the frequency or severity of any existing violation of any standard in the area; or (iii) delay timely attainment of any standards or any required interim emission reductions or other milestones in any area."

There is no approved ozone plan for the area in which Mather AFB is located. In 1982 Sacramento and the State submitted a plan for which the attainment demonstration was never approved. As stated before, a new plan, demonstrating attainment of the
56 ozone standard, must be submitted to EPA by 1994. The DEIS incorrectly states on page 4-121 that the 1991 Sacramento Metropolitan Air Quality Management District's Air Quality Management Plan (AQMP) projects ozone attainment by the year 2010. Further, EPA is being subjected to litigation requiring promulgation of a federal attainment plan in light of the failure of the local or state agencies to develop an adequate plan. As
13.8 it stands, no conformity finding has been made for this action, and therefore the action would be in violation of a significant requirement of the CAA. It is EPA's position that, prior to Air Force's approval of, or otherwise enabling any reuse of, this facility, the Air Force must either make such a finding, consistent with the CAA, or otherwise provide a federally enforceable mechanism to ensure that any reuse of the facility will not be allowed to proceed unless and until such a finding has been made.

While we realize that the Air Force was not a signatory to the interagency agreement generated for the reuse of Pease AFB,
57 we encourage the Air Force to support the development of a
13.9 Memorandum of Understanding (MOU) which would reconcile the potential air quality impacts of anticipated uses of Mather with the State's obligation to submit attainment plans, and with the conformity requirements of the CAA.

LAND USE

58
6.1 P 2-11 It is unclear how the areas proposed to be used for mining activities would be "reclaimed" upon completion of these activities. The EIS should expand this discussion to include more specific details on reclamation efforts, techniques, and responsible parties.

P 2-17 In comparing the pre-development aggregate mining acreage between the Proposed Action (1117 acres) as delineated on Figure 2.2-1 and the Non-aviation with Mixed-density Residential

59 Alternative (1113 acres) as delineated on Figure 2.3-1, it appears that Figure 2.3-1 actually shows a greater extent of
6.2 mining activities than that shown on Figure 2.2-1 (primarily southeast of the proposed greenbelt). We recommend that The Air Force re-examine the data and graphics to ensure that the representations are accurate.

60 P 3-9 Given that the Sacramento County General Plan designates "the east side of the base as general agricultural"
13.12 (Refer to P 3-14), we recommend that the FEIS provide rationale the Air Force used in not considering an agricultural alternative in line with the stated General Plan.

TRAFFIC/TRANSPORTATION

61 P 2-14 The FEIS should provide readers with more substance in
7.2 terms of the potential extension of the Mass Transit light rail line. It is unclear how likely such an extension would be. The EIS should also provide a timeline for the proposed extension.

62 P 3-36 In discussing the Regional Transit District's proposal
7.3 to extend their Metro Route "past Mather AFB towards the city of Folsom," it would be helpful to show Folsom on a regional map in the FEIS.

63 P 4-21 Because of its value in reducing air pollution, we
7.4 encourage the use of Transit Oriented Development for all reuse alternatives at Mather AFB.

64 P 4-35 The DEIS suggests that "key community roads will (eventually) be widened" to minimize traffic congestion,
7.5 specifically on Zinfandel, Excelsior Road North, Kiefer Boulevard and Routiers Road North. To the extent that this would be an impact directly related to reuse, the impacts of the widening on businesses and residents should be presented in the FEIS.

65 P 4-36 We suggest you evaluate the air quality benefits of
13.10 modifying or phasing development of the base as a mitigation measure to minimize traffic congestion (for all alternatives).

66 P 4-49 The FEIS should provide a discussion on traffic
7.6 congestion mitigatic for the "Independent Concepts." (Refer also to our previous comments concerning the procedural analysis of these "Concepts.")

67 P 4-127 We are encouraged by the discussion of potential
7.7 "operational mitigation measures" presented in the DEIS. We recommend that these be included, to the extent legally feasible, as terms of property conveyance.

CONSERVATION, POLLUTION PREVENTION, WASTE MINIMIZATION, RECYCLING, AND BIODIVERSITY

68 S-1 The Air Force indicates that a decision document would be prepared "stating the terms and conditions under which the disposition will be made, including the mitigation measures, if any, that may be taken by the Air Force or be required of the recipients." This is restated on P 1-3 with the subsequent statement that "These decisions will affect the environment by determining or influencing the nature of the future use of the
1.7 property." We believe the Air Force can go far in assuring that the micro-scale environmental conditions are maintained in a positive manner regardless of the future use of the property by ensuring that appropriate conditions are placed on the property conveyance. We encourage the Air Force to use this mechanism to incorporate specific recommendations offered in our review of the DEIS.

69 P 1-7 As a part of the purpose and need for this action, the Air Force should consider including a brief discussion on the opportunities available for pollution prevention, energy
1.8 conservation, and waste minimization. We believe these are needs which should not be disjoined from the physical, economic, and political nature of the action as defined in the DEIS.

P 4-55 The EPA also views base transfers as an opportunity to encourage implementation of "waste" recycling programs associated with the redevelopment process. We encourage the Air Force to promote positive recycling efforts in the Sacramento area. Within this realm, the FEIS should also discuss recycle options for the demolition and construction materials which would result from the base closure and reuse. The discussion in the DEIS on page 4-56 is limited to landfill disposal.

70 An indirect impact of the proposed project would include the
9.1 expansion of the Kiefer Landfill. Potential impacts of this expansion should be provided in the FEIS.

71 P 4-57 We are concerned that the Air Force has not discussed a range of potential energy conservation measures in the Energy Mitigation Measures section on P 4-59. The FEIS should discuss the Green Lights Program for example, and should subsequently include measures which would lessen energy usage for all reuse alternatives as commitments in the Record of Decision . We also
1.8 recommend that the Air Force stipulate energy efficient construction measures be undertaken for all future reuse development.

P 4-63 The Air Force should consider being a proponent of implementing the California Integrated Waste Management Act, source reduction, recycling and composting programs for this

71 reuse effort. We encourage the Air Force to be innovative in their involvement in these critical areas. For example, we
1.8 recommend that the Air Force explore the possibility of structuring an incentive program into the actual land conveyance process which would evaluate proposed uses on the basis of the project's level of pollution prevention, waste minimization, conservation, etc.

72 P 4-169 In terms of plant and animal habitat, the FEIS should
15.22 discuss any specific undertakings which could be accomplished to promote the enhancement of biodiversity within the boundaries of the base.

EPA ISSUES

73 S-4 Table S-1 (and other subsequent Tables) refer to "factors (that) reflect change over closure baseline conditions."
1.9 A definition of the term "baseline conditions" should be provided in the EIS. We assume this means the conditions which would exist upon closure of the base.

74 P 1-6 The EIS should discuss the need associated with maintaining an airport facility at this location. On P 2-7, the
1.10 DIES notes that it is assumed the Executive Airport would be closed and "part of its usage will transfer to a Mather-site airport." Providing the rationale for that assumption in the EIS would allow readers to better understand the need for another airport in the Sacramento area.

75 P 4-28 The FEIS should discuss the need for continuing military operations at this facility should it be designated for reuse as an aviation alternative. It is also unclear what would
1.11 happen to the proposed military operations should a non-aviation alternative be adopted. The impacts of relocating military operations elsewhere should also be discussed in the FEIS if this would be the consequence of adopting a non-aviation alternative.

76 P 4-183 The DEIS correctly identifies land loss from roadway widening as an irretrievable commitment of resources. The FEIS
1.12 should also include land loss from other developmental aspects such as construction of buildings and runway reconfigurations, if needed.

MISCELLANY

P 3-2 The Regional Map incorrectly identifies Highway 70/99 routing northward from Sacramento. The correct identifier should be Highway 70/99. This is also misrepresented on several other

maps throughout the document. Similarly on pages 3-5 and 3-21, maps show Highway 90 extending westward into Yolo County. This roadway is actually I-80. Highways 70 and 99 are omitted from the Regional Transportation Map depicted on page 3-21. Figure 3.2-7 (and others throughout the DEIS) incorrectly shows Highway 99 as part of I-80 crossing Watt Avenue near Auburn Boulevard. Proceeding from the south, Highway 99 actually continues in a northwesterly direction through Sacramento eventually becoming
77 Highway 70/99 as stated previously. We recommend that the Air
7.8 Force re-examine all roadway maps for accuracy and modify those in need.

78 P 3-90 In discussing the burrowing owl, the DEIS indicates that "several have been sighted northeast of the runways near Old Placerville Road." The map on P 3-88 shows Old Placerville Road to be north or perhaps northwest of the runways. The FEIS should clarify the location of the sightings.

79 P 3-93 Regarding the brief discussion on Native American Resources, the DEIS states that "consultation was initiated with the Native American Heritage Commission" but that "this process
16.1 has produced negative results" and "therefore it is assumed that no area of interest to Native Americans exists within the ROI." For purposes of clarity, we suggest this section be rewritten to include a definition of the "negative results."

80 P 4-41 In the first paragraph of the Airspace/Air Traffic section, the DEIS indicates that the military aircraft operations for the General Aviation with Aircraft Maintenance Alternative would be "the same" as those projected for the Proposed Action.
7.9 In the first sentence of the following paragraph, the DEIS suggests that military aircraft operations would be less for the General Aviation with Aircraft Maintenance Alternative. Please clarify these statements in the FEIS.

P 8-2 This page is incorrectly located in Chapter 7.

Apdx A Page 10 (and the information contained thereon) has been left out of the DEIS and page 12 has been duplicated.

Summary of Rating Definitions and Follow-up Action

Environmental Impact of the Action

LO—Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO—Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU—Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1—Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

ENCL-2.

"JUST ABOUT FINAL" LIST OF
BEST MANAGEMENT PRACTICES
AND
POTENTIAL BMP'S

This is the "just about final" list of Urban Water Conservation Best Management Practices and Potential Best Management Practices. It reflects the agreement reached at the day 'e.'s Urban Water Conservation Subgroup meeting held November 19 1990

Water suppliers and public interest groups interested in finding out how they can participate next May in a major signing ceremony for the Memorandum of Understanding can call Jonas Minton, Chief of the Water Conservation Office, California Department of Water Resources at (916) 322-9989

The criteria for designation of BMP's are:

1. Established and generally accepted practices among water suppliers that result in more efficient use and conservation of water; or

2. Practices for which sufficient data are available from multiple demonstration projects to indicate: that significant conservation can be achieved, that the practices are technically and economically reasonable and not socially unacceptable; and where there is no apparent reason for most agencies not to carry out the practices

It is recognized that estimates of reliable savings are available for some BMP's but are not available for others. For instance Public Information is included as a BMP even though no one currently can reliably predict exactly how much will be conserved.

In that case the water districts signing the Memorandum of Understanding would commit to carrying out public information programs. Their water needs estimates for the current Bay-Delta water rights hearings would not be reduced to reflect speculative estimates of potential savings from that BMP. If water savings data from implemented programs become available they will be included in future water needs estimates

To reflect this differentiation two categories within the BMP list are proposed: "BMP's For Which Estimates of Reliable Savings Are Available" and "BMP's For Which Estimates of Reliable Estimates of Savings Are Not Available."

1

ENCL.3

Also included are brief descriptions of methods for implementing the BMP's. It is recognized by all parties that a single implementation method for a BMP would not be appropriate for all water suppliers. In fact it is likely that as the process moves forward water suppliers will find new implementation methods even more effective than those described. Wording is included specifying that any implementation method used should be at least as effective as the methods described.

The list of Potential BMP's contains those potential practices that would be studied and, where appropriate, demonstration projects would be carried out to determine if the practices meet the criteria to be designated as BMP's.

2

11-19-90 jbmplist

"JUST ABOUT FINAL" LIST OF BEST MANAGEMENT PRACTICES

It is recognized by all parties that a single implementation method for a BMP would not be appropriate for all water suppliers.

In fact it is likely that as the process moves forward water suppliers will find new implementation methods even more effective than those described. Any implementation method used should be at least as effective as the methods described.

BMP's For Which Estimates of Reliable Savings Are Available

These are BMP's that water agencies commit to implementing. Their water needs estimates will be adjusted to reflect reliable estimates of savings from this category of BMP's. The water agencies will also measure the actual savings so that the savings estimates will be refined for future water needs estimates.

1. INTERIOR AND EXTERIOR WATER AUDITS AND INCENTIVE PROGRAMS FOR SINGLE FAMILY RESIDENTIAL, MULTI-FAMILY RESIDENTIAL, INSTITUTIONAL, AND GOVERNMENTAL CUSTOMERS.

   Implementation methods: at least as effective as identifying the highest (perhaps the top 10% to 20%) water users in each sector; directly contacting them (e.g. mail and/or telephone) and offering the service on a repeating cycle; providing incentives projected to be sufficient to achieve customer participation (e.g. free showerheads, hose end sprinkler timers, adjustment to high water use bills if the customers implement water conservation measures, etc.). This could be a cooperative water and energy audit program with the local energy utility.

2. PLUMBING

   ENFORCEMENT OF REQUIREMENT FOR ULTRA LOW FLUSH TOILETS IN ALL NEW CONSTRUCTION BEGINNING JANUARY 1, 1992

   Implementation methods: at least as effective as contacting the local building departments and providing information to the inspectors, and contacting major developers and plumbing supply outlets and informing them of the requirement.

   PLUMBING RETROFIT.

   Implementation methods: at least as effective as delivering retrofit kits including high quality showerheads

3

and toilet displacement devices or other devices to reduce flush volume for each home that does not already have ULF toilets; offering to install the devices; and following up at least three times.

ULTRA LOW FLUSH TOILET REPLACEMENT PROGRAMS.

Implementation methods: at least as effective as establishing a program to replace existing toilets over a reasonable period of time with toilets that use not more than 1.6 gallons per flush, perhaps through a requirement that all toilets be replaced at or within six months of property resale or providing financial incentives projected to be sufficient to achieve customer participation.

Note: It is recognized that data on the reliable savings from the Ultra Low Flush Toilet Replacement program are currently being gathered and analyzed. The results of this analysis should be available by October 1991. The signors to the MOU commit to working to agree on an estimate of reliable savings from this BMP that can be used in the Bay Delta water rights process.

3. DISTRIBUTION SYSTEM WATER AUDITS, LEAK DETECTION AND REPAIR.

Implementation methods: at least as effective as at least once every three years completing a water audit of the water supplier's distribution system using methodology such as that described in the American Water Works Association's "Manual of Water Supply Practices, Water Audits and Leak Detection;" advising customers whenever it appears possible that leaks exist on the customers' side of the meter; and performing distribution system leak detection and repair whenever the audit reveals that it would be cost effective.

4. METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS.

Implementation methods: requiring meters for all new connections and billing by volume of use; and establishing in a reasonable amount of time a program for retrofitting any existing unmetered connections and billing by volume of use, for example through a requirement that all connections be retrofitted at or within six months of resale of the property or retrofitted by neighborhood.

5 LARGE LANDSCAPE WATER AUDITS AND INCENTIVES

Implementation methods: at least as effective as identifying all irrigators of large (e.g at least 2 - 3 acres) landscapes (e.g. golf courses, green belts, common areas, multi-family housing landscapes, schools, business

parks, cemeteries, parks and publicly owned landscapes on or adjacent to road rights-of-way; contacting them directly (by mail and/or telephone); offering them free audits using methodology such as that described in the Landscape Water Management Handbook prepared for the California Department of Water Resources and incentives projected to be sufficient to achieve customer participation (e.g. cofunding improvements needed to achieve the conservation savings); providing follow up audits at least once every five years; and providing multi-lingual training and information necessary for implementation.

6. LANDSCAPE WATER CONSERVATION REQUIREMENTS FOR NEW AND EXISTING COMMERCIAL, INDUSTRIAL, INSTITUTIONAL, GOVERNMENTAL, AND MULTI-FAMILY DEVELOPMENTS.

Implementation methods: at least as effective as cooperating with cities, counties and the green industry in the service area to develop and implement landscape water conservation ordinances pursuant to Assembly Bill 325.

<u>BMP's For Which Estimates of Reliable Savings Are Not Available</u>

These are BMP's that water agencies commit to implementing. However because it is not currently possible to reliably estimate the savings that will result, the water needs estimates will not be adjusted to reflect savings from this category of BMP's. To the extent possible the water agencies will measure the actual savings so that the estimates of savings will be included in future water needs estimates.

1. PUBLIC INFORMATION.

Implementation methods: at least as effective as ongoing programs providing speakers to community groups and the media; using paid and public service advertising; using bill inserts to promote conservation; providing information on customers' bills showing use in gallons per day for the last billing period compared to the same period the year before; providing public information to promote other water conservation practices; and coordinating with other governmental agencies, industry groups and public interest groups.

2. SCHOOL EDUCATION.

Implementation methods: at least as effective as ongoing programs working with the school districts in the service area to provide educational materials and instructional assistance.

3. COMMERCIAL AND INDUSTRIAL WATER AUDITS AND INCENTIVES.

Implementation methods: at least as effective as identifying all commercial and industrial customers; contacting all of the industrial customers and the largest (e.g. the top 10% - 20%) of the commercial customers directly (by mail and/or telephone); offering them free audits and incentives projected to be sufficient to achieve customer participation (e.g. cofunding improvements needed to achieve conservation); and providing follow up audits at least once every five years.

4. ELIMINATION OF DECLINING BLOCK RATE PRICING STRUCTURES WITHIN CUSTOMER CLASSIFICATIONS.

Implementation methods: at least as effective as revising the water supplier's pricing structure to eliminate declining block rates within customer classifications.

5. LANDSCAPE WATER CONSERVATION FOR NEW AND EXISTING SINGLE FAMILY HOMES.

Implementation methods: at least as effective as providing guidelines, information and incentives for installation of more efficient landscapes and water saving practices (e.g. encouraging local nurseries to promote sales and use of low water using plants, providing landscape water conservation materials in new home owner packets and water bills, sponsoring demonstration gardens); and working with cities, counties, and the green industry in the service area to develop landscape water conservation ordinances pursuant to Assembly Bill 325.

6. WATER WASTE ORDINANCES.

Implementation method is: enacting and enforcing ordinances prohibiting gutter flooding, sales of automatic (self regenerating) water softeners, single pass cooling systems in new industries, nonrecirculating systems in all new conveyer car wash systems, and nonrecycling decorative water fountains.

7. WATER CONSERVATION COORDINATOR.

Implementation methods: at least as effective as designating a water conservation coordinator responsible for preparing the conservation plan, managing its implementation, and evaluating the results. In very small agencies this might be a part time responsibility. In larger agencies this would be a full time responsibility with additional staff as appropriate. This work should be coordinated with the agency's operations and planning staff.

8. ECONOMIC INCENTIVES

Offering financial incentives to all customer classes for them to implement conservation. If the water supplier wholesales water to other water suppliers they will also offer them financial incentives to conserve.

Implementation methods and schedule: to be developed as specified in the Memorandum of Understanding.

DOCUMENT 19

11-19-90 JBMPLIST

"JUST ABOUT FINAL" LIST OF POTENTIAL BEST MANAGEMENT PRACTICES

These are potential practices that would be studied and, where appropriate, demonstration projects would be carried out to determine if the practices meet the criteria to be designated as BMP's:

1. EFFICIENCY STANDARDS FOR WATER USING APPLIANCES AND IRRIGATION DEVICES.

2. REPLACEMENT OF EXISTING WATER USING APPLIANCES (EXCEPT TOILETS AND SHOWERHEADS WHOSE REPLACEMENTS ARE INCORPORATED INTO BEST MANAGEMENT PRACTICES) AND IRRIGATION DEVICES.

3. RETROFIT OF EXISTING CAR WASHES.

4. GRAYWATER USE.

5. DISTRIBUTION SYSTEM PRESSURE REGULATION.

6. WATER DISTRICT BILLING RECORDS BROKEN DOWN BY CUSTOMER CLASS (E.G. RESIDENTIAL, COMMERCIAL, INDUSTRIAL).

7. RATE STRUCTURES AND OTHER ECONOMIC INCENTIVES AND DISINCENTIVES TO ENCOURAGE WATER CONSERVATION INCLUDING SEASONAL RATES, INCREASING BLOCK RATES, MINIMIZED SERVICE CHARGES; CHARGING NEW CONNECTIONS WITH A SLIDING-SCALE CONNECTION FEE TARGETED TO ENCOURAGE INSTALLATION OF WATER EFFICIENT FIXTURES, APPLIANCES, AND LANDSCAPES; DEVELOPING A GRANT OR LOAN PROGRAM TO HELP FINANCE CONSERVATION PROJECTS BY RESIDENTIAL, COMMERCIAL, INDUSTRIAL AND PUBLIC CUSTOMERS; OFFERING INTERRUPTIBLE WATER SERVICE TO LARGE INDUSTRIAL, COMMERCIAL OR PUBLIC CUSTOMERS; COMBINING REBATES AND SURCHARGES IN A GOAL-BILLING SYSTEM.

8. SWIMMING POOL AND SPA CONSERVATION INCLUDING COVERS TO REDUCE EVAPORATION.

9. RESTRICTIONS OR PROHIBITIONS ON AQUAMISTERS THAT USE EVAPORATION TO COOL EXTERIOR SPACES.

10. POINT-OF-USE WATER HEATERS, RECIRCULATING HOT WATER SYSTEMS AND HOT WATER PIPE INSULATION.

8

DOCUMENT 20

COPY

R.E. ANDERSON
1230 HOOKAH DR
SACRAMENTO CA 95822

92
JAN 30

PRIORITY

Mr. Tom MATOFF, General Manager
REGIONAL TRANSIT
P.O. 2110
SACRAMENTO CA 95812

Dear Mr. MATOFF:

Yesterday, I came to the R.T. office to discuss interests in the MATHER AIR FORCE BASE area and its future. I was directed to Mr. Mike WILEY, who was very courteous and considerate. In fact, he had such sincere interest he did not seem to object when I kept him well after 5Pm. He suggested I write you as to my observations.

1 My immediate interest is the location of a new VETERANS HOSPITAL.
3.13 As you know, the V.A. Hospital in MARTINEZ has been closed, is on an earthquake fault. The site of the new one is to be in the area of SACRAMENTO.

The taking of 65 acres near the UCD campus in DAVIS has, I hope, fallen from the first choice. My paper (A) has been reproduced and passed out by the UCD Housing Office and we can expect organized student protest as soon as the issue of fee increase cools off. I really think that DAVIS is now out.

2 I wish to get your careful assessment of a site East of the MATHER
3.13 HOSPITAL, on land mostly vacant. As you know, the MATHER HOSPITAL remains to serve active duty and retired military, under the jurisdiction of McCLELLAN AIR FORCE BASE. Sixty five acres, or more, is available to make an outstanding campus-like facility of low rise buildings with nurses quarters. I am a retired contractor. This is a low cost place to build. A new entrance for the two hospitals, including emergency, will make availability better than most any hospital, yet the area can have fenced security. The UCD Medical Site fails in these.

The two hospitals being neighbors would provide professional incentives. It is expected the MATHER golfcourse will remain, with social and residential incentives. Need I say more?

THE GOVERNMENT ALREADY OWNS THIS MATHER SITE.

Prior to WWII <I am now 80> I did LOSS PREVENTIVE ENGINEERING FOR A GROUP OF INSURANCE COMPANIES. I got into the study of TRAFFIC, but admit this was a minor portion of my work and on this I am mostly a layman. BUT MY WORK HAD MORE TO DO WITH THE FUTURE ECONOMIC AND PHYSICAL DEVELOPMENT OF AN AREA. Sometimes, as we can note, SACRAMENTO HAS NOT HAD GOOD PLANNING FOR THE FUTURE. On this, let's do well and include what is best for R.T.

3 The MATHER Site I propose would be the colony for the future development
3.14 of about 6,000 acres residential, commercial, recreational. THERE WILL BE MUCH NEED OF TRANSPORTATION. I have further ideas on MATHER.

If you get the property <Building 4200 and 20 acres> you seek from MATHER for the maintenance facility for busses and light rail cars, there is already a track on this MATHER land. I understand you will build a passenger station at MATHER FIELD ROAD AND FOLSOM BLVD.

DOCUMENT 20

R.E. ANDERSON
1230 HOOKAH DR
SACRAMENTO CA 95822

V.A. HOSPITAL

It is most surprising to find the City of DAVIS seeking to be the site of the new Veteran's Hospital- Administration Hospital to replace the condemned hospital in Martinez.

For years the citizens of DAVIS have been paragons of no-growth, including restricting new construction. The result has been that DAVIS has the highest cost of house, highest cost of living, in the area. Can the citizens be serious to want the V.A. hospital? It violates their long held philosophy from their own viewpoint.

The administration of UCDavis spoke against the DAVIS LOCATION.

Even the University of California Medical Center is in SACRAMENTO.

During any construction of the new facility, if in DAVIS, would require the workmen to drive for miles from less expensive places such as SACRAMENTO. IF A FEW CONSTRUCTION WORKERS CAN FIND RESIDENCE IN DAVIS, THEY WILL ROB UCDAVIS STUDENTS WHAT IS ALREADY IN SHORT SUPPLY.

THE PROPER PLACE FOR THE V.A. Hospital should be on MATHER AIR FORCE BASE LAND.

- That is closer to the UCD Medical Center than is DAVIS.
- The U.S. Government already owns the land. That not only reduces the cost greatly, it should reduce the time of getting started with construction.
- It will not usurp farm land.
- Per cooperation, it will be near the Mather Hospital, which will come under the control of McClellan Air Force Base.
- It will have nearby living accomodations being vacated by military personnel.
- Not only during construction, but in operation V.A. personnel cannot afford DAVIS living.
- Many acres are available. This open setting will be far more able to expand facilities when there.
- Many traffic access already exists. Also, SACRAMENTO has some mass transit and plan for more.
- It serves an area with many, many more veterans than does DAVIS. SACRAMENTO has one of the largest populations of retired military of any in the U.S.
- The open setting will be a better location for the nursing home.
- With the closing of active military use, schools, parks, and commercial facilities will be available - IN PLACE.

COMMON SENSE, ECONOMICS, THE NEEDS OF EMPLOYEES, THE NEEDS OF VETERANS ALL DICTATE MATHER AS THE PLACE FOR THE NEW V.A. HOSPITAL.

IMMEDIATE ATTENTION NEEDED
- WRITE THE V.A.
- WRITE THE U.S. CONGRESS MEMBERS
- TELL THE WORD TO OTHER VETERANS

TAXPAYERS SHOULD OBJECT
VETERANS SHOULD OBJECT

DOCUMENT 20

R.E. ANDERSON
1230 HOOKAH DR
SACRAMENTO CA 95822

Mather: Local officials get news late

By Steve Cohen
Bee Staff Writer

To Vic and Bob -
Also on the question of Mather for a prison. You two were again slow asleep. You should have been monitoring this important question almost daily. We deserve better from you than this.

United States Department of Agriculture
P.O. Box 2890
WASHINGTON DC 20013

Attn: Gary A. MARGRAVE

Dear Friends:

Thank you for your letter of 1990DEC24.

I am pleased that your purpose is to "minimize the extent to which Federal programs contribute to the unnecessary irreversible conversion of farmland to non agricultural uses...".

AS TO THE DAVIS SITE:
Selection of the site for the V.A. Hospital is a CLASSIC EXAMPLE OF UNNECESSARY IRREVERSIBLE CONVERSION OF FARMLAND BY A FEDERAL PROGRAM and I hope you will take immediate action on your purpose.

You are way out there in WASHINGTON DC, but let me assure you taking farmland near the DAVIS campus of UCD would be an irresponsible act to the utmost. This would be a rape of farmland among many reasons that would make that choice of a site for the new V.A. hospital to be ill-considered and harebrained. It is actions such as this that make citizens lose faith in all governmental agencies.

MATHER AIR FORCE BASE is being closed. It has a site ideal for the hospital in every way.

I see by your letter you have given the Department of Veterans Affairs a copy of my letter to you. Fine. BUT PLEASE NOW FOLLOW UP TO PREVENT THIS CONVERSION THAT IS SO POORLY THOUGHT OUT IT IS AT THE POINT OF BEING SILLY!

Sincerely,

COPY 6 - U.S. Department of Veterans Affairs
810 Vermont Av. N/W
WASHINGTON DC 20420
Attn: Secretary Edward DERWINSKI

COPY - President George BUSH.
I understand the Department of Veterans Affairs is within the Executive Branch.

COPY TO A

NEWS RELEASE
CONGRESSMEN
BOB MATSUI & VIC FAZIO

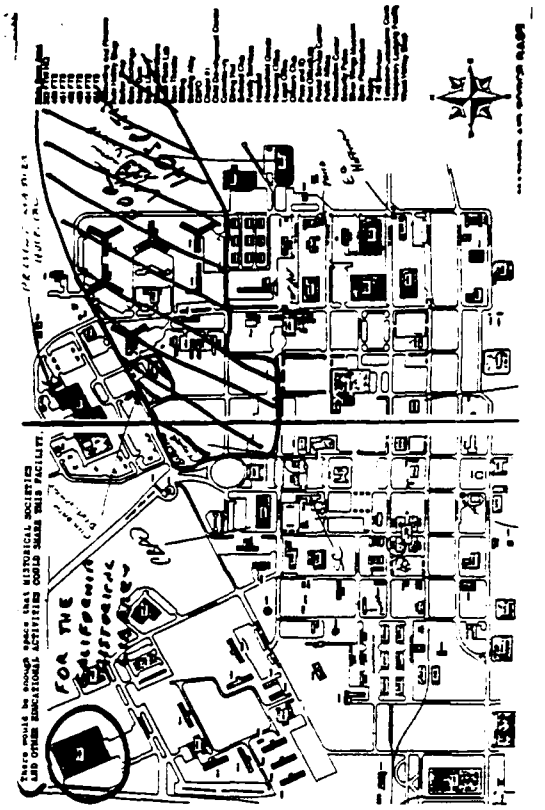
How come you two have been asleep on this?

DOCUMENT 20

We can have effect.
A hundred letters each as this to the VETERANS ADMINISTRATION
at this address 810 Vermont Av. N/W
WASHINGTON DC 20420
Attn: Secretary Edward DERWINSKI

With copy to President George BUSH. I mean it. He won't see it personally, but it will get Executive Branch attention.
And a copy to me, please, for my sheaf.

DOCUMENT 20



DOCUMENT 20

DOCUMENT 20

2.

The UCD Medical Center, if it were to have the V.A. Hospital, offers an extremely troubling future. One thing is congestion, lack of parking, excess of traffic. The Shriners are building the large Childrens Hospital there. As you may know, a children's hospital has about 200% of visitors compared with other hospitals.

My father was an M.D. 56 years in one city, 45 miles from the MAYO Clinic. I had an opportunity to see that institution develop. They put the huge St. Mary's Hospital well away from downtown to keep that traffic separate from downtown.

As on (B) enclosed, the UCD Medical Center is already congested, Area 2 being 85% of street parking spaces in a daytime survey. This, you know, will PRESENTLY have some blocks over 85%, SOME 100%.

WITH THE MATHER LOCATION, DURING COMMUTE HOURS, LIGHT RAIL PASSENGERS COMING WEST TO THE HOSPITAL WOULD DEBARK ALLOWING SPACE FOR COMMUTERS HEADING DOWNTOWN. Two fares. WHAT A FINANCIAL GIFT FOR R.T.

Those passengers going East from downtown to the V.A. Hospital will occupy seats now vacant. WHAT A FINANCIAL GIFT FOR R.T.

BUT A MAIN PROBLEM WITH THE MEDICAL CENTER SITE IS IT WILL CAUSE UTTER GRIDLOCK ON SUCH STREETS AS ALHAMBRA. MATHER, when abandoned, offers pleasant people moving to the V.A. Site and a profit for R.T.

Finally, none of us should wish to see a ghost town develop at the MATHER gate.

In consideration of all of the above, please advise me if there is ANY benefit for R.T. to favor the MedCenter site rather than MATHER LAND.

Sincerely,

R E Anderson

ATTN <And This Extra Note>
Development of MATHER LAND WILL TAKE INVESTMENTS. In SACRAMENTO there is one of the largest fund sources in the world, PERS. See attached.

DOCUMENT 20

(A)

R.E. ANDERSON
1234 MORAN DR
SACRAMENTO CA 95822

STUDENTS OF UCD PROTEST

IMMEDIATELY

IF THE VETERANS HOSPITAL IS BUILT IN DAVIS, ALL OF THOSE HOSPITAL EMPLOYEES WILL CRAB THE REASONABLE RENTALS. STUDENT HOUSING IS NOW SCARCE ENOUGH AND EXPENSIVE ENOUGH.
Protest to the UCD ADMINISTRATION - To UCD Housing Office
To the MAYOR of DAVIS (a prime culprit) -
AND PARTICULARLY TO THE VETERANS ADMINISTRATION IN WASHINGTON DC
IMMEDIATELY BY LETTER, BY PHONE, BY TELEGRAM

PLEASE DON'T LET THE VETERANS ADMINISTRATION DO THIS TO OUR VETERANS.

The MARTINEZ V.A. Hospital has closed. The committee for selecting a location for a new hospital has - CAN YOU BELIEVE IT- THE GOVERNMENT HAS MADE SOME SILLY DECISIONS, BUT THIS ONE TAKES THE CAKE - has, as #1 choice, selected some agriculture land near the DAVIS campus of UCD.

DAVIS is one of those places 'you can't get there from here.' All transportation is terrible. LOCAL transportation is so lacking that the city is the champion of Bicycle use. Vets cannot afford cabs to get to the hospital. Few VETS wish to bike to the hospital leg is cast.

The cost of living is so high in DAVIS - the average house is priced above $200,000. There is so little low rent housing all of the hospital employees and even some of the MDs won't be able to afford to live in DAVIS. Also those in construction while it is building. What little low cost living there is will be grabbed away from the already short supply for student living. OH, BUT, will the students scream.

So the hospital employees will be driving a minimum of 30 miles a day, with waste of time, nerves, increased traffic, waste of gasoline, AND MORE SMOG. Anyone sincerely interested in the environment SHOULD SCREAM.

DAVIS has no labor pool for entry level jobs such as with a hospital. SACRAMENTO sure does. ANYONE INTERESTED IN JOBS FOR THE UNEMPLOYED SHOULD SCREAM.

ANY TAXPAYER SHOULD SCREAM FOR THE SILLY IDEA OF BUYING AGRICULTURE LAND WHEN THE GOVERNMENT ALREADY HAS A BETTER LOCATION IN LAND BEING ABANDONED AT MATHER AIR FORCE BASE. LAND NOW GOVERNMENT OWNED.

Please immediately join this screaming. Complain immediately to the V.A. office in WASHINGTON DC. They are about to make the biggest blunder possible.

Sincerely,

R E Anderson

RCDR R (RET)
<916> 444-7666

FOR THE GOOD OF VETERANS
FOR THE GOOD OF TAXPAYERS
FOR THE GOOD OF STUDENTS
FOR THE GOOD OF ENVIRONMENT
FOR THE GOOD OF THE ECONOMY

Please get in touch with the V.A. in WASHINGTON DC IMMEDIATELY AND GET THEM SQUARED AWAY. Each day is important. They are now deciding on the site.

OR UCD [illegible]
" UCD [illegible]

DOCUMENT 20

(B)

R.E. ANDERSON
1234 MORAN DR
SACRAMENTO CA 95822

92

JAN24

At a JAN16 meeting with J. Mark MORAN, Parking Administrator for SACRAMENTO
Michael J. MELVIN, Chief of On Street Parking
I was shocked to learn the City Staff seems to have been going NO PLANNING for the impact to parking from the construction of the VETERANS HOSPITAL if it were to be constructed near the UCD Medical Center and near the largest Shriner Children's Hospital in the U.S. to be built in the same area.

I PLAN THE OFFICIALS, THE CITY COUNCIL, THE COUNTY BOARD OF SUPERVISORS, HAVE IGNORED THE HORRORS THAT W.I.L OCCUR IF THE VETERANS ADMINISTRATION BUILDS A 19 which are the plans> STORY HOSPITAL IN THAT AREA.

A study now finds over 95% DAYTIME OCCUPANCY OF THE STREET PARKING SPACES in what is termed Area #2 of the S.E Central City. For one familiar with "On Street" parking figures, this means residents NOW cannot find a space on the street on many occasions within a BLOCK OR TWO of their homes. It has been without promotion that 95% of the residents of Area #2 "love" that area put under the plan of RESIDENTIAL PARKING PERMITS. Other in Area #2 wish to sign.

With that, consider the horrors of the VETERANS ADMINISTRATION HOSPITAL squeezing a 19 story hospital, traffic, cars, busses, ambulances and hospital services in that tight situation. AN IRRESPONSIBLE DECISION. Even at present, with Light Rail crossing, one can often see three blocks of blocked traffic spewing SMOG and wasting time. During construction of the V.A. Hospital, During construction, the lines will be extended by churning concrete trucks and others, UTTER GRIDLOCK.

A BETTER LOCATION, ALMOST IDEAL is being abandoned at MATHER AIR FORCE BASE. The present MATHER Hospital is not being abandoned. It will remain under the jurisdiction of McCLELLAN Air Force Base. This is for Active Duty and Retired military personnel. The VETERANS ADMINISTRATION hospital is for less fortunate, needy, wounded and ill veterans for a wider area. THE IDEAL LOCATION IS RIGHT EAST OF THE MATHER HOSPITAL on MATHER ACREAGE NOT TAKEN BY THE MATHER HOSPITAL. THE PROBLEM PREVENTING THIS COMMON SENSE SITING OF THE V.A. HOSPITAL IS POLITICAL. MATHER land is under the Military Budget. The V. A. Budget is in the Executive Branch. Just the reasonable getting together of those two in WASHINGTON DC would give the Veterans, The Taxpayers, Those interested in cleaner air, less stressful living, a section of SACRAMENTO not being gridlocked, AND OTHERS the benefit of reasonable government. MATHER IS ABANDONING OVER 6000 acres. It has some streets, available water, fire protection, and a laundry list* of advantages I have previously sent to government officials and others.

Surprisingly, some people in important positions have become confused. Under date of JAN10, I have a letter from a member of the Assembly David KNOWLES. The V.A.Hospital will be large, providing/providing for the veterans in a extensive area, including his 7th District. It seems he has been laboring under the impression the V.A. proposal was to use the MATHER Hospital. NO!!! However, they would have the advantage of being immediate neighbors.

The letter from David KNOWLES states they <The V.A. Administration in Washington DC> "are evidently scheduled to make a final determination within the week." LET'S DO WHAT WE CAN TO PREVENT THIS HORROR. The V.A. address in WASHINGTON DC IS 810 Vermont Av. N/W Attn: Secretary DERWINSKI.

Sincerely,

R E Anderson

* For those seeking to discuss the AVIATION hazard of 19 stories East of Alhambra my phone # is 444-7666. MATHER has area for low profile, campus type facility

DOCUMENT 21

02-06-92 11:01AM FROM Dept. of Toxic Subs. TO 9171463027782 P002

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
(916) 855-7700

February 6, 1992

Lt. Col. Tom Bartel
AFCEE/ESE
Norton AFB, California 92409-6448

Dear Lt. Col. Bartel:

MATHER AIR FORCE BASE DRAFT ENVIRONMENTAL IMPACT STATEMENT

On December 13, 1991 the Air Force submitted to the Department of Toxic Substances Control (Department) the following report:

"Draft, Environmental Impact Statement, Disposal and Reuse of Mather Air Force Base, California", December 1991 (hereinafter "Draft EIS").

The Department has reviewed the Draft EIS and has no
1 significant comments. However, we would like to reiterate that
the Department is concerned that reuse activities may interfere
10.19 with or complicate remediation activities at Mather AFB, if not properly coordinated with the appropriate regulatory agencies.
2 The Department is concerned that the selected reuse alternate
10.20 allow for on-going access for clean-up, monitoring, operation and maintenance, and oversight activities.

If you should have any questions or comments regarding this matter, please contact me at (916) 855-7873.

Sincerely,

Tracie L. Billington

Tracie L. Billington, P.E.
Associate Waste Management Engineer
Site Mitigation Branch
Region 1

cc: See next page.

DOCUMENT 22

COUNTY OF SACRAMENTO
OFFICE OF THE COUNTY EXECUTIVE

BOB SMITH
County Executive

GARY CASSADY
Chief Deputy County Executive

LEE MOSS
Deputy County Executive

JOHN S. O'FARRELL
Deputy County Executive

February 4, 1992

Lt. Col. Tom Bartel
Director of Environmental Division
AFCEE/ESE
Norton AFB, California 92409-6448

Dear Lt. Col. Bartel:

On January 28, 1992 the Sacramento County Board of Supervisors approved the transmission of the enclosed staff comments on the Draft Environmental Impact Statement on the Disposal and Reuse of Mather Air Force Base for your evaluation and response.

Though we do not anticipate any addendums to these comments, if any further are brought to our attention you will receive them without delay.

Sincerely yours,

R. Doe Reynolds
Executive Director
Base Reuse and Realignment

RR:mm (afb17245)
Attachments (10):

A - Department of Environmental Review and Assessment letter
B - Planning and Community Development Department memo
C - Department of Airports
D - Building Design Division
E - Water Resources Division
F - Water Quality Division
G - Transportation Division
H - Park Planning and Development Division
I - Environmental Management Department
J - Sacramento Metropolitan Air Quality Management District Environmental Review

[illegible] STREET, SUITE [illegible] • SACRAMENTO, CALIFORNIA [illegible] • TELEPHONE: [illegible] • FAX: [illegible]

COUNTY OF SACRAMENTO
DEPARTMENT OF ENVIRONMENTAL REVIEW
AND ASSESSMENT

ALICIEE FRAIEIGH
DIRECTOR

Mr. R. Dee Reynolds
Mather Internal Study Team
700 H Street, Room 7650
Sacramento, California 95814

RECEIVED
JAN 17 1992

January 16, 1992

Subject: Overall Review of the Contents of the Draft Environmental Impact Statement (DEIS) for the Disposal and Reuse of Mather Air Force Base

Dear Mr. Reynolds:

As you are aware, the DEIS for the disposal and reuse of Mather Air Force Base was issued in mid December 1991. The main purpose of the DEIS is to create an advisory planning document which includes assessments of several potential site reuse plans. By evaluating alternatives, and designating a preferred alternative, the Air Force hopes to obtain a theoretical land use plan which can be used to project the site's property value. In other words, the Air Force will be able to perform a reasonable property value assessment before selling or transferring portions of the site to public or private entities.

As the disposal and reuse study has progressed, the initial purpose has been expanded to include the promotion of a good neighbor policy with the local community. The Air Force staff has expressed the desire to work cooperatively with local governments and communities. In keeping with the spirit of cooperation, the document preparers have labelled the land use alternative, which they believe most reflects the stated preferences of the local community, as the Air Force's preferred alternative.

The Air Force's decision to prepare an EIS for the Mather property disposal and reuse project represents a policy decision designed more to aid the community, by providing an initial assessment of potential environmental impacts, than to fully implement the requirements of the National Environmental Policy Act (NEPA). Consistent with three other Air Force installation disposal projects, the selection of a preferred alternative is hypothetical only. It is not binding even upon the Air Force. The only binding action is the decision to dispose of the site. Because the Air Force is not attempting to make land use decisions, it does not intend to fully implement provisions of NEPA which require selection of the least environmentally damaging alternative if at all feasible, and incorporation of mitigation measures to the maximum extent feasible.

The cover sheet of the DEIS contains the following statement which addresses the mitigation measure issue: "Because the Air Force is disposing of the property and most impacts will occur during reuse by future property owners, most mitigation measures are beyond the control of the Air Force." Perhaps, in response to this constraint, mitigation measures which

827 SEVENTH STREET • ROOM 220 • SACRAMENTO, CALIFORNIA 95814
TELEPHONE (916) 440-7914 • FAX: (916) 552-9440

are mentioned in the report are either: too general to be useful (land use, mining, noise), not within the enforcement authority of the Air Force (transportation), are deferred until local land use policies / plans are approved (utilities, air quality, hazardous waste from future uses, wetlands, other habitat, cultural resources); or are referenced as part of other mitigation programs currently being undertaken by the Air Force (hazardous materials).

As an example, the report states that remediation of the installation's hazardous or toxic sites "is, and will continue to be, the responsibility of the Air Force" as outlined in the Installation Restoration Program (IRP) agreement among the EPA, the Air Force, and the State of California Department of Human Services. The IRP represents a continuing effort to identify and mitigate adverse impacts from the long term use and disposal of toxics at the Mather site. The IRP, and related mitigation proposals, are, and will continue to be, entirely separate from the Mather disposal and reuse plan.

Regarding wetland mitigation, the DEIS refers to Executive Order 11990 which requires that federal agencies attach appropriate wetland mitigation to property when conveying land to non federal entities. As part of any conveyance, the new property owner is required to assume mitigation responsibilities. The DEIS does not include detailed mitigations or even assessments of all impacts upon wetlands. In fact, the document preparers note that some vernal pools may exist which are not included in wetland acreage counts. The document preparers also note that future actions which impact wetlands and other habitat will be subject to other federal regulations, such as the Clean Water and Endangered Species Acts which may, or may not, require environmental assessments and mitigation. Specific requirements of these Acts are not enumerated or discussed in the DEIS.

Finally, on the subject of mitigation, the Air Force's real estate division may, or may not, choose to attach mitigations or future use conditions to property when land is conveyed to non federal entities. It is also possible that some conditions and mitigation may be recommended in the Record of Decision for the subject project. In any event, future land use plans and zoning changes will be subject to the California Environmental Quality Act, including all regulations related to the identification, adoption and monitoring of measures to reduce or eliminate project related adverse environmental impacts.

Because the project, by its nature, does not establish land use policy, or pass judgement upon any land use plans, it should not be necessary to undertake an exhaustive review of the DEIS, or to submit comprehensive comments to the Air Force. I am certainly not opposed to the preparation of a comprehensive analysis, however, if interested parties feel that such an approach would be appropriate. If you have any questions regarding this correspondence, please feel free to contact me at 440-7914.

Sincerely,

Alicee Fraleigh, Director
Department of Environmental Review and Assessment

cc: Board of Supervisors

Bg

COUNTY OF SACRAMENTO
INTER-DEPARTMENT CORRESPONDENCE
WATER RESOURCES DIVISION

MEMORANDUM

DATE: January 21, 1992

TO: Douglas Fraleigh, Director
Department of Public Works

FROM: Keith DeVore, Chief
Water Resources Division

SUBJECT: COMMENTS UPON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE DISPOSAL AND REUSE OF MATHER AIR FORCE BASE

The Water Resources Division (WRD) has reviewed the Draft Environmental Impact Statement (DEIS) for the proposed disposal and reuse of the Mather Air Force Base and has the following comments.

REGARDING SURFACE AND GROUND WATER RESOURCES

In no special order, Water Supply Section's comments on the subject document are as follows:

1 • 9.2 The D.E.I.S. presentation of water use data is confusing; it would help enormously to present all discussion of water in one section.

2 9.3 Notwithstanding this issue of form, data presented in the D.E.I.S. often appears contradictory. As an example, Section 2.2.10 states that the proposed action will increase water demand 2.1 MGD by the year 2014, which is reflected in Table 4.2-15; yet Section 4.2.4.1 states that the proposed action will result in a 2014 water demand of 5.8 MGD, an increase of 3.5 MGD from the existing average day use of 2.3 MGD stated in Section 3.2.5.1. Table M-2 then lists total demand for the proposed action as 7,347 af/yr - this is 6.6 MGD, or an increase of 4.3 MGD!

3 9.4

4 9.5 Section 4.2.4.1 recommends fire reserves of 5,815 GPM for 10 hours, "about 4.6 MG" yet this calculates out to 3.5 MG. Each set of data appears to need review for consistency.

DEIS Comments - Disposal and Reuse of Mather AFB
January 21, 1992
Page 2

5 • 9.4 Table M-1 says that Parks demand is 5.5 af/ac/yr, yet Table M-2 calculates 773 ac of Parks demand at 9.0 af/ac/yr and 1,260 ac at 1.0 af/ac/yr (then totals the two at 1,260 af/yr). One also needs to know what is the basis for a Parks demand factor of 9.0 af/ac/yr.

6 • 9.6 In its discussion of increased water demand, the D.E.I.S. in several sections defines the percentage increase by 2014 as 0.5%. However this is calculated by comparison to regional water demand. This is a misleading comparison-percentage increase should be derived by comparison to existing Base use as well as to regional demands.

7 • 9.5 Typical fire reserve required in Sacramento County is 3,000 gpm for 3 hours; is there a reason Section 4.2.4.1 calls for 5,815 gpm for 10 hours, 4.2.4.2 calls for 8,127 gpm for 10 hours, 4.2.4.3 calls for 6,100 gpm for 10 hours, and 4.2.4.4 calls for 8,100 gpm for 10 hours?

8 • 9.7 The D.E.I.S. states that "growth of the base Water Supply System is limited by treatment and storage capabilities. However, future development of the site would not be hampered by these limitations, as the water purveyor... would assume responsibility for treatment and storage". What treatment and storage facilities will be needed, how much will they cost, and how will they be paid for?

9 • 9.8 In Sections 3.2.5.1 and 4.2.4.1 there is an implied assumption that either the Arden-Cordova Water Company or the Citizens Utilities Company will be the future purveyor for the Base site. This will be a matter of some controversy as the Board of Supervisors has made known its opposition to the expansion of investor-owned water utilities, and may well direct that the future water purveyor be the County Water Maintenance District. The D.E.I.S. should comment on this issue.

10 9.9 Section 3.2.5.1 also states that "Both purveyors have water mains which can be easily accessed in an inter-tie"; in each case: where is the proposed point of connection, is the purveyor's existing main adequate for an inter-tie, what will be the cost of an inter-tie and how will it be paid for?

11 * This section also comments that "future well permits may be harder to obtain"; what is the basis for this conclusion?

12 9.10 • Table 3.4.2 lists "Citizens Sunrise"; this should be "Sacramento Co. W.M.D. Sunrise".

13 9.11 • Is there any correlation between the water demands shown in Table 3.2.6 and those in Table 4.2-15?

• Section 4.2.4.1 refers to the "Sunrise District of the SCWA": We believe it means to say "the SCWA Sunrise study area".

14 9.12 • Table 4.4-3 refers to "Projected Drawdown Values"; this is somewhat misleading and should be changed to "Projected Drop in Groundwater Elevation".

15 9.13 • The D.E.I.S. comments that existing well production capacity is 21.7 MGD, approximately 24,000 af/yr. However, Section 4.4.2.1 states "a total pumpage capacity of approximately 35,000 af/yr".

16 9.14 • Table M-1 should list the demand factor for Residential use.

17 12.8 • Predictions of future groundwater rate of decline (Section 4.4.2.5 and other sections) indicate an increase of 2 1/2 to 3 times the existing rate, though the study says future groundwater use will increase by only 2% for the ROI. At

18 12.9 least one of the model assumptions, that there is "No flow along the northern, southern and western boundaries", is questionable.

19 12.10 The model should be made available for review in light of the very significant effects on groundwater that it predicts.

20 9.15 In short, there appears a significant amount of contradictory and unsubstantiated data in the D.E.I.S. that needs resolution. We suggest a single section of the study devoted to the issue of water supply in which all the Tables, data collections and discussions are readily available for reference and comparison.

REGARDING FLOOD CONTROL AND DRAINAGE

The DEIS minimally addresses the impacts of Base disposal and reuse upon flood control and drainage (for example, in section 4.4.2; and on pages 4-115: **Cumulative Impacts and Mitigation Measures for Surface Water**). We concur with this approach since

21 12.11 the ultimate scope and mitigation of these impacts are largely controlled by local land use and flood control planning agencies and, in the opinion of WRD, cannot be adequately addressed in the federal DEIS. For completeness, we recommend that the Final EIS merely incorporate the following additional information on the intent, scope, and progress of County planning activities and studies.

Drainage Master Plan - Need, Scope, and Schedule

A master drainage plan is being developed by Sacramento County Department of Public Works (Water Resources Division) for that reach of Morrison Creek which is expected to be impacted by aggregate mining. The study reach extends from Hedge Avenue upstream to Sunrise Boulevard, and includes that area on or near the creek which under the draft General Plan would have an underlying zoning of Surface Mining. The drainage master plan will assume mining of the entire aggregate resource within and adjacent to the study reach, and will consider a range of alternatives for:

- safe conveyance of the flows of Morrison Creek through the reclaimed pits, considering potential ultimate land uses,
- attenuating existing and future flood flows by the use of detention within the lowered lands,
- not adversely impacting existing and planned sewer, transportation, and other infrastructure, and
- integration of habitat mitigation, recreation, and open space uses within the ultimate creek corridor.

In addition, a baseline No Mining Alternative will be examined by the master plan, assuming that aggregate mining will not encroach upon the revised 100-year flood plain. (Existing-development flood plain maps will be revised in the course of preparing the master plan, using updated estimates of 100-year flood flows.) For the No Mining Alternative, drainage improvements and easements will be recommended to provide for conveyance (and/or attenuation) of ultimate-development 100-year flows. By comparing the No Mining Alternative impacts with those of the other study alternatives, the cumulative impacts of a decision to proceed with mining throughout the study reach will be identified.

The master planning effort is scheduled to provide a draft master plan report for initial review by the Board of Supervisors by mid-1992, with public hearings and submittal of a final study report to the County's Department of Environmental Review and Assessment thereafter. The drainage master plan and its associated CEQA document might be submitted to the Board of Directors of the Sacramento County Water Agency by early 1993.

Issues to be Addressed by the Drainage Master Plan

Several key drainage-related issues will be addressed for the entire mining reach by the master plan:

1) Will future mining upstream or downstream of the project require additional pumping stations? The costs of re-lifting creek flows at several points would greatly increase operation, maintenance, and ultimate facility-replacement capital costs.

2) What ultimate land uses must be considered when determining the desired (perhaps 200-year) level of flood protection and formulating an safe and reliable flood control system for the topographically-depressed post-reclamation lands?

3) How will the phasing of each aggregate mining project relate to the phasing of other potential and proposed mining, development, and transportation projects?

Environmental and planning issues which would be addressed by the mining reach master plan include:

1) What is the cumulative impact of aggregate mining within the 100-year floodplain upon habitat and other resources and open space values?

2) How will the various project mitigation plans be coordinated? Will they be administered by the County?

Specific Comments on the Mather AFB Closure and Reuse DEIS

WRD has the following project-specific comment upon the DEIS:

In section 2.2.7 and elsewhere (2.3.1.6; 2.3.2.8; and 2.3.3.6), the DEIS projects the ultimate land uses within the reclaimed aggregate mining areas to include: "a mixture of aviation support

uses, residential uses, and parks" and "light industrial (and) low-density residential uses". No such non-agricultural post-

22 3.15 mining uses have been proposed by the off-base mining interests at this time. To the extent that potential land uses are speculative, they should be identified as such.

Should the preparer of the DEIS seek clarification or further information, contacts are Senior Engineer John Coppola regarding water supply and Principal Engineer Craig Crouch regarding flood control and drainage.

401.01
3 Years

DEIS Comments - Disposal and Reuse of Mather AFB
January 21, 1992
Page 0

copies:

Terri Wegener
Steve Pedretti
John Coppola
Craig Crouch

DOCUMENT 22

COUNTY OF SACRAMENTO
Inter-Department Correspondence

January 21, 1992

To: R. Dee Reynolds
Assistant to the County Executive

From: Thomas W. Hutchings, Director
Planning and Community Development Department

Subject: MATHER AIR FORCE BASE DRAFT ENVIRONMENTAL IMPACT STATEMENT COMMENTS

23 This memorandum will outline comments from the Planning and Community Development Department regarding the Draft Environmental Impact Statement (DEIS) for Disposal and Reuse of Mather Air Force Base. While we are all aware of continuing uncertainties regarding reuse of the Base, I feel it is necessary to point out two assumptions made in the DEIS. First, on page 2-7, it is
1.13 assumed that Executive Airport will be closed. Then, on page 2-11, the surface mining of aggregate resources is discussed. Both of these issues require policy decisions by the appropriate reviewing body, as well as much input from local, state and federal agencies. Changes in these two assumptions could mean major changes to the proposed actions in the DEIS and should be discussed in that document.

24 It should be noted that there appears to be no discussion in the DEIS regarding on-Base zoning. The statement that the plans are consistent, for the most part, with surrounding zoning (page S-3) is probably accurate; however, the
6.3 Base is zoned Special Planning Area specifically for an Air Force Base and surface mining subject to approval of a conditional use permit. Any other use, either the proposed action or any of the alternatives, is not consistent with the existing on-Base zoning

The remainder of this memorandum will note issues that may require clarification from the preparers of the DEIS.

25 1. Noise Contours: On page S-14, it is stated that, ". . . approximately 624 acres will be exposed to day-night noise levels (DNL) of 65 decibels (dB)
14.7 or greater by the year 2014 . . ." Table 4.4-15 on page 4-149, however, indicates that in the year 2014, over 3,164 acres will be impacted by the 65 DNEL noise contour on and off the Base. This discrepancy should be clarified.

2. Surface Mining and Vernal Pools: As noted earlier, the DEIS assumes that aggregate surface mining will occur on the Base, even though the areas to be surface mined vary under alternative reuse plans (page 2-3). The proposed action, however, does show aggregate mining in an area of known
26 vernal pools (compare map on page 2-5 to map on page 3-88). It appears
15.23 appropriate that the environmental document address the impacts of surface mining in vernal pool areas to a greater extent.

TH:CD:kg
adm2/92

DOCUMENT 22

27 3. Natural Habitat: The proposed action also includes a 773-acre Natural Habitat (see map on page 2-5 and narrative on page 2-11). There is, however, no mention of how that property would be maintained nor if it is to be conveyed to a public agency, retained by the Air Force, or otherwise disposed of. Some clarification of questions regarding the proposed natural preserve area in the DEIS appear warranted.

28 4. Groundwater: We are also concerned about some comments made in the DEIS regarding groundwater. On page 3-51, the statement is made that ". . . groundwater contaminants have been found in the northwestern corner of the base . . ." and that low levels of TCE are present in groundwater. In addition, on page 3-53, it is stated that, "the northeastern corner of the base was found to have PCE contamination above state action levels," and that "TCE was detected above state action levels in several monitoring wells." In an earlier section of the DEIS (§3.2.5.1 Water Supply, page 3-38), it is noted that Mather derives potable water from ten wells located throughout the Base. The obvious concern for detected TCE and PCE in groundwater, which is the source of water for the Base, appears to need additional analysis in the DEIS.

29 It may also be necessary for the DEIS to discuss the potential impacts of the inability to utilize groundwater at Mather Air Force Base as a result of contamination. Further, the lack of information regarding the extent of groundwater contamination may effectively limit future reuse of portions of the Base and create the possibility of legal actions by future property owners.

Potential environmental impacts noted on the cover sheet and throughout the DEIS are not unexpected given the size and complexities of the reuse of Mather Air Force Base. Those impacts and potentially additional impacts will require mitigation as the process of determining reuse continues.

As you know, when General Plan and Community Plan Amendments are initiated for the project, California Environmental Quality Act (CEQA) requirements must be reviewed. At that time, more specific mitigation measures of environmental impacts will be identified.

TH:CD:kg
adm2/92

DOCUMENT 22

Inter-Department Correspondence

January 21, 1992

To: R. Dee Reynolds

From: Rob Leonard
Department of Airports

Subject: COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR DISPOSAL AND REUSE OF MATHER AIR FORCE BASE

The following summarizes the comments of the Department of Airports on the subject document dated December 1991. These comments are intended to serve as input for the consolidated County department comment being prepared by MIST for approval by the Board and submittal to the Department of the Air Force.

30 1. The Proposed Action descriptor of "Civilian General Aviation Airport with Air Cargo Operations" is not accurate and misleading considering the alternative proposed action descriptor of "General Aviation with Aircraft Maintenance." The discussion of the Proposed Action aviation support area
3.16 (Section 2.2.2, page 2-9) includes a listing of aviation components that include general aviation and commercial air cargo operations, aviation maintenance/refurbishing and ground schools, while Table 2.2-2, "Projected Annual Flight Operations - Proposed Action," shows no aircraft maintenance related operations.

The preferred Sacramento County aviation reuse concept does include both air cargo and aircraft maintenance/refurbishing
31 activities in addition to general and government aviation. If
3.17 the Proposed Action is intended to parallel Sacramento County's preferred aviation reuse concept, the distinction between the Proposed Action and the alternative aviation concept of General Aviation with Aircraft Maintenance needs to be clarified.

2. The DEIS assumes different nonaviation land uses for the two aviation related alternatives, prohibiting a direct comparison of the impacts associated with the two aviation alternatives beyond the noise contours provided in Section 4.

DOCUMENT 22

Page 2.

3. Section 4.2.2.1, page 4-6, discusses land uses associated with the Proposed action. Reference is made to the current AICUZ and CLUP regarding the incompatibility of residential uses within the 65Ldn noise contour. The 65Ldn contour is used as a baseline for the determination of incompatible land uses in the DEIS. Sacramento County has used the 60 CNEL contour as a baseline for determining land use compatibility, primarily residential in the reuse planning process to date.

Robert B. Leonard

RBL:R

A:61NOTES

DOCUMENT 22

COUNTY OF SACRAMENTO

Inter-Department Correspondence

January 21, 1992

TO Patrick Groff
Public Infrastructure Planning & Financing Section

FROM Fred Carlisle
Phil Fischbach
Building Design Division

SUBJECT: **DRAFT ENVIRONMENTAL IMPACT STATEMENT DISPOSAL AND REUSE OF MATHER AIR FORCE BASE**

We have reviewed the portions of the subject Draft EIS, relative to asbestos and electrical and gas utilities, which were prepared by the Department of Air Force. We have found no discrepancies with our assessment dated September 24, 1991 and offer no comments.

Pursuant to your request, I am returning our copy of the Draft EIS.

If you have any questions or need further assistance, please call me at 440-7479.

FC:gg

Enclosure

cc: Ken Murai
Phil Fischbach

b:\Mather.EIS

DOCUMENT 22

COUNTY OF SACRAMENTO

Department of Public Works

Water Quality Division Memorandum

January 21, 1992
D406.100.3

TO: Pat Groff
Department of Public Works

FROM: Jack Wong
Water Quality Division, DPW

SUBJECT: **DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE DISPOSAL AND REUSE OF MATHER AFB**

The Water Quality Division has reviewed the subject DEIS and wishes to make the following comments related to the Wastewater portion of this document.

32, 3.18 1. Data shown in Table S-1 to S-3 of the Summary should include On-Site data in order to provide the total impact of the Proposed Action and other alternatives to the region.

33 2. Section 2.3.1.9, page 2-22. Wastewater increase from baseline condition of 0.4 percent appears low due to an apparent high flow projection (See comment 7 below). Same comment applies to Sec. 2.3.2.1, page 2-30 and Sec. 2.3.3.9, page 2-36.

3. Table 3.2-6, page 3-40. Identify source of baseline wastewater generation.

4. Section 3.2.5.2, Wastewater Off Base, page 3-42 and 3-43. The SRWTP currently serves an estimated population of approximately 1,000,000, considerably higher than the 750,000 it initially served. The plant has an estimated capacity of 150 MGD for seasonal dry weather flow which is 9.16 higher than its designed capacity of 136 MGD. Expansion, expected to be completed in 1992, will increase this capacity to 181 MGD. SRCSD does not expect wastewater treatment demand to be 3 MGD lower by 1994.

5. Table 4.2-14, page 4-51. Indicate design criteria including average daily flow per capita used for the wastewater generation shown.

6. Table 4.2-15, page 4-53. Identify the source of the wastewater generation for the SRCSD (not SRCWD) service area.

Same comment applies to Table 4.2-16 on page 4-60, 4.2-17 on page 4-66, and 4.2-18 on page 4-72.

DOCUMENT 22

Pat Groff
January 21, 1992
Page 2

33, 9.16 7. Section 4.2.4.1 Wastewater, pages 40-54 and 4-55. Average flow treated by SRWTP in 1990 was 137 MGD which is shown as plant Effluent Flow. The 163 MGD indicated in the DEIS is Influent Flow which includes Recirculation Flow. Concern of the existing sewer collection system is for the low velocity, expressed in feet per second (fps) and not for the low discharge (cfs). Total wastewater demand of average seasonal dry weather flow (SDWF) within the SRCSD service area shown in Table E-2 and Figure E-1 of J. Montgomery Engineers Project Report for Expansion of SRWTP, Executive Summary, dated 1985, is less than the 305.4 MGD in 2014 and 179 MGD in 1994 as indicated. The projections in the DEIS appear to be even higher than the projections of the current Master Plan Study of the SRWTP by John Carollo Engineers, which was not cited as a reference.

Same comments are applicable to Section 4.2.4.2. on pages 4-61 and 62, Section 4.2.4.3 on pages 4-67 and 68, and Section 4.2.4.4. on pages 4-73 and 74.

If you have any questions, please do not hesitate to contact me at 855-8253.

JW:mm

cc: R. Shanks
W. Nishina

wong\groff\719

COUNTY OF SACRAMENTO

Inter-Department Correspondence

January 17, 1992

TO: Patrick Groff
Public Infrastructure Planning and Financing Section

FROM: Tom Zlotkowski
Transportation Division

SUBJECT: **DRAFT ENVIRONMENTAL IMPACT STATEMENT - DISPOSAL AND REUSE OF MATHER AIR FORCE BASE**

The Transportation Division has reviewed the subject document prepared by the Department of The Air Force in conjunction with the disposal and reuse of Mather Air Force Base. Our comments on the traffic analysis contained in the Draft Environmental Impact Statement (DEIS) are summarized below:

General Comments:

The reuse alternatives considered in the DEIS are not identical to the ones analyzed in the traffic analysis prepared by the Transportation Division in September, 1991. However, the Proposed Action Alternative in the DEIS is very similar to the Aviation Alternative 2 of the Countys traffic analysis. Also, the Non Aviation with Mixed Density Residential Alternative in the DEIS bears similarities to the Non Aviation Alternative of the Countys traffic analysis. Similarities in these alternatives are found in the overall land use and proposed on-base road network.

34 / 7.10 The traffic analysis contained in the subject document analyzes impacts on roadways within the boundaries of the base for the different alternatives considered by the Air Force. The reuse of the base, however, will have a far-reaching impact on the community-wide and regional transportation system and should be analyzed at an appropriate scale.

35 / 7.11 All alternatives analyzed in the Countys traffic study have significant traffic impacts associated with them, however, the magnitude of these impacts vary slightly with the alternatives. There will be significant increases in traffic volumes off-base on US 50, Sunrise Blvd, Bradshaw Rd and Folsom Blvd along with other less primary facilities with the reuse of the base, which are not analyzed in the traffic analysis. In order to be consistent in terms of significance, these impacts should be identified.

Specific Comments:

36 / 7.12 - Page 1-5, Scoping Process; Transportation is one of the Countys major concern in the reuse of MAFB, however, it is not included as one of the scoping issues and concerns in the document.

37 / 7.13 - Page 2-14, Mass Transit; The Extension of the light rail line from the existing line on Folsom Blvd, to the main base area was not considered in the traffic study performed by the County. This extension is not considered as an integral component of the Folsom Blvd LRT extension proposed by Regional Transit. However, as recommended by Regional Transit, feeder bus routes were proposed to connect the entire base area to the existing line, which is planned to be extended east along Folsom Blvd to Hazel Ave with stations at Mather Field Rd, Zinfandel Dr and Sunrise Blvd.

38 / 7.14 - Page 3-25; List of improvements on the base vary with the alternatives in consideration, and are not applicable to all alternatives as perceived in the subject document.

County reuse traffic study recommendations differ in the following on-base improvements:

- Kiefer Blvd: In the Non Aviation alternative it is recommended to be 4 lanes throughout.
- Douglas Rd: Within the base boundaries it is recommended as a 6 lane facility for the Non Aviation alternative.
- Zinfandel: It is recommended as a 6 lane facility with the Non Aviation alternative, and a combination of 4 and 6 lanes in the Aviation Alternatives.

39 / 7.15 - Page 3-27, Peak Hour Traffic Volumes on Key Roads (Pre Closure- 1990); Existing hourly traffic volumes for Zinfandel Dr and Rouner Rd are significantly higher than the traffic volumes shown here.

40 / 7.16 Page 4-21, Contrary to the statement in the document, the Transportation Division was not consulted to determine the discount percentages used in trip reduction for TODs. The basis of this assumption, which is of concern to the County and critical for the analysis is not stated in the report.

41 / 7.17 - Page 4-21, The ongoing task of updating the regional model is being coordinated by Sacramento Area Council of Governments (SACOG) with input from the County of Sacramento and other local agencies. This task is not specifically directed to the reuse of MAFB as stated in the DEIS.

42 / 7.18 - Page 4-25, Peak Hour Traffic Volume - Proposed Action; The peak hour traffic volumes shown are significantly under-estimated as compared to the Countys traffic analysis. Peak hour traffic volume on Mather Field Rd is projected to reduce from the Preclosure condition (1990) to this reuse alternative for the year 2014 is not justified.

43 / 7.19 - Page 4-33, Peak Hour Traffic Volume - Non Aviation with Mixed Density Residential; The peak hour traffic volumes shown are significantly under-estimated as compared to the Countys traffic analysis.

44 / 7.20 - Page 4-39, Peak Hour Traffic Volume - General Aviation with Aircraft Maintenance; Peak hour traffic volume on Mather Field Rd is projected to reduce from the Preclosure condition (1990) to this reuse alternative for the year 2014 is not justified.

Should you have any questions on our comments, please contact Hardeep Sidhu of this office at (916) 440-5966.

HS:

COUNTY OF SACRAMENTO
Inter-Departmental Correspondence

1-17-92

TO: R. Dee Reynolds
Assistant to the County Executive

FROM: Roy M. Imai
Chief, Park Planning and Development Division

SUBJECT: QUESTIONS REGARDING MATHER AFB DEIS AND DSIA

Based on a review of the Draft Environmental Impact Statement and Socio-Economic Impact Analysis of Mather AFB Disposal and Reuse, the following questions and comments are presented by the Parks and Recreation Department:

DEIS

45 / 3.19 1. Page 2-11, Section 2.2.6 - Please define the terms "parks" and "recreation" as used in this section.

46 / 6.4 2. Page 3-13, Existing Off-Base Land Use Map - The graphics shows a park on Jackson Road which should be corrected to a cemetery.

DSIA

3. Page 3-50, County of Sacramento - This section has a statement to the effect that:

"Total parkland in the County is approximately 10,891 or 17 acres per 1000 population."

Although true, this statement without further explanation is misleading. In reality, some 75% of the total parkland, or 8,110 acres out of the 10,891 acres are set aside for resource conservation or wildlife protection. Only 25%, or approximately 2,781 acres of the total County parklands are developed or reserved for active recreational use. This translates to 4.3 acres of active use parklands per 1000 population in the County.

47 / * 4. Page 4-40 - The reference to "City of Sacramento" in the third paragraph of this page should be corrected to Cordova Recreation and Park District.

COUNTY OF SACRAMENTO
ENVIRONMENTAL MANAGEMENT DEPARTMENT
NORMAN D. COVELL, DIRECTOR

HAZARDOUS MATERIALS DIVISION
Mel Knight, Chief

January 22, 1992

Mr. R. Dee Reynolds
Mather Internal Study Team
700 H Street, Room 7650
Sacramento, CA 95814

Dear Mr. Reynolds:

The Hazardous Materials Division of Sacramento County's Environmental Management Department (EMD) has coordinated this Department's review of the Disposal and Reuse of Mather Air Force Base, California - Draft Environmental Impact Statement (EIS), December 1991. Please find attached comments from the Sacramento Metropolitan Air Quality Management District which relate to transportation and air quality aspects of the subject document. Staff from EMD's Environmental Health Division have reviewed the Draft EIS and have no comment.

The Hazardous Materials Division (HMD) has reviewed the Draft EIS and has the following general comments:

1. It is HMD's understanding that the Air Force Base intends to complete characterization of all hazardous or toxic sites at Mather Air Force Base prior to October 1995. Further, that mitigation projects related to the Superfund cleanup of the base will proceed through the environmental review process separate from the Mather Air Force Base disposal and reuse plan (this understanding is consistent with the County Department of Environmental Review and Assessment's review of the Draft EIS presented in a memorandum dated January 16, 1992). All hazardous or toxic sites identified at the base after October, 1995, will be the responsibility of the Air Force to mitigate.

48 2. It is not clear as to how the Air Force will fund the cleanup
10.21 of hazardous or toxic sites at Mather Air Force Base after October 1995.

8475 Jackson Road, Suite 230 • Sacramento, CA 95826 • (916) 386-6160

DOCUMENT 22

49 3. HMD is aware that Region 9 (which includes California) of the
10.22 Federal Environmental Protection Agency (EPA) has historically not allowed the conveyance of property at Superfund cleanup sites until the entire cleanup is completed. Since Mather Air Force Base is a Superfund cleanup site, planned reuse of the base may be impacted.

If you have any questions or concerns regarding this letter or attachment, please contact Peter J. Wood at 386-6161.

Sincerely,

Mel Knight, Chief
Hazardous Materials Division

MK:PJW:cdc

Attachment

cc: Norm Covell
Ken Stuart
Dick Johnson

DOCUMENT 22

Sacramento Metropolitan Air Quality Management District
Environmental Review Section

January 21, 1992

COMMENTS: Draft Environmental Impact Report for Disposal and Reuse of Mather Air Force Base

The SMAQMD (District) offers the following comments on the above project:

Section 4.2.3 - Transportation

50 (p. 4-31) Proposed road improvements should include high-occupancy vehicle (HOV) lanes
7.21 as a mitigation measure which prevents roadways from dropping to LOS F. This type of mitigation should apply to all of the alternatives presented in the DEIR.

51 (pp. 4-39,45) The General Aviation with Aircraft Maintenance Alternative and the Non-
3.20 Aviation with Low-Density Residential Alternative do not appear to contain Transit-Oriented Developments (TODs). However, Figures 4.2-8 and 4.2-9 show Level of Service TOD Discounts. If TODs are not contained in these two land use alternatives, then the TOD Discount analysis should not be included with these two alternatives.

Section 4.4.3 - Air Quality

52 (p.4-123) The DEIR incorrectly depicts the District's efforts and requirements related to
13.11 carbon monoxide (CO). The District's 1991 Air Quality Attainment Plan does address the CO problem within the county. The 1991 AQAP does not indicate that CO emissions level in the county will fall below the attainment level by 1994. Therefore, the Proposed Action, as well as the other alternatives, will need to incorporate mitigation measures and offsets in order to not interfere with the process of reaching attainment levels for CO by 2010, and maintaining those levels after 2010.

53 (p. 4-127) Types of operational mitigation measures should not exclude the incorporation of
7.22 an internal shuttle system, since transit service may not be introduced initially or may need additional support to fulfill the transit needs of the community. In addition, bicycle and pedestrian networks and amenities should be incorporated into the community's design. These types of mitigation measures should apply to all of the alternatives presented in the DEIR.

DOCUMENT 22

In order to attain the standards set forth in the California Clean Air Act, the District will look for the Mather Reuse Plan to provide integrated land use concepts and alternative transportation options throughout the community. This can be accomplished through the incorporation of TOD design concepts, as well as the development of pedestrian, bicycle, transit, and HOV linkages. Areas of isolated, single dimension land uses and improvements which neglect to promote the use of alternative transportation modes, as contained in some of the DEIR's alternatives, should be re-oriented to provide less auto-dependent travel options.

Please contact Michael Tunnell at (916) 386-7004 if you have any questions.

cc: File #ER920009

HACKARD, TAYLOR & PHILLIPS
A PROFESSIONAL CORPORATION
ATTORNEYS
1038 RIVER PARK DRIVE, SUITE 200
SACRAMENTO, CALIFORNIA 95815
TELEPHONE (916) 929-6540
TELECOPIER (916) 929-0202

MICHAEL A. HACKARD
JOHN W. TAYLOR
GEORGE E. PHILLIPS
R. DEMAR HOOPER
CRAIG M. SANDBERG
CYNTHIA J. PATTON
MICHAEL J. DAVENPORT
W. REED HOOPER
JONATHAN C. RIESE
JAMES B. HILEY
KARIN E. SCHWAB

February 3, 1992

Lt. Col. Tom Bartol
Director Environmental Division
AFRCE-BMS/DEV
Norton AFB, California 92409-6448

Dear Lt. Col. Bartol:

After reviewing the Draft Mather Air Force Base Environmental Impact Statement, dated December 1991, we would like to submit the following comments on behalf of Teichert Aggregates and Granite Construction Company.

AGGREGATE YIELD

1
11.1 The projected yield stemming from the potential aggregate mining of the Base would appear to be substantially overstated for the following reasons:

1. Inadequate data is available to draw accurate conclusions regarding the volume of aggregate potentially available under the different reuse alternatives. For example, the aggregate available under the Proposed Action was estimated using only nine drill holes over 1,117 acres (124 acres per hole). The estimate for the General Aviation with Aircraft Maintenance Alternative relied upon only five holes over 1,172 acres (234 acres per hole). Hence the data base employed needs to be expanded.

2. Analysis of the limited Bureau of Mines' drilling test data contained in the draft document by Teichert Aggregates' Division Geologist Gary Dymesich (RG #5050) resulted in a probable yield of about 50,000 tons per acre for the Proposed Action. His estimate is based upon the average thickness of the

Lt. Col. Tom Bartol
February 3, 1992
Page 2

economically available gravel strata shown in the few wells drilled by the Bureau of Mines. This is further supported by proven geologic trends on adjacent mining properties to the northeast and southwest of the subject Mather property. This information should be included and commented upon in the final document.

3. It is not clear in the draft EIS whether the lower "G2" gravels shown in Appendix B of the Bureau's Evaluation of the Sand and Gravel Resources of the Mather Air Force Base (Bureau Report) were considered as part of the estimated volume available under the various reuse alternatives. It is highly doubtful that these lower "G2" gravels are economically or technically feasible for extraction due to the prohibitively thick clay layers that generally separate them from the upper "G1" gravels. This matter needs to be clarified.

4. Our assumption is that the projected tonnage figures employed in the yield analysis do not take into account any waste factor stemming from such factors as clay and silt. The yield of Portland Cement Concrete (PCC) quality aggregate will be significantly affected by the cleanliness of the deposit. The Sand Equivalent (SE) shown in Table 4 of the Bureau Report averages 23.3, indicating a relatively high silt and/or clay content. The distinction between aggregate reserves and aggregate products should be identified in the text since "wash" losses can be substantial.

2 It is important that the EIS accurately estimate the aggregate yield since it has a direct effect upon the duration of mining, the amount of land disturbed by mining at a given time, and the availability of reclaimed land for reuse. We suggest that the use of a more conservative aggregate yield per acre would accordingly be appropriate. Additionally, the estimated yield per acre varies significantly between reuse alternatives. For instance, the
11.1 Nonaviation With Low Density Residential Alternative would appear to employ a figure of 99,000 tons per acre, while the General Aviation with Aircraft Maintenance Alternative would appear to employ a figure of 85,000 tons per acre. The reason for this inconsistency needs to be explained. Moreover, if determining factors such as drill hole data, differing yields per

Lt. Col. Tom Bartol
February 3, 1992
Page 3

2 acre, or varying extraction locations accounts for the discrepancy between alternatives, such assumptions should be detailed in the document.

11.1 DEPLETION RATE

The following should be noted with respect to the depletion rate, i.e., the number of tons to be mined on an annual basis:

1. The draft document states that the developers of the aggregate resource located on the base could capture 56 percent of the regional market, or 6 to 7 million tons per year. This projection should be based upon an annual extraction rate which is justified by realistic production capacity and/or market share analysis. No analysis of this sort is currently contained in the draft document.

2. As with the yield analysis, the number of tons to be mined annually appears to vary between reuse alternatives. For instance, the General Aviation with Aircraft Maintenance Alternative appears to use a figure of 4.5 million tons per year while the Proposed Action Alternative employs a figure of 6.5 million tons per year. This rate should not change between the reuse alternatives and should be applied consistently throughout the EIS.

Area Available to be Mined

3 Various contaminated areas have been included within the portion of the Base identified for mining. It is highly unlikely that all of these areas will actually be mined. For example, in the case of the 7100 Disposal area, the
11.2 gravel has been removed and the resulting hole occupied by a landfill. Furthermore, additional consideration should be given to the viability of mining the other IRP sites which are within the mining area, specifically in terms of aggregate yield and the duration of clean up activities.

Other land use constraints may exist which could modify the acreage identified in each alternative. These potential constraints, which should be considered by the EIS, include:

Lt. Col. Tom Bartol
February 3, 1992
Page 4

1. Sacramento Zoning Code required setbacks from public and private property lines; and

2. FAA required setbacks from aviation facilities

VERNAL POOLS

4 The document indicates on page 4-101 that "Loss of hardpan structure cannot be reasonably mitigated." The conclusion which stems from this statement is that vernal pools cannot reasonably be recreated. We do not
15.24 believe that this is an accurate statement and note that the EIS should provide data supporting this statement, especially since restoration experience indicates that vernal pools can be recreated.

5 The attached Exhibit A is a Vernal Pool Pilot Project Monitoring Report for a site immediately south of Mather Air Force Base, which clearly indicates the viability of recreating vernal pools. The results of this project monitoring program show that the recreated pools function with hydrological
15.24 equivalence to the natural, undisturbed pools observed for baseline data. Established floristic criteria was similarly achieved by the created pools. This information should be included and commented upon in the final EIS. Additional data regarding regional vernal pool reconstruction projects is available upon request.

6
11.4 Additionally, the criteria used to define the Vernal Pool Terrain delineated in the draft document is not identified.

Surface Water

7 The EIS states that mining of aggregate is permitted for 12,000 acres (pp. 4-110) in the Morrison Creek drainage area and that such mining would disrupt 27,300 feet of drainage course. It is not clear, however, how these
* numbers were derived and we would accordingly assert that the actual permitted acres within the Morrison Creek drainage area are substantially less than as indicated in the draft document.

We appreciate having the opportunity to prepare comments on the draft document and look forward to reviewing the final version. Please, of

DOCUMENT 23

course, do not hesitate to call should you have any questions regarding our comments.

Very truly yours,

John M. Taylor

JMT:jee
Enclosure
cc: R. Dee Reynolds, w/encl.
Captain Stephen Bonner, w/encl.
Chief, Closure Operations, MAFB

1632.0161.EIS 12992111

DOCUMENT 24

Written Comment Sheet

Disposal and Reuse
Draft Environmental Impact Statement
Mather AFB, CA

Thank you for attending this Public Hearing. Please use this sheet to provide us your written comments on our Draft Environmental Impact Statement.

Date: 2/3/92

General--The tables of summaries of Project-Related Influencing Factors and Environmental Impacts of Reuse (Tables S-1 to S-6) would be more helpful if present conditions or uses were included for comparison.

Local Community--Transportation--Airspace/Air Traffic

1) The DEIS projects 288,195 annual flight operations with the proposed action (year 2014) and states that the airport capacity has an Annual Service Volume of 155,000. These numbers of operations greatly exceed the 78,000 flight operations at Mather in 1990.

2) At the projected level of 288,195 annual operations, 790 daily operations would be expected. Assuming 600 occur during daytime hours (general aviation), 79 flight operations per hour will occur during the 8-hour daytime interval. This is more than one flight operation per minute!

1
14.3 | 3) Noise levels from flight operations are addressed, but the
(continued on back)

Name Barbara Bansi

Address Rosemont Sacramento, CA 95826
Street Address City/State/Zip Code

Please hand this form in or mail to:
AFRCE-BMS/DEV
Attn: Lt Col Tom Bartol
Norton Air Force Base, CA 92409-6448

DOCUMENT 24

1
14.3 | number of daily operations and duration of noise are not. Noise is "annoying" whether is the deafening roar of large aircraft departing or the irritating drone of dozens of small aircraft interrupting quiet Sunday afternoons.

2 | 4) The DEIS mentions the possible construction of a third runway.
3.21 | If this is a plausible alternative, the EIS should address the potential impacts.

3 | Recommendation--To maintain the quality of life in the residential
14.2 | areas at and near Mather, the County and the FAA should restrict the number of flight operations and consider impacts of noise levels below 65 dB (including frequency and duration). Also, Executive Airport should remain open to serve small aircraft and to avoid construction of a third runway at Mather.

Natural Environment--Soils and Geology

Protection of the environment appears to have a very low priority when compared with the four land use alternatives presented in detail.

4 | 1) Each of the four alternatives includes mining 200 of the base
12.11 | area--obliterating vernal pools, permanently lowering the grade 30 to 40 feet, and drastically altering drainage.

5 | 2) Vernal pools have yet to be successfully recreated. (At the
15.25 | public hearing Granite Construction and Teichert claimed to have recreated vernal pools off-base. The County (or Mather) should challenge this. In other attempts, vernal pools failed to last more than a year or two.)

6 | 3) The increase in water use (on- and off-base) associated with
12.12 | aggregate mining (dust control, gravel washing, gold recovery) is not addressed.

7 | 4) The four main alternatives project that all of the mined acreage
11.4 | will be "reclaimed" by 2014. It should be emphasized that this does not mean "restored" and that the entire area will remain up to 30 feet below grade.

8 | 5) Because 12,000 acres adjacent to the base will be mined, the
3.22 | alternative disturbing the topography the least (Proposed Action) will still allow for adequate aggregate supply.

9 | 6) Unless there is a shortage of gold, it is not appropriate to
3.23 | include placer gold recovery as a community benefit in base reuse. (Of course, the private aggregate--and gold--mining companies will profit!)

10 | Recommendation--The EIS should include a discussion of why all major
3.24 | reuse alternatives include aggregate mining, which will drastically and permanently alter 200 of the Base area. This discussion should include a description of other sources of aggregate in the region, such as the area adjacent to the base which will be mined. Water use
11
12.12 | associated with aggregate mining should be addressed.

DOCUMENT 25

SACRAMENTO REGIONAL TRANSIT DISTRICT
MAILING ADDRESS P.O. BOX 2110 • SACRAMENTO CA 95812-2110 • 916 321 2800

March 11, 1992

Lieutenant Colonel Tom Bartol
Director of Environmental Division
AFCEE/ESE
Norton AFB CA 92409-6448

NAME OF DEVELOPMENT: Disposal and Reuse of Mather Air Force Base

CONTROL NUMBER: None

TYPE OF DOCUMENT: Draft Environmental Impact Statement (DEIS)

DATE RECEIVED AT RT: December 16, 1991

STAFF COMMENTS:

Sacramento Regional Transit District (RT) staff has reviewed the Draft Environmental Impact Statement (DEIS) for the Disposal and Reuse of Mather Air Force Base. We have previously provided comments on the Draft Socioeconomic Impact Analysis (SIAS) for the project. As stated in our letter to you of February 11, 1992 (copy enclosed), RT would like to focus our comments on the impacts of the closure and potential reuse upon our light rail transit system development.

On June 24, 1991, the RT Board of Directors adopted a long range light rail development plan that identifies the Folsom Boulevard/Highway 50 corridor as one of two locally funded extensions of our existing light rail system. As noted in the introduction to the SIAS, RT has identified rail right-of-way in the corridor, and also is considering plans for a storage and maintenance facility providing a governmental dedication of right-of-way is made available. RT is currently preparing the preliminary engineering and environmental documentation for the extension in this corridor from its current terminus at Butterfield Road. The extension will be developed in two phases. The first phase of construction extends light rail to Sunrise Boulevard, and is proposed for operational start-up in 1996. The second phase of construction continues the extension past Hazel Boulevard into the City of Folsom. Included in our extension planning is a light rail station located at Mather Field Road.

In our review of the DEIS as well as the SIAS, we note that the document provides little discussion of transit as a viable transportation alternative. The focus of the transportation analysis is geared toward roadway improvements, yet in the discussion of "Base Transit" it is acknowledged that RT's light

Sacramento Regional Transit, a Public Entity, is an Equal Opportunity Employer
Located at 1400 29th Street, Sacramento CA 95816-6408

DOCUMENT 25

rail system expansion would increase ridership. RT supports the Transit Oriented Development (TOD) concept developed by Sacramento County in its Draft General Plan, which is intended to provide a
1 balance of transit and supportive land uses. We feel that the analysis should more fully address the project's transit impacts. Increased transit ridership, particularly electrically powered light rail transit, can facilitate improvements in air quality, and guide land use development in the project area as well. RT feels
7.23 that these are significant issues that have not been adequately addressed in the DEIS. RT would recommend that either a modal split analysis be conducted for all alternatives or a reasonable transit use objective be formulated to determine what proportion of trips generated by the project could be served by transit. The effects of any increased transit ridership on the project should be fully evaluated.

Finally, as a point of clarification, it should be noted that throughout the DEIS and SIAS reference is made to "Sacramento's Rapid Transit (RT)" or to the "Sacramento County Regional Transportation District". In Appendix D, Draft Environmental Impact Statement Mailing List, RT is listed as a county agency, which is incorrect. For the record, we wish to clarify that the name of our agency is the Sacramento Regional Transit District (RT). RT is not an agency of the County of Sacramento.

Thank you for the opportunity to comment on this Draft Environmental Impact Statement (DEIS). We hope that the Final Environmental Impact Statement (FEIS) will address the issues that we have included in this letter.

CONTACT PERSON: Debra Jones, Senior Planner, 321-2870

Sincerely,

Rob Gregg
Planning Manager

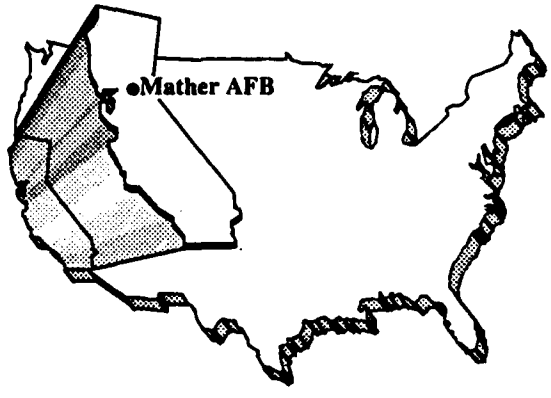
Enclosure
c: Luther Freeman, Director of Planning & Marketing, RT
Debra Jones, Senior Planner, RT
Jeffrey L. Gualco, Civil and Track Design Manager, RT
Valerie Rosenkrantz, Project Development Administrator, RT
Charles Dyer, Associate Planner, County of Sacramento
Nick Pascoe, Associate Planner, County of Sacramento
Tom Zlotkowski, Senior Engineer, County of Sacramento

DOCUMENT

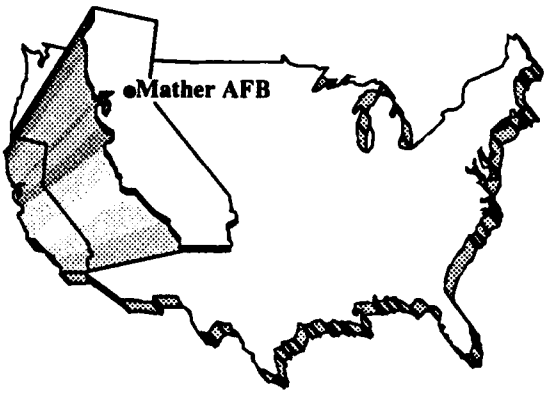
DOCUMENT

DOCUMENT

THIS PAGE INTENTIONALLY LEFT BLANK



APPENDICES



APPENDIX A

APPENDIX A

GLOSSARY OF TERMS AND ACRONYMS/ABBREVIATIONS

APPENDIX A
GLOSSARY OF TERMS AND ACRONYMS/ABBREVIATIONS

Appendix A consists of a glossary of terms and acronyms/abbreviations with definitions for such terms used in the Disposal and Reuse EIS for Mather AFB.

GLOSSARY OF TERMS

A-Weighted Sound Level (dBA). A number representing the sound level which is frequency weighted according to a prescribed frequency response established by the American National Standards Institute (ANSI S1.4-1971) and accounts for the response of the human ear.

Acoustics. The science of sound which includes the generation, transmission, and effects of sound waves, both audible and inaudible.

Advisory Council on Historic Preservation. A 19-member body appointed, in part, by the President of the United States to advise the President and Congress and to coordinate the actions of federal agencies on matters relating to historic preservation, to comment on the effects of such actions on historic and archaeological cultural resources, and to perform other duties as required by law (Public Law 89-655; 16 USC 470).

Aesthetics. Referring to the perception of beauty.

Airshed. The air supply of a given area.

Ambient Air Quality Standards. Standards established on a state or federal level that define the limits for airborne concentrations of designated "criteria" pollutants (nitrogen dioxide, sulfur dioxide, carbon monoxide, ozone, lead, and particulate matter less than 10 microns in diameter) to protect public health with an adequate margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility, and materials (secondary standards).

Archaeology. A scientific approach to the study of human ecology, cultural history, and cultural processes through the interpretation of material remains.

Artifact. Anything that owes its shape, form, or placement to human activity. In archaeological studies, the term is applied to portable objects (e.g., tools and the by-products of their manufacture).

Asbestos. Any one of six naturally occuring fibrous minerals found in certain types of rock formations. These minerals are mined and processed for use in industry, especially in building materials. Asbestos fibers released into the air may be inhaled by people, and can cause health problems if sufficient quantities are inhaled.

Asbestos-containing Material. As defined by the U.S. Environmental Protection Agency, any material that contains more than 1 percent asbestos.

Aquifer. The water-bearing portion of subsurface earth material that yields or is capable of yielding useful quantities of water to wells.

Attainment Area. A region that meets the National Ambient Air Quality Standards for a criteria pollutant under the Clean Air Act.

Attenuation. (of noise) Diminuation of loudness with increasing distance from the source.

Autoclave. A pressurized, steam-heated vessel used for the sterilization of materials to reduce the risk of infection by bacteria or viruses.

Average Annual Daily Traffic. For a one-year period, the total volume passing a point or segment of a highway facility in both directions, divided by the number of days in the year.

Avigational. Pertaining to navigation by aircraft.

Biophysical. Pertaining to the physical and biological environment, including the environmental conditions crafted by man.

Biota. The plant and animal life of a region.

Cantonment. Portion of military facility within the perimeter fence.

Carbon Monoxide (CO). A colorless, odorless, poisonous gas produced by incomplete fossil-fuel combustion. One of the six pollutants for which there is a national ambient standard. See Criteria Pollutants.

Cathodic Protection. A device, generally a sacrificial base-metal anode, that channels ground electrical currents around an underground metal tank, thereby reducing electrochemical corrosion of the tank.

Charcoal Cannister Test. A device containing activated charcoal, which absorbs samples of trace chemicals in the air to which it is exposed.

Class I, II, and III Areas. Under the Clean Air Act, clean air areas are divided into three classes. Very little pollution increase is allowed in Class I areas, some increase in Class II areas, and more in Class III areas. National parks and wilderness areas receive mandatory Class I protection. All other areas start out as Class II. States can reclassify Class II areas up or down, subject to federal requirements.

Commission. Approval certification by the FAA and IDOT for aeronautical use as an airport.

Comprehensive Plan. A public document, usually consisting of maps, text, and supporting materials, adopted and approved by a local government legislative body, which describes future land uses, goals, and policies.

Control Zone. Controlled airspace that extends upward from the surface to 14,500 feet above mean sea level. A control zone may include one or more airports and is normally a circular area with a radius of 5 statute miles and any extensions necessary to include instrument approach and departure paths.

Corrosive. A material that has the ability to cause visible destruction of living tissue and has a destructive effect on other substances. An acid or a base.

Council on Environmental Quality (CEQ). Established by the National Environmental Policy Act (NEPA), the CEQ consists of three members appointed by the President. CEQ regulaitons (40 CFR Parts 1500-1508, as of July 1, 1986) describe the process for implementing NEPA, including preparation of environmental assessments and environmental impact statements, and the timing and extent of public participation.

Criteria Pollutants. The Clean Air Act required the Environmental Protection Agency to set air quality standards for common and widespread pollutants after preparing "criteria documents" summarizing scientific knowledge on their health effects. Today there are standards in effect for six "criteria pollutants": sulfur dioxide (SO_2), carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM_{10}), nitrogen dioxide (NO_2), ozone (O_3), and lead (Pb).

Cultural Resources. Objects, sites, structures, buildings, districts, or any other physical remain used by humans in the past. These nonrenewable resources may be prehistoric, historic, architectural, or archival in nature.

Cumulative Impacts. The combined impacts resulting from all activities occurring concurrently at a given location.

Cytotoxic. Lethal to living cells.

Day-Night Average Sound Level (DNL). The 24-hour average-energy sound level expressed in decibels, with a 10-decibel penalty added to sound levels between 10:00 p.m. and 7:00 a.m. to account for increased annoyance due to noise during night hours.

Decibel (dB). A unit of measurement on a logarithmic scale which describes the magnitude of a particular quantity of sound pressure or power with respect to a standard reference value.

Determination of Eligibility. Finding by the Secretary of the Interior or his designee that a district, site, building, structure, or object meets the criteria for listing on the National Register of Historic Places.

Drawdown. The lowering of the water level in wells as a result of withdrawal.

Easement. A right or privilege (agreement) that a person may have on another's property.

Effluent. Wastewater discharge from a wastewater treatment facility.

Endangered Species. A species that is threatened with extinction throughout all or a significant portion of its range.

Environmental Impact Analysis Process. The process of conducting environmental studies as outlined in Air Force Regulation 19-2.

Environmental Protection Agency (EPA). The independent federal agency, established in 1970, that regulates environmental matters and oversees the implementation of environmental laws.

Frequency. The time rate (number of times per second) that the wave of sound repeats itself, or that a vibrating object repeats itself – now expressed in Hertz (Hz), formerly in cycles per second (cps).

Friable. Easily crumbled or ground into powder.

Fungicide. Any substance that kills or inhibits the growth of fungi.

Habituate. To become accustomed to frequent repetition or prolonged exposure.

Hazardous Material. Generally, a substance or mixture of substances that has the capability of either causing or significantly contributing to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or posing a substantial present or potential risk to human health or the environment. Use of these materials is regulated by Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), and Superfund Amendments Reauthorization Act (SARA).

Hazardous Waste. A waste, or combination of wastes, which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Regulated under the Resource Conservation and Recovery Act (RCRA).

Heavy metals. A metal (e.g., lead, mercury, cadmium, and chromium) of atomic weight greater than sodium (a.w.-22.9 grams/molecule) that forms soaps on reaction with fatty acids.

Herbicide. A pesticide (q.v.), either organic or inorganic, used to destroy unwanted vegetation, especially various types of weeds, grasses, and woody plants.

Historic Context. An organizing structure for interpreting history that groups information about historic properties that share a common theme, common geographical area, and a common time period. The development of historic contexts is a foundation for decisions about the planning, identification, evaluation, registration, and treatment of historic properties, based upon comparative historic significance.

Historic Integrity. The unimpaired ability of a property to convey its historical significance.

Historic Property/Resource. A building, site, district, object, or structure evaluated as historically significant.

Hush House. A structure designed to suppress engine testing noise.

Hydrocarbons (HC). Any of a vast family of compounds containing hydrogen and carbon. Used loosely to include many organic compounds in various combinations; most fossil fuels are composed predominately of hydrocarbons. When hydrocarbons mix with nitrogen oxides in the presence of sunlight, ozone is formed; hydrocarbons in the atmosphere contribute to the formation of ozone.

Ion Chamber Survey. A device for detailed surveys of indoor radon gas levels. More sophisticated than a charcoal cannister test.

Impacts. An assesment of the meaning of changes in all attributes being studied for a given resource; an aggregation of all the adverse effects, usually measured using a qualitative and nominally subjective

technique. In this EIS, as well as in the CEQ regulations, the work impact is used synonymously with the word effects.

Indurated. Made coherent by interstitial cementing minerals.

Infrastructure. The basic installations and facilities on which the continuance and growth of a community, state, etc., depend, e.g., roads, schools, power plants, transportations, and communication systems, etc.

Installation Restoration Program (IRP). An Air Force program to identify, characterize, and remediate environmental contamination on its installations.

Interstate. The designated National System of Interstate and Defense Highways located in both rural and urban areas; they connect the East and West coasts and extend from points on the Canadian border to various points on the Mexican border.

L_{eq}. The equivalent steady state sound level which in a stated period of time would contain the same acoustical energy as time-varying sound level during the same period.

L_{max}. The highest A-weighted sound level observed during a single event of any duration.

Lead (Pb). A heavy metal used in many industries, which can accumulate in the body and cause a variety of negative effects. One of the six pollutants for which there is a national ambient air quality standard. See Criteria Pollutants.

Lens. A geologic deposit bounded by converging surfaces (at least one of which is curved), thick in the middle and thinning toward the edges.

Level of Service (LOS). In transportation analyses, a qualitative measure describing operational conditions within a traffic stream and how they are perceived by motorists and/or passengers. In public services, a measure describing the amount of public services (e.g., fire protection and law enforcement services) available to community residents, generally expressed as the number of personnel providing the services per 1,000 population.

Loudness. The qualitative judgement of intensity of a sound by a human being.

Masking. The action of bringing one sound (audible when heard alone) to inaudibility or to unintelligibility by the introduction of another sound.

Mitigation. A method or action to reduce or eliminate program impacts.

MUDS Study. The Maintenance and Upgrade of Drainage Systems studies evaluate storm drainage system capacity problems and maintenance needs, and provide recommendations for major structural modifications to the system and maintenance programs.

Multiple Family Housing. Townhouse or apartment units that accommodate more than one family though each dwelling unit is only occupied by one household.

National Ambient Air Quality Standards (NAAQS). Section 109 of the Clean Air Act requires EPA to set nationwide standards, the National Ambient Air Quality Standards, for widespread air pollutants. Currently,

six pollutants are regulated by primary and secondary NAAQS – carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter (PM_{10}), and sulfur dioxide. See Criteria Pollutants.

National Environmental Policy Act (NEPA). Public Law 91-190, passed by Congress in 1969. The Act established a national policy designed to encourage consideration of the influences of human activities (e.g., population growth, high-density urbanization, industrial development) on the natural environment. NEPA also established the Council on Environmental Quality. NEPA procedures require that environmental information be made available to the public before decisions are made. Information contained in NEPA documents must focus on the relevant issues in order to facilitate the decision-making process.

National Priority List. A list of sites (federal and state) that contain hazardous materials that may cause an unreasonable risk to the health and safety of individuals, property, or the environment.

National Register of Historic Places. A register of districts, sites, buildings, structures, and objects important in American history, architecture, archaeology, and culture, maintained by the Secretary of the Interior under authority of Section 2(b) of the Historic Sites Act of 1935 and Section 101(a)(1) of the National Historic Preservation Act of 1966, as amended.

Native Americans. Used in a collective sense to refer to individuals, bands, or tribes who trace their ancestry to indigenous populations of North America prior to Euro-American contact.

Native Vegetation. Plant life that occurs naturally in an area without agricultural or cultivational efforts. It does not include species that have been introduced from other geographical areas and become naturalized.

Nitrogen Dioxide (NO_2). Gas formed primarily from atmospheric nitrogen and oxygen when combustion takes place at high temperature. NO_2 emissions contribute to acid deposition and formation of atmosphere ozone. One of the six pollutants for which there is a national ambient standard. See Criteria Pollutants.

Nitrogen Oxides (NO_x). Gases formed primarily by fuel combustion which contribute to the formation of acid rain. Hydrocarbons and nitrogen oxides combine in the presence of sunlight to form ozone, a major constituent of smog.

Noise. Any sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying (unwanted sound).

Noise Attenuation. The reduction of a noise level from a source by such means as distance, ground effects, or shielding.

Noise Contour. A curve connecting points of equal noise exposure on a map. Noise exposure is often expressed using the average day-night sound level, DNL.

Nonattainment Area. An area that has been designated by the Environmental Protection Agency or the appropriate state air quality agency, as exceeding one or more National Ambient Air Quality Standards.

Ozone. A major ingredient of smog. Ozone is produced from reactions of hydrocarbons and nitrogen oxides in the presence of sunlight and heat. Some 68 areas, mostly metropolitan areas, did not meet a December 31, 1987, deadline in the Clean Air Act for attaining the ambient air quality standard for ozone.

Particulate Matter. Particles of various diameter small enough to be airborne.

Paleontological Remains/Resources. Fossilized organic remains from past geologic periods.

Paleozoic. An era of geologic time extending from about 570 to about 225 million years ago.

Peak-Hour Traffic. The hourly volume during the maximum volume hour of the day divided by the peak 15-minute rate of flow within the peak hour; a measure of traffic demand fluctuation within the peak hour.

pH. Degree of acidity or alkalinity.

Pesticides. Any substance, organic or inorganic, used to destroy or inhibit the action of plant or animal pests; the term thus includes insecticides, herbicides, rodenticides, miticides, etc. Virtually all pesticides are toxic to man to a greater or lesser degree. They vary in biodegradability.

Phenolic Compounds. Of, relating to, containing, or derived from phenol, which is a caustic, poisonous, white crystalline compound (C_6N_5OH) derived from benzene and used in resins, disinfectants, plastics, and pharmaceuticals.

Piezometric. The elevation to which groundwater would rise in a well under its own natural pressure.

Pitch. The subjective quality of a sound, which determines its position in a musical scale. Pitch depends upon the frequency of air vibrations and, therefore, upon the frequency of the vibrating source.

Polychlorinated Biphenyls (PCBs). Any of a family of industrial compounds produced by chlorination of biphenyl. These compounds are noted chiefly as an environmental pollutant that accumulates in organisms and concentrates in the food chain with resultant pathogenic and tetratogenic effects. They also decompose very slowly.

Potassium Permanganate. A chemical used in dilute quantities, for treatment of drinking water.

Prehistoric. The period of time before the written record.

Prevention of Significant Deterioration (PSD). In the 1977 Amendments to the Clean Air Act, Congress mandated that areas with air cleaner than required by national ambient air quality standards must be protected from significant deterioration. The Clean Air Act's PSD program consists of two elements – requirements for best available control technology on major new or modified sources, and compliance with an air quality increment system.

Prevention of Significant Deterioration Area. A requirement of the Clean Air Act (160 et seq.) that limits the increases in ambient air pollutant concentrations in clean air areas to certain increments even though ambient air quality standards are met.

Primary Roads. A consolidated system of connected main roads important to regional, statewide, and interstate travel; they consist of rural arterial routes and their extensions into and through urban areas of 5,000 or more population.

Quaternary. The second period of the geologic Cenozoic Era, which began 2 to 3 million years ago and extends to the present.

Raptors. Predatory; said especially of birds of prey.

Reconstruction (runway). Removal of surface concrete. Use of old concrete as aggregate for surface coarse. Addition of new concrete to surface.

Reliever Airport. An airport that provides substantial capacity or instrument training support to a commercial service airport.

Riprap. Protective large rocks and boulders.

Septage. Effluent from septic processing system to sanitary sewer.

Single-Family Housing. A conventionally-built house consisting of a single dwelling unit occupied by one household.

Site. As it relates to cultural/resources, any location where humans have altered the terrain or discarded artifacts.

Sludge. A heavy, slimy deposit, sediment, or mass resulting from industrial activity; solids removed from wastewater.

Solvent. A substance that dissolves or can dissolve another substance.

Sound. The auditory sensation evoked by the compression and rarefaction of the air or other transmitting medium.

State Historic Preservation Officer. The official within each state, authorized by the State at the request of the Secretary of the Interior, to act as liaison for purposes of implementing the National Historic Preservation Act.

Statute Mile. A unit of linear measure equal to 5,280 feet.

Sulfur Dioxide (SO_2). A toxic gas that is produced when fossil fuels, such as coal and oil, are burned. SO_2 is the main pollutant involved in the formation of acid rain. SO_2 also can irritate the upper respiratory tract and cause lung damage. During 1980, some 27 million tons of sulfur dioxide were emitted in the U.S., according the Office of Technology Assessment. The major source of SO_2 in the U.S. is coal-burning electric utilities.

Terrigenous (continental) Sediments. Sediment derived form rocks exposed in land areas.

Threatened Species. Plant and wildlife species likely to become endangered in the foreseeable future.

Total Suspended Particulates (TSP). The particulate matter in the ambient air. The previous national ambient air quality standard for particulates was based on TSP levels; it was replaced in 1987 by an ambient standard based on PM_{10} levels.

Transition Zone. Controlled airspace designed to contain instrument flight rules operations during portions of the terminal operation and while transiting between the terminal and enroute environment.

Trichloroethylene (TCE). An organic solvent.

Unified Soil Classification System. A rapid method for identifying and grouping soils for military construction. Soils are grouped by grain-size, gradation, and liquid limit.

Unlithified. Soil material not cemented together.

Vernal Pools. Topographical depressions underlain by a hardpan soil layer in which seasonal rains accumulate, forming pools that can support a highly adapted ecosystem.

Wetlands. Areas that are inundated or saturated with surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil. This classification includes swamps, marshes, bogs, and similar areas.

Zoning. The division of a municipality (or county) into districts for the purpose of regulating land use, types of building, required yards, necessary off-street parking, and other prerequisites to development. Zones are generally shown on a map and the text of the zoning ordinance specifies requirements for each zoning category (M-1, RD-5, etc.).

ACRONYMS/ABBREVIATIONS

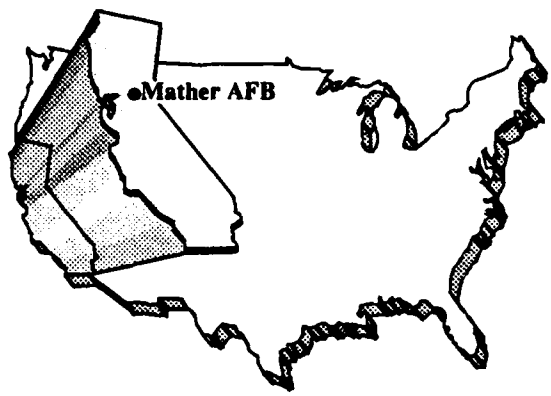
AADT	average annual daily traffic
ACM	asbestos-containing materials
AC&W	Aircraft Control and Warning
ADWF	average dry weather flow
AFB	Air Force Base
af/yr	acre-feet per year
AICUZ	Air Installation Compatible Use Zone
ALP	Airport Layout Plan
ANSI	American National Standards Institute
APCO	Air Pollution Control Officer
APZ	Accident Potential Zone
AQAP	Air Quality Attainment Plan
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
AREFG	Air Refueling Group
ARFF	airport rescue and firefighting
ARTCC	Air Route Traffic Control Center
ARSA	Airport Radar Service Area
ASV	Annual Service Volume
ATC	air traffic control
ATCT	air traffic control tower
BCRA	Base Closure and Realignment Act (Public Law 100-526)
BLM	Bureau of Land Management
BX	Base Exchange
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CCR	California Code of Regulations
CAAQS	California Ambient Air Quality Standards
CCAA	California Clean Air Act
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDWR	California Department of Water Resources
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CI	cast iron
CLUP	Comprehensive Land Use Plan
CO	carbon monoxide
CRWQCB	California Regional Water Quality Control Board

CSD-1	County Sanitation District One
CSUS	California State University, Sacramento
CUD	Compatible Use District
CY	calendar year
CZ	Clear Zone
dB	decibel
dBA	A-Weighted Sound Levels
DBRAC	Defense Base Closure and Realignment Commission
DCE	trans 1, 2-dichloroethylene
DEIS	Draft Environmental Impact Statement
DERP	Defense Environmental Restoration Program
DHS	California State Department of Health Services
DLDS	Dedicated Land Disposal Sites
DME	Distance Measuring Equipment
DMT	Disposal Management Team
DNL	Day-night average sound level
DOD	Department of Defense
DOT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
DTSC	Department of Toxic Substances Control
EA	Environmental Assessment
EDD	Employment Development Department
EDMS	Emissions and Dispersion Modeling System
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ERC	emission reduction credits
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FEIS	Final Environmental Impact Statement
FFA	Federal Facility Agreement
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FPMR	Federal Property Management Regulations
FPPA	Farmland Protection Policy Act
fps	feet per second
FS	Feasibility Study
ft/yr	feet per year
FY	fiscal year
gpm	gallons per minute
HHS	Health and Human Services
HIRL	high intensity runway lights
HMTA	Hazardous Materials Transportation Act
HOV	high occupancy vehicle

hp	horsepower
HUD	Department of Housing and Urban Development
I	Interstate
IFR	instrument flight rules
ILS	instrument landing system
IR	Industrial-reserve
IRP	Installation Restoration Program
kV	kilovolt
Lmax	A-weighted maximum sound level
LOS	level of service
M-1	zoned for manufacturing (light industrial)
M-2	zoned for manufacturing (heavy industrial)
MAP	million annual passengers
MG	million gallons
MGD	million gallons per day
mg/l	milligrams per liter
$\mu g/m^3$	micrograms per cubic meter
MIST	Mather Internal Study Team
MOA	Military Operations Area
MOU	Memorandum of Understanding
MSA	Metropolitan Statistical Area
MSDS	Material Safety Data Sheet
MSL	mean sea level
MTR	Military Training Route
MVA	megavolt amperes
MW	megawatts
MWH	megawatt-hours
MWR	Morale, Welfare and Recreation
NAAQS	National Ambient Air Quality Standards
NAS	National Academy of Sciences
NCP	National Contingency Plan
NDDB	Natural Diversity Database
N.E.	Northeast
NEPA	National Environmental Policy Act of 1969
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOI	Notice of Intent
NOISEMAP	Noise Exposure Model
NPDES	National Pollution Discharge Elimination System Permit
NPL	National Priorities List
NRHP	National Register of Historic Places
NSR	new source review
O_3	ozone

OBOD	open burning open detonation
OSHA	Occupational Safety and Health Administration
PA	Preliminary Assessment
PA/SI	Preliminary Assessment/Site Inspection
PCBs	Polychlorinated biphenyls
PCC	Portland cement concrete
PCE	Perchloroethylene (Tetrachlorethane)
pCi/l	Picocuries per liter
PG&E	Pacific Gas and Electric
P.L.	Public Law
PM_{10}	particulate matter less than 10 microns in diameter
POL	petroleum, oils, and lubricants
POTW	Publicly Owned Treatment Works
ppm	parts per million
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
PWWF	peak wet weather flow
RACT	reasonably available control technology
R&D	Research and Development
RA	Remedial Action
RAMP	Radon Assessment and Mitigation Program
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD/RA	Remedial Design/Remediation Actions
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision (presented in Appendix B of this EIS)
ROG	Reactive organic gases
ROI	region of influence
RT	Regional Transit
SAAD	Sacramento Army Depot
SAC	Strategic Air Command
SACOG	Sacramento Area Council of Governments
SACOMC	Sacramento Area Committee on Mather Conversion
SARA	Superfund Amendments Reauthorization Act
SCWA	Sacramento County Water Agency
SCWAWP	Sacramento County Water Agency Water Plan
s.f.	square feet
SEL	Sound exposure level
SHPO	State Historic Preservation Officer
SI	Site Inspection
SIAS	Socioeconomic Impact Analysis Statement
SM	Surface Mining
SMAQMD	Sacramento Metropolitan Air Quality Management District

SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SR	State Route
SRCSD	Sacramento Regional County Sanitation District
SRWTP	Sacramento Regional Wastewater Treatment Plant
SVAB	Sacramento Valley Air Basin
SWMU	Solid Waste Management Units
TACAN	tactical air navigation
TCE	Trichloroethylene
TD	Technology Development
TDS	total dissolved solids
TOD	Transit Oriented Development
TRACON	Terminal Radar Approach Control (control of air traffic)
TSCA	Toxic Substances Control Act
TSD	Treatment Storage and Disposal
UBC	Uniform Building Code
UIC	Underground Injection Control
USBOR	U.S. Bureau of Reclamation
USC	U.S. Code of Regulations
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VCP	vitrified clay pipe
VFR	visual flight rules
VOR	very high frequency omni-directional range
WSA	Weapons Storage Area



APPENDIX B

APPENDIX B

MATHER AIR FORCE BASE CLOSURE
RECORD OF DECISION

RECORD OF DECISION

CLOSURE OF MATHER AIR FORCE BASE

The Final Environmental Impact Statement (EIS) was prepared to assess the potential environmental impacts resulting from the closure of Mather Air Force Base (AFB). The closure is the result of the Base Closure and Realignment Act (Public Law 100-526) and recommendations of the Defense Secretary's Commission on Base Alignment and Closure. The Secretary of Defense approved those recommendations and announced that the Department of Defense would implement them. The Congress did not pass a Joint Resolution disapproving the recommendations within the time allotted by the Act. Therefore, the Act now requires the Secretary of Defense, as a matter of law, to implement those closures and realignments. The withdrawal of personnel and the closure of Mather AFB will be implemented by relocating the mission and related support activities of the Mather 323rd Flying Training Wing to Beale AFB. The 940th Air Refueling Group (AREFG) and its related support units would remain at Mather AFB until a decision on the future reuse of Mather AFB. If the reuse includes a commercial airport, the 940th AREFG would remain at Mather AFB; if not, the 940th AREFG would be moved to McClellan AFB. No other military units or activities will remain at or be relocated to Mather AFB unless specifically approved in the final disposition of base property. California guard units will be considered for such locations only if they are included in the civilian community reuse plans. Such proposals will be addressed in the second EIS discussed herein.

The Act also makes the Secretary of Defense responsible for management and disposal of the closed bases. Therefore, in addition to the EIS on closure of Mather AFB, a second EIS will be prepared on the final disposition of base property, which will address potential reuse of the base and the environmental implications of the various reuse opportunities. The Air Force will include in the second EIS proposals from the civilian community reuse plans.

The environmental impacts of closing Mather AFB tend to be negligible or positive. Operation of a major installation creates environmental impacts; removal of the operation lessens them. This is not entirely true, since some activities, like the Base's Fish and Wildlife Management Plan, are undertaken to enhance the environmental. Also, inadequate maintenance of the property pending final disposal could create adverse impacts. In the aggregate, however, the environmental impacts of the closure are expected to be benign.

Important contributors to that assessment are the various commitments the Air Force has made to study and respond to potential problems. Although some of these commitments are legal requirements, they all are consistent with the Air Force's desire to close the base safely and carefully. Listed below is a brief summary of the major commitments made in the EIS:

Cleanup and remove all PCB contaminated devices; coordinate actions with EPA;

Survey all buildings and housing units for asbestos, hoping to finish by September 1990; develop a plan to respond to what is found;

Develop a management plan for Underground Storage Tanks (UST's) by May 1990; inventory and test all UST's systems for leaks; remove leaking USTs; coordinate actions with California State Fire Marshal and EPA Region IX;

Dispose of oil/water separators, except those needed after closure, which will be decontaminated in accordance with state and Federal requirements;

Drain above ground bulk storage tanks and purge them of flammable gases; it the 940th APEFG does not relocate, one of the above ground tanks may be required to support their mission;

Initiate a radon survey; develop a mitigation plan after the results of the year-long study are obtained in 1991;

Initiate an additional historic preservation study to address the California State Historic Preservation Officer's (SHPO) question on compliance with the Memorandum of Agreement between the Department of Defense, The Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers concerning World War II buildings; coordinate results with the California SHPO and the ACHP.

Continue the Installation Restoration Program (IRP); investigate and remediate contaminated sites as needed for as long as needed; coordinate decisions on cleanup of contaminated sites with EPA Region IX and the State of California;

Initiate a Vernal Pools and wetland survey; develop a management plan based on the results of the survey; and

Award a caretaker contract to maintain the base buildings and grounds.

Necessarily, many of these commitments are to processes. The detailed outcome of those processes will often be dependent on investigations and coordination still in progress. Thus, the Final EIS could not always provide some of the specificity, however, is not an indication of lack of interest: the Air Force is committed to a closure responsive to environmental concerns, and will work with Federal and state agencies to achieve that result.

Noise is the only significant environment impact stated in the EIS. The impact is considered beneficial because the average daily aircraft activity would significantly decrease upon completion of the base closure and therefore, the noise impacts in the area would be significantly reduced. Estimated land area within the 65 decibel (dB) contour would be about 90% less than 1989 values reflecting full operation of the base. Because reuse of Mather AFB could include a civilian airport, it is strongly recommended that no changes in local land use be implemented until a decision on reuse is made. Ground transport of people and equipment would not add unacceptable noise levels along existing transportation routes, and it would occur at times that are most practicable.

Currently, Mather AFB operations extensively affect land use near the base. Reducing those operations could allow development of some of that area (with resulting short- and long-term environmental consequences). However, closure of Mather AFB would not, in itself, determine development of areas outside of the base. Control of off-base development would remain the responsibility of the local communities. Retention of the 940th AREPG flying mission at mather AFB would result in a continuation of the Air Installation Compatible Use Zone (AICUZ) recommendations for restrictions on incompatible development. New land uses would be subject to local regional land use controls, including a consideration of environmental impacts. It is strongly recommended that any post-closure changes in zoning and land use be made after specific reuse options have been decided.

Commentators also questioned whether the Air Force's commitment to the cleanup of hazardous waste sites would continue after the base closed. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires the Air Force to continue the cleanup to completion even after the land has been disposed of. The Air Force's Installation Restoration Program (IRP) is a part of a larger Department of Defense program implementing CERLCA. It is designed to identify and fully evaluate suspected contamination associated with past hazardous waste disposal practices, and to control hazards to human health and the environment resulting from past operations. The IRP at Mather will not be affected by closure. The IRP is independent of the base closure process and will continue, as needed, after the military mission has ended.

Through the IRP, the Air Force will thoroughly investigate and remediate contaminated sites as needed. This cleanup will be done in accordance with DOD's worst-first priority model and will be performed with funds appropriated by Congress. The Air Force fully expects funding to be available to complete cleanup activities at Mather AFB.

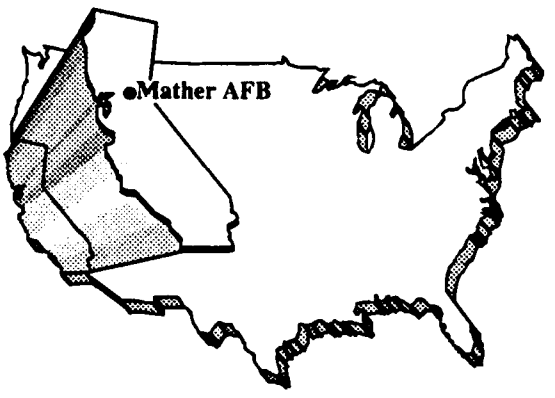
The Air Force will be responsible for on-base contamination that might be caused by Air Force activities at any stage of the closure and reuse process. No property requiring cleanup will be transferred prior to the Air Force completing required cleanup. Cleanup activities will be accomplished in accordance with Federal, state, and Air Force regulations. The Air Force, EPA Region IX, and the State of California will be involved in decisions on the cleanup of contaminated sites.

In light of all of the above, I have decided to proceed with the closure of Mather AFB in accordance with the approaches described in the EIS and this Record of Decision.

5/14/90 Date

Signature

James F. Boatright
Deputy Assistant Secretary of the Air Force
(Installations)



APPENDIX C

APPENDIX C

NOTICE OF INTENT

APPENDIX C
NOTICE OF INTENT

The following notice of intent was circulated and published by the Air Force in order to provide public notice of the Air Force's intent to prepare an Environmental Impact Statement of disposal and reuse of Mather Air Force Base. This Notice of Intent has been retyped for the purposes of clarity and legibility.

NOTICE OF INTENT
TO PREPARE ENVIRONMENTAL IMPACT STATEMENT
DISPOSAL/REUSE OF MATHER AFB, CALIFORNIA

The United States Air Force will prepare an Environmental Impact Statement (EIS) to assess the potential environmental impacts of disposal and reuse of the property that is now Mather Air Force Base (AFB) near Sacramento, California. On May 14, 1990, the Air Force signed a Record of Decision (ROD) for closure of Mather AFB.

The disposal/reuse EIS will address disposal of the property to public or private entities and the potential impacts of reuse alternatives. All available property will be disposed of in accordance with provisions of the Base Closure and Realignment Act, Public Law 100-526, and applicable federal property disposal regulations.

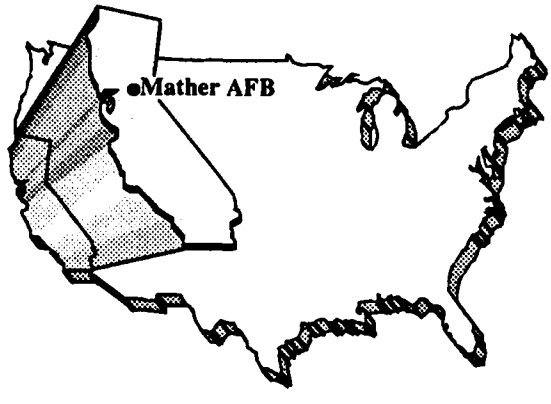
The Air Force is planning to conduct a scoping and screening meeting on December 5, 1990, at 6:30 p.m. in the Sacramento Board of Education meeting room located at 9738 Lincoln Village Drive, Rancho Cordova, California. The purpose of the meeting is to determine the environmental issues and concerns to be analyzed, to solicit comments on the proposed action and to solicit proposed reuse/alternatives that should be addressed in the EIS. In soliciting disposal/reuse inputs, the Air Force intends to consider all reasonable alternatives to the proposed action offered by any Federal, State, and local government agency and any Federally-sponsored or private entity or individual with an interest in acquiring available property at Mather AFB. These alternatives will be analyzed in the EIS. The resulting environmental impacts will be considered in making disposal decisions to be documented in the Air Force's Final Disposal Plan for Mather AFB.

To ensure the Air Force will have sufficient time to consider public inputs on issues to be included in the disposal/reuse EIS and disposal alternatives to be included in the Final Disposal Plan, comments and reuse proposals should be forwarded to the address listed below by December 21, 1991. However, the Air Force will accept comments at the address below at any time during the environmental impact analysis process.

For further information concerning the study of Mather AFB disposal/reuse and EIS activities, contact:

Lt. Col. Tom Bartol
AFRCE-BMS/DEV
Norton AFB, CA 92409-6448
(714) 382-4891

THIS PAGE INTENTIONALLY LEFT BLANK



APPENDIX D

APPENDIX D

FINAL ENVIRONMENTAL IMPACT STATEMENT MAILING LIST

APPENDIX D
FINAL ENVIRONMENTAL IMPACT STATEMENT
MAILING LIST

This list of recipients includes interested federal, state and local agencies, and individuals who have expressed an interest in receiving the document. This list also includes the governor of California as well as United States senators and representatives and state legislators.

Federal Elected Officials

U.S. Senate

Honorable Alan Cranston

Honorable John Seymour

U.S. House of Representatives

Honorable Vic Fazio

Honorable Robert Matsui

Federal Agencies

Advisory Council on Historic Preservation
Don L. Klima

Center for Disease Control
Center for Environmental Health and Injury Control

Department of Agriculture
Environmental Coordination Office
Forest Service

Department of Agriculture
Natural Resources and Environment Committee
Secretary for Natural Resources and Environment

Department of Agriculture
Soil Conservation Service

Department of Commerce
Office of Environmental Affairs

Department of Defense
Office of Economic Adjustment

Department of Education
Director, Public Affairs

Department of Energy
Division of NEPA Affairs

Department of Housing and Urban Development
Office of Environment and Energy

Department of the Interior
Office of Environmental Affairs

Department of Justice
Federal Bureau of Prisons

Department of Transportation
Federal Highway Administration
Thomas D. Larson, Administrator

Environmental Protection Agency
Office of Federal Activities

Federal Aviation Administration

General Services Administration
Office of Program Initiatives

U.S. Air Force

AFCEE/ESS
San Francisco

940th AFRES/CV
Col. J. H. Handy

HQ AFRES/DEVP
Robins AFB, Georgia

HQ TAC/DEV
Langley AFB, Virginia

HQ USAF/CEVP
David C. Van Gasbeck

HQ USAF/CEVP
Doc Ellis

HQ USAF/CEVP
Lee Shoenecker

AFBDA/BD
Col. David M. Cannan

AFCEE/ESE (Norton)
Lt. Col. Tom Bartol

AFCEE/ESE (Brooks)
Lt. Col. Gary Baumgartel

323 FTW/CC
Col. Joseph H. Wehrle, Jr.

Base Civil Engineer
323 CES/CC
Lt. Col. Carl J. Wiles

EM
323 FTW/EM
Lt. Col. Rick Blank

323 FTW/XR
Lt. Col. Scott E. Gerhart

2852 ABG/DEPX
Jay Jordan

Regional Offices of Federal Agencies

Advisory Council on Historic Preservation
Golden, CO

Bureau of Land Management

Corps of Engineers
Louisville, KY

Department of Agriculture
U.S. Forest Service
San Francisco, CA

Department of Education
Seattle, WA

Department of Commerce
Economic Development Administration
Fresno, CA

Department of Housing and Urban Development
Region IX
Community Planning and Development Division
San Francisco, CA

Department of the Interior
U.S. Geological Service
Menlo Park, CA

Department of Transportation
Federal Highway Administration
Region IX
San Francisco, CA

Environmental Protection Agency
Region IX
Federal Activities
San Francisco, CA

Environmental Protection Agency
Region IX
Water Management Division
San Francisco, CA

Federal Aviation Administration
Western-Pacific Region
Los Angeles, CA

Federal Communication Commission

Federal Housing Administration

General Services Administration
Region IX
San Francisco, CA

National Trust for Historic Preservation
Western Regional Office
San Francisco, CA

Small Business Administration
Branch Office
Sacramento, CA

Small Business Administration
S.W. Division NAVFAC
San Diego, CA

Soil Conservation Service
Sacramento, CA

U.S. Army/TRADOC
ATBO-GE
Fort Monroe, VA

U.S. Postal Service
Western Regional Headquarters
San Bruno, CA

Veterans Administration
Southern California Region
Los Angeles, CA

State of California Officials

Governor

Honorable Pete Wilson

State Legislature

State Senate

Leroy F. Greene

Patrick Johnston

State Assembly

B.T. Collins

Lloyd G. Connelly

Phillip Isenberg

David Knowles

Tim Leslie

State of California Agencies

Air National Guard

Air Resources Board

California Highway Patrol

California National Guard
Military Department
M. Gen. Robert C. Thrasher, Adjutant General

California Regional Water Quality Control Board

California State University

California Waste Management Board

Cosumnes River College

Department of Conservation

Department of Education
Deputy Superintendent for Specialized Programs

Department of Fish and Game
Environmental Branch

Department of Forestry

Department of General Services

Department of Housing and Community Development
Planning and Review Section, Research Department

Department of Toxic Substances Control

Department of Transportation
Division of Aeronautics

Department of Transportation
Caltrans District 3
Brian J. Smith

Department of Water Resources
Reports Review

Heritage Preservation Commission

Native American Heritage Commission

Office of Historic Preservation
State Historic Preservation Officer
Kathryn Gualtieri

Parks and Recreation Department
Planning Division

Public Utilities Commission

State Clearinghouse
Office of Planning and Research

County Agencies

Mather Internal Study Team
Dee Reynolds, Executive Director

Sacramento County Parks and Recreation Department

City Elected Officials

City of Folsom
Mayor Jack Kipp

City of Sacramento
Mayor Anne Rudin

City Agencies

Carmichael Regional Library

City of Folsom

Folsom-Cordova Unified School District

Rancho Cordova Chamber of Commerce

Rancho Cordova Community Council

Local Libraries

Arcade Community Library

Arden Branch Library

California State University, Sacramento

Central Library

Elk Grove Library

Fair Oaks Library

Folsom Library

Rancho Cordova Community Library

State Library

Other Organizations/Individuals

Air Resources Board

American Legion

BSK and Associates

Camray Capital Group

Elizabeth Christoff

Robert Coughran

Ann Dahlquist

Dream Park Corporation

Bob Faber

Charles Foden

Luke Gard

Hackard, Taylor & Phillips

Kenneth Holt

Labat Anderson Inc.

The Land Park Community Association

Mather Credit Union

MK Group

Carl Miller

Planning and Conservation League

Radian Corp.

Remediation Services Inc.

Roland E. Sabourin

Sacramento Regional Transit District

Sierra Club

Charles H. Smith

Jane Smith

The Sacramento Bee

Schneider Commercial Real Estate

Shaber Co.

Mike Tunnell

U.S. Environmental

U.S. Home Corp.

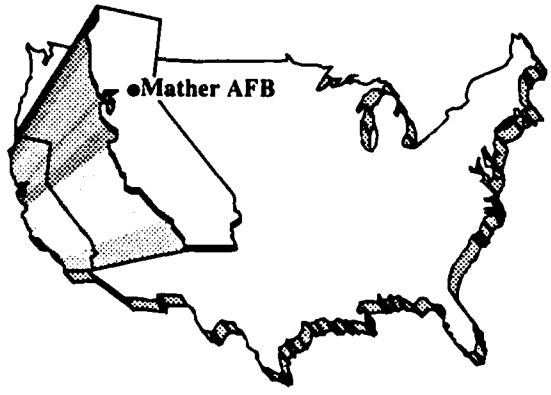
U.S. Postal Service

Vector Research, Inc.

Vic Verloo

Robert Wainwright

Michael Witt



APPENDIX E

APPENDIX E

IRP BIBLIOGRAPHY

APPENDIX E
IRP BIBLIOGRAPHY

AeroVironment Inc., 1987. Installation Restoration Program, Phase II, Stage 2 Confirmation/Quantification Final Report, Vol. 1 & 2, June.

AeroVironment Inc., 1988. Installation Restoration Program - Phase II - Confirmation/Quantification, Stage 3 Final Report, January.

California Department of Health Services, Toxic Substances Control Program, 1990. RCRA Facility Assessment for Mather Air Force Base, Sacramento, California, June.

CH2M Hill, 1982. Installation Restoration Program Records Search for Mather Air Force Base, Phase 1, Stage I, June.

EA Engineering, Science, and Technology Western Division, 1990a. Draft Quality Assurance Plan for Quarterly Groundwater Sampling, May.

EA Engineering, Science, and Technology Western Division, 1990b. Draft Sampling and Analysis Plan for Quarterly Groundwater Sampling, April.

EA Engineering, Science, and Technology Western Division, 1990c. Quarterly Groundwater Sampling, Mather Air Force Base, California, August 1990, Volumes I, II, III, July.

International Technology Corporation, 1988a. Final Landfill Gas Testing Work Plan for Eight Sites at Mather Air Force Base, California, January.

International Technology Corporation, 1988b. Installation Restoration Program Phase IV-A Activities - Well Redevelopment and Sampling Plan for Mather AFB, California, October.

International Technology Corporation, 1988c. Landfill Report for Eight Sites at Mather Air Force Base, California, September.

International Technology Corporation, 1989a. Final AC&W Site Remedial Investigation/Feasibility Study Final Health and Safety Plan (Volume IV) for Mather Air Force, October.

International Technology Corporation, 1989b. Final AC&W Site Remedial Investigation/Feasibility Study Quality Assurance Project Plan (Volume III) for Mather Air Force Base, California, October.

International Technology Corporation 1989c. Final AC&W Site Remedial Investigation/Feasibility Study Quality Assurance Project Plan (Volume II) for Mather Air Force Base, California, October.

International Technology Corporation, 1989d. Final AC&W Site Remedial Investigation/Feasibility Study Quality Assurance Project Plan (Volume I) for Mather Air Force Base, California, October.

International Technology Corporation, 1990a. Remedial Investigation/Feasibility Study for Mather Air Force Base, California, Volume 1: Final Work Plan for Group 2 Sites, April.

International Technology Corporation, 1990b. Remedial Investigation/Feasibility Study for Mather Air Force Base, California, Volume 2: Final Sampling and Analysis Plan for Group 2 Sites, April.

International Technology Corporation, 1990c. Remedial Investigation/Feasibility Study for Mather Air Force Base, California, Volume 3: Final Quality Assurance Project Plan for Group 2 Sites, April.

International Technology Corporation, 1990d. Remedial Investigation/Feasibility Study for Mather Air Force Base, California, Volume 2: Final Health and Safety Plan for Group 2 Sites, April.

International Technology Corporation, 1990e. Remedial Investigation/Feasibility Study for Mather Air Force Base, California, Volume 2: Final Project Plans Addendum for Group 2 Sites, November.

International Technology Corporation, 1990f. Sampling and Analysis Report for Site Monitor Wells October/November Storage Tank Closure Report for Mather Air Force Base, California, September.

International Technology Corporation, 1990g. Remedial Investigation/Feasibility Study for Mather Air Force Base, California, Volume 2: Final Work Plan for Group 2 Sites, April.

International Technology Corporation, 1991a. Feasibility Study for Mather Air Force Base, California, AC&W Site - Final Report, August.

International Technology Corporation, 1991b. Feasibility Study for Mather Air Force Base, California, AC&W Site - Final Work Plan, November.

International Technology Corporation, 1991c. Final Proposed Plan for Groundwater Cleanup at the Aircraft Control and Warning Site, August.

International Technology Corporation, 1991d. Final Remedial Investigation Report of the Aircraft Control and Warning Site Mather AFB, CA - Volumes 1, 2, and 3, March.

International Technology Corporation, 1991e. Preliminary Design Investigation, Mather Air Force Base, California, Aircraft Control and Warning Site, Final Work Plan, September.

International Technology Corporation, 1991f. Quarterly Groundwater Monitoring Report for May 1991, Mather AFB, dated July, 1991.

International Technology Corporation, 1991g. Quarterly Groundwater Monitoring Report for Third Quarter 1991, Mather AFB, dated September, 1991.

International Technology Corporation, 1991h. Routine Groundwater Monitoring Program Project Plans - Volume 1: Sampling and Analysis Plan; Volume II: Quality Assurance Project Plan, February.

International Technology Corporation, 1992a. Remedial Investigation for Mather AFB, CA; Volume 1: (Final) Sampling and Analysis Plan for Group 3 Sites, January.

International Technology Corporation, 1992b. Remedial Investigation for Mather AFB, CA; Volume II: (Final) Sampling and Analysis Plan for Group 3 Sites, January.

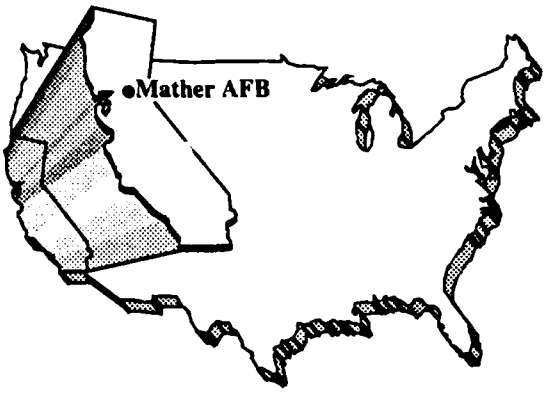
International Technology Corporation, 1992c. Remedial Investigation for Mather AFB, CA; Volume III: (Final) Quality Assurance Plan for Group 3 Sites, January.

International Technology Corporation, 1992d. Remedial Investigation for Mather AFB, CA; Volume IV: (Final) Health and Safety Plan for Group 3 Sites, January.

International Technology Corporation, 1992e. Quarterly Groundwater Monitoring Report for Fourth Quarter 1991, Mather AFB, California, January.

Roy F. Weston, Inc., 1986. Installation Restoration Program, Phase II Stage 1 Confirmation/Quantification Final Report, Volume 1 and 2, June.

U.S. Environmental protection Agency, California Department of Health Services, and U.S. Air Force Air Training Command, 1989. Interagency Agreement for Mather AFB, July 21.



APPENDIX F

APPENDIX F

METHODS OF ANALYSIS

APPENDIX F
METHODS OF ANALYSIS

1.0 INTRODUCTION

The purpose of this Environmental Impact Statement (EIS) is to evaluate the probable environmental impacts of disposal of Mather AFB. Since disposal necessarily involves the potential for reuse, the EIS evaluates the effects of reusing the base after it is no longer under the management of the Air Force.

Future reuse of the site is uncertain in its scope, activities, and timing. This EIS addresses these uncertainties by evaluating alternative reuse scenarios. These scenarios are intended to encompass the full range of reuses, and their associated environmental impacts, which are reasonably foreseeable due to disposal of the base.

The scenarios are defined on the basis of (1) proposals put forth by affected local communities and interested individuals, (2) general land use planning considerations, and (3) Air Force-developed alternatives to provide a broad range of reuse options for impact analysis. The overall objective in defining the scenarios addressed in this EIS is to span the anticipated range of reuse activities which are reasonably likely to occur.

Reuse scenarios considered in this EIS must be sufficiently detailed to permit environmental analysis. Initial concepts and reuse plans were taken as starting points for scenarios to be analyzed. Available information on any reuse alternative was then supplemented with economic, demographic, transportation, and other planning data to provide a reuse scenario sufficiently detailed for environmental analysis.

These planning data were derived using the various analysis methods for each factor of the affected environment under each reuse scenario. In those instances where the methodology was straightforward or could be succinctly presented, a description of it appears in the main body of the EIS. Methodologies that were more detailed or which require lengthy discussion are presented in this appendix; the methodology for noise is presented separately as Appendix L.

2.0 EMPLOYMENT AND POPULATION

2.1 EMPLOYMENT PROJECTIONS

The number of jobs on site is a major determinant of scenario-related traffic, utility use, air emissions, and other environmental factors. Employment projections were developed for two major phases of activity on the site: construction and operation. Together these two phases comprise onsite or direct jobs generated

by a reuse scenario. These direct jobs create secondary jobs in the region as a result of reuse-related spending and multiplier effects.

Construction Jobs

Construction jobs were estimated from the list of facilities developed in the land use analysis described below. The value of construction were estimated from the scope of new facilities to be built, the scope of renovation likely to be required for reuse of existing facilities, and the cost per square foot for construction of specified facility types based on industry standards. If a proponent of a potential reuse plan has prepared construction value estimated for key facilities, these were used as appropriate.

Renovation values were further based on judgemental estimates of the extent to which renovation approaches the cost of replacement construction. For example, minor renovation of facilities may be budgeted at a fraction (15 percent, for example) of the cost of new construction for comparable facilities. Major renovation would be budgeted at a higher rate.

Data and coefficients regarding construction jobs relative to the value of construction were then used to project direct construction employment. Comparable coefficients also were used to forecast site-related spending for construction materials and services in the region. This spending were used as an input to estimate secondary jobs related to site reuse.

Operation Jobs

The full buildout land uses were the basis for projecting operation employment over a 20-year reuse horizon. Ratios of jobs to acreages of specific land uses, floor areas of facilities, and other facility characteristics (such as hotel rooms, classrooms, hospital beds, and other factors specific to a particular use) were utilized to estimate full buildout jobs associated with each land use. If a plan proponent has developed job estimates for key land uses, these were incorporated into the analysis.

The number of jobs associated with each land use were then "phased in" over time according to a judgemental buildout or absorption schedule. This schedule reflects assumptions regarding the rate at which the site would be developed. Some activities may be fully built out in a short period of time; others may be at only partial buildout at the end of 20 years.

Site-related regional spending for goods and services was then estimated from data on regional sales and inter-industry linkages. These spending projections were used as inputs in calculating secondary jobs.

Secondary Jobs

Secondary or indirect offsite jobs were projected from the direct employment and spending forecast for each reuse scenario. Direct jobs were used to calculate payrolls, which in turn were used to estimate consumer spending in the region. Consumer spending and site-related outlays for goods and services were used as inputs to a multiplier analysis of the regional economy. These multipliers, reflecting the round-by-round expansion effects of initial site-related spending, were developed by the U.S. Department of Commerce.

2.2 POPULATION PROJECTIONS

Site-related direct and secondary jobs are the key inputs to developing projections of population impacts associated with site reuse scenarios. Assumptions regarding local hires and worker relocation determine the extent of worker in-migration due to the activities on the site.

Dependents were estimated based on demographic factors regarding family size. Natural increase of in-migrating workers and their families was estimated from recent demographic trends for the region. Total population impacts were distributed among communities within the study region based on current residential distributions of base civilian personnel and related factors.

3.0 LAND USE

Scenario development includes an identified ultimate or full buildout plan for reuse of the site, as well as considerations of interim development over a 5-, 10-, and 20-year schedule. The base acreage was allocated under each plan to uses identified as the long-term use of each parcel on the site. Such potential reuses may include an airport, aviation support, aircraft maintenance, industrial, commercial, residential, educational, and recreational or open space land uses. The uses applicable to a scenario were specific to that scenario and that site, and were based on a mix of these or other land uses.

These full buildout uses were based on the reasonable possibility, rather than probability, that they may occur. Inclusion of a land use, or an entire scenario, was not based on any judgement that such a land use is feasible or represents a market-determined use of the land. Rather, if there is a reasonable possibility that a particular reuse may occur, as evidenced by proposals for that reuse or known cases where such land uses have occurred elsewhere, that reuse would be included in one or more scenarios.

Given a specification of land uses for the site, the types of facilities to be renovated or constructed on the site were then determined. Floor area ratios for new facilities were developed using typical industrial standards and/or community

development ratios. Ancillary facilities, such as road improvements, also were identified.

The results of this effort are (1) a set of reuse plans, one for each scenario to be analyzed, that identify the use of each onsite parcel for each scenario; and (2) a list of major facilities to be constructed or renovated, with an indication of the scope (such as square footage of floor area) for each land use.

4.0 TRANSPORTATION

The area of concentrated study for the transportation analysis includes the Sacramento Region with emphasis on the area surrounding Mather AFB. Within this geographic area, the analysis examines the existing principal road, air, and rail transportation networks, including those segments of the transportation networks in the region that serve as direct linkages to the base, and those that are commonly used by Mather AFB personnel.

4.1 ROADWAYS

The number of vehicle trips expected as a result of specific land uses on the site is estimated for each projection year on the basis of direct onsite jobs and other attributes of onsite land uses (such as projected airport, office park, and commercial employees). The Institute of Traffic Engineers (1991) is the principal data source for planning relationships among trips and these various attributes.

Vehicle trips are then allocated to the local road network. The methodology used to determine potential distribution of project generated traffic onto local roadways included several factors: destination patterns, origin of project generated traffic, division of base generated traffic onto base-connected roads and nonbase-connected roads, and finally, determination of the percentage of external trips (trips that would leave the base area versus those that would not). Percentages for each of these factors were combined and multiplied by the total traffic forecast to be generated by the project to determine the actual number of vehicles that would use the base-connected and nonbase-connected roads.

Information on destination patterns was available from the *Mather AFB Reuse Study, Traffic Analysis and Infrastructure Report*, (Sacramento County, 1991). In that report the bulk of Sacramento County is divided into nine districts; the percentage of project-generated traffic destined for each of these districts is determined. The districts then were divided into the four compass directions. The results were: north, 48 percent; west, 24 percent; south, 11 percent; and east, 17 percent.

Percentages of project-generated traffic, by origin, were determined by dividing the base into two parts: Part A (the northeast, mostly commercial area); and Part B (the remainder, mostly residential area). For the Proposed Action and the

General Aviation with Aircraft Maintenance alternatives, parts A and B are divided by the airport. After reviewing land use generation data, it was determined that 45 percent of the traffic would be generated in Part A, and 55 percent in Part B.

Division of base generated traffic was accomplished by estimating the percentage of total traffic, from each part, that would use the base-connected roads (these would always total 100 percent), and then determine how the traffic on each would be divided at the first intersection (i.e., the split-off percentage), the second intersection, and in some instances the third intersection. Percentage data for six base-connected roads and eight nonbase-connected roads were prepared.

Percentages for internal versus external trips were determined to be 95 percent external for Part A (the mostly commercial area), and 85 percent for Part B (the mostly residential area). The remainder of the traffic would stay within the base boundary and not use any of the key community roads. These percentages were determined from past experience with origin-destination studies.

When these percentages were determined for each of the 14 potentially used roadways, they were multiplied together to produce a distribution factor for each roadway segment. The percentages for similar roadway segments were then added together to get a distribution factor for each of the 14 roads. Only those roads that would carry at least 10 percent of the total base-generated traffic were defined as key community roads. These factors were then multiplied by the total traffic that would be generated by the proposed land uses to produce the actual daily vehicle trip and peak-hour trip distribution for each road.

Traffic volumes typically are reported as either the daily number of vehicular movements in both directions on a segment of roadway averaged over a full calendar year (average annual daily traffic [AADT]) or the number of vehicular movements on a road segment during the average peak hour. These values are useful indicators in determining the extent to which the roadway segment is used and in assessing the potential for congestion and other problems.

Traffic flow conditions are generally reported in terms of level of service (LOS), rating factors that represent the general freedom (or restriction) of movement on roadways (Table 3.3-2). The LOS scale ranges from A to F, with low-volume, high-speed, free-flowing conditions classified as LOS A. LOS E is representative of conditions that, although not favorable from the point of view of the motorist, provide the greatest traffic volume per hour. With minor interuptions however, LOS E will deteriorate to LOS F (Transportation Research Board, 1985). As traffic volumes increase or traffic-handling capacities along given roadways decrease, free-flow conditions become restricted and LOS deteriorates. LOS F represents breakdown, stop-and-go conditions. Levels of service generally are evaluated and reported for typical clear-weather conditions.

Traffic flow conditions usually are most congested during morning and evening peak hours and depend on the physical characteristics of the roadway, traffic volumes, and the vehicular mix of traffic. A common design goal is to provide peak-hour service at levels no lower than LOS C or D. A typical two-lane rural highway will have a maximum two-way design capacity of 1,500 to 2,000 passenger vehicles per hour. On such roads, travel is affected substantially by traffic in the opposing lane, and by curves and hills, all of which impair a motorist's ability to pass safely. By contrast, each lane of an interstate highway (divided with restricted access) provides a capacity of about 2,000 vehicles per hour under a wide range of conditions. In urban or suburban settings, the capacity of signalized intersections that restrict traffic flow tends to influence LOS more than the capacity of a roadway segment. LOS ratings presented in this study were determined by peak-hour traffic volumes and capacity for key roadways.

The transportation network of the Sacramento region was examined to identify potential impacts to LOSs arising from future baseline conditions (caretaker status of Mather AFB) and effects of alternative future scenarios. Changes in traffic volumes and peak-hour LOS ratings were projected for road segments (excluding intersections and highway ramps). LOS ratings were based on Highway Capacity Manual recommendations (Transportation Research Board, 1985).

Traffic volume associated with the industrial park, aviation support, aviation industrial, golf course, hospital, and office park was based on the number of projected employees (ranging from 2.85 to 18.05 daily trips and 0.06 to 0.22 peak-hour trips per employee). Retail/commercial-generated traffic projections assumed 28.61 daily trips and 0.09 peak-hour trips per 1,000 square feet of floor area.

Traffic volumes for the ROI were derived from the AADT counts provided by the Traffic Division of the Sacramento County Department of Public Works and traffic analyses performed in support of base reuse. Changes in traffic volumes arising from land use changes at Mather AFB were estimated and resulting volume changes on the local road network were determined. Resulting changes in peak-hour LOS ratings were then determined. Changes in work and associated travel patterns were derived by assigning or removing workers to or from the most direct commuting routes.

4.2 AIRSPACE

Data Sources

Airspace use around an airport environment is driven primarily by such factors as runway alignment, surrounding obstacles and terrain, air traffic control (ATC)and navigational aid capabilities, proximity of other airports/airspace uses in the area,

Sheriff's Department), the distance to the surface traffic DNL levels is estimated to increase less than 1 percent for the Proposed Action and alternatives for the year 2014.

Caltrans R&D Center. The proposed research center would not be located within 65 dB contours for the Proposed Action or Alternatives. As such, no noise impacts on the research center have been identified. Sufficient details were not available to permit a detailed analysis of the noise effects of the test track and few details are available regarding other research operations; therefore, noise effects of these operations on the surrounding areas were not investigated. When details are available regarding these operations, further study would be necessary to determine the extent, if any, of noise impacts from these operations on the surrounding areas. Research center-related traffic would change the distance to the DNL level for the Proposed Action and alternatives as shown in Table 4.4-21.

Theme Park. The proposed theme park will not be located within 65 dB contours for the Proposed Action or alternatives. As such, no noise impacts on these spaces have been identified. Sufficient details were not available to permit a detailed analysis of the noise effects of the theme park; therefore, noise effects of the theme park on the surrounding areas were not investigated. When details are available regarding these operations, further study would be necessary to determine the extent, if any, of noise impacts from these operations on the surrounding areas. Traffic due to the theme park would change the distance to the DNL level for the Proposed Action and alternatives as shown in Table 4.4-22.

Table 4.4-22. Changes in Distance to DNL from Roadway Centerline due to Other Land Use Concepts (percent)

Land Use Concept	Proposed Action	Non-Aviation with Mixed-Density Residential	General Aviation with Aircraft Maintenance	Non-Aviation with Low-Density Residential
Caltrans R&D Center	+15.1	-0.7	+16.5	+6.1
Theme Park	+28.0	-8.7	+28.6	-11.3

Other Transfers and Conveyances

U.S. Department of Agriculture, U.S. Forest Service. The office and warehouse space in this transfer are not located within the 65 dB contours for the Proposed Action or alternatives. As such, no noise impacts on these spaces have been identified. Based on the available details of this transfer, no noise impacts have been identified from the offices or warehouse on the surrounding areas.

U.S. Forest Service and Bureau of Land Management. The office and hangar space proposed to be transferred are not located within the 65 dB contours for the Proposed Action or alternatives. As such, no noise impacts on these spaces have been identified. Based on the available details of this transfer, no noise impacts have been identified from the offices or hangar on the surrounding areas.

U.S. Army - Test, Measuring and Diagnostic Equipment Support Center. The requested building is not located within the 65 dB contours for the Proposed Action or alternatives. As such, no noise impacts on these spaces have been identified. No information is available regarding the reuse activities of this facility; therefore, the effects of noise from this facility on surrounding areas have not been investigated.

Department of Health and Human Services, Residential Treatment Center for American Indian Youth. The proposed inpatient care facility would not be located within the 65 dB contours for the Proposed Action or alternatives. As such, no noise impacts on this facility have been identified. Based on the available details of this transfer, no noise impacts have been identified from the facility on the surrounding areas.

State of California, Department of Forestry. The identified office space for this conveyance is not located within the 65 dB contours for the Proposed Action or alternatives. As such, no noise impacts on this space have been identified. Based on the available details of this transfer, no noise impacts have been identified from the office on the surrounding areas. Few details are available regarding aircraft operations for the proposed Future Air Attack Base; therefore, effects of these aircraft on the noise contours were not investigated. When details are available regarding these operations, further study would be necessary to determine the extent, if any, of noise impacts from these operations on the surrounding areas.

State of California, Department of Justice, Bureau of Narcotic Enforcement. Based on the available details of this conveyance, no noise impacts have been identified either on or from the hangar space.

State Commission of Peace Officer Standards, Los Rios Community College District, Sacramento Police Department, and Sacramento County Sheriff's Department. The classrooms requested for this conveyance are assumed to lie outside the DNL 65 dB contours. As such, no noise impacts on them have been identified. Details are not available regarding possible use of a firing range; therefore, noise effects of this part of the conveyance were not investigated. When details are available regarding these activities, further study would be necessary to determine the extent, if any, of noise impacts from these activities on the surrounding areas. No noise impacts have been identified from the classroom activities on surrounding areas.

California State University, Sacramento. The proposed planetarium would not be located within the 65 dB contours for the Proposed Action or alternatives. As such, no noise impacts on the planetarium have been identified. Based on the available details of this transfer, no noise impacts have been identified from the planetarium on the surrounding areas.

California State Fire Marshall. No noise impacts have been identified regarding the explosives storage bunker. Based on the available details of this transfer, no noise impacts have been identified from the bunker on the surrounding areas.

Sacramento County Department of Parks and Recreation. The lands requested for this conveyance do not lie within the DNL 65 contour. As such, no noise impacts on the golf course, equestrian center, model airplane facility, small arms firing range, handicapped center, multi-sports complex, picnicking area, camping area, velodrome, or floral gardens have been identified. Details are not available regarding the small arms firing range; therefore, noise effects of this part of the conveyance were not investigated. When details are available regarding these operations, further study would be necessary to determine the extent, if any, of noise impacts from these activities on the surrounding areas. Based on the available details of this conveyance, no noise impacts have been identified from the remaining planned activities on surrounding areas.

Sacramento County Sheriff's Department Air Bureau/Airbourne Law Enforcement. Few details are available regarding aircraft operations of this conveyance; therefore, effects of these aircraft on the noise contours were not investigated. When details are available regarding these operations, further study would be necessary to determine the extent, if any, of noise impacts from these operations on the surrounding areas.

Sacramento County Child Care Center and Family Support Center. This facility was assumed to be located in the main base buildings north of the runways. As such, the building is not within the DNL 65 dB contours. No noise impacts on this facility have been identified. Based on available details of this conveyance, no noise impacts have been identified from it on the surrounding areas.

Sacramento County-wide Education Consortium: Sacramento County Office of Education, Sacramento County School District, California State University, Sacramento, Los Rios Community College. The buildings requested in this transfer are not located within 65 dB contours for the Proposed Action or alternatives. As such, no noise impacts on these spaces have been identified. Based on the available details of this transfer, no noise impacts have been identified from these spaces on the surrounding areas.

Sacramento Housing and Redevelopment Agency. The residential units identified for this transfer are not located within 65 dB contours for the Proposed

Action or alternatives. As such, no noise impacts on them have been identified. Based on the available details of this transfer, no noise impacts have been identified from the residential units on the surrounding areas.

Cordova Recreation and Park District. The sports facilities requested for this conveyance lie outside the DNL 65 dB contours. As such, no noise impacts on them have been identified. Based on the available details of this transfer, no noise impacts have been identified from these facilities on the surrounding areas.

Folsom/Cordova Unified School District. Kitty Hawk Elementary School and Mather Elementary School lie outside the DNL 65 dB contours. As such, no noise impacts on them have been identified. Based on the available details of this transfer, no noise impacts have been identified from these schools on the surrounding areas.

Los Rios Community College District. The buildings requested for this conveyance lie outside the DNL 65 dB contours. As such, no noise impacts on them have been identified. Based on the available details of this transfer, no noise impacts have been identified from these facilities on the surrounding areas.

City of Sacramento Police Department. The facilities requested for this conveyance lie outside the DNL 65 dB contours. As such, no noise impacts on them have been identified. Details are not available regarding the firing range; therefore, noise effects of this part of the conveyance were not investigated. When details are available regarding these operations, further study would be necessary to determine the extent, if any, of noise impacts from these operations on the surrounding areas. Based on the available details of this transfer, no noise impacts have been identified from the remaining planned activities on surrounding areas.

Regional Transit Authority. The building requested for this conveyance lies outside the DNL 65 dB contours. As such, no noise impacts on it have been identified. Details are not available regarding the operations of the railway; therefore, noise effects of this part of the conveyance were not investigated.

When details are available regarding these operations, further study would be necessary to determine the extent, if any, of noise impacts from these operations on the surrounding areas. Based on the available details of this transfer, no noise impacts have been identified from the storage and maintenance facilities on surrounding areas.

4.4.4.6 No-Action Alternative. For the No-Action Alternative, there would be no airport or mining activity and less surface traffic than for the Proposed Action or General Aviation Alternative; therefore, there would be fewer noise impacts.

Surface traffic sound levels are presented in Table 4 4-23. These levels are presented in terms of DNL as a function of distance from the centerline of the

Table 4.4-23. Distance to DNL from Roadway Centerline and Number of People Residing within that Distance for the No-Action Alternative

		Distance (ft) DNL 65	Number of People	Distance (ft) DNL 70	Number of People	Distance (ft) DNL 75	Number of People
1999	Mather Field Drive	*	N/A	*	N/A	*	N/A
	Old Placerville Road	80	0	40	0	*	N/A
	Excelsior Road North	40	0	40	0	*	N/A
	Sunrise Road North	150	19	70	0	70	0
	Sunrise Road South	150	0	70	0	70	0
2004	Mather Field Drive	*	N/A	*	N/A	*	N/A
	Old Placerville Road	90	0	40	0	*	N/A
	Excelsior Road North	40	0	40	0	*	N/A
	Sunrise Road North	170	31	70	0	70	0
	Sunrise Road South	170	0	70	0	70	0
2014	Mather Field Drive	*	N/A	*	N/A	*	N/A
	Old Placerville Road	110	0	40	0	*	N/A
	Excelsior Road North	40	0	40	0	*	N/A
	Sunrise Road North	210	49	80	0	70	0
	Sunrise Road South	220	0	80	0	70	0

* Contained within roadway.

roadways analyzed. In 1999, approximately 19 people are estimated to reside within areas exposed to DNL 65 and above. This number would increase to 49 by the year 2014.

Cumulative Impacts. There are no cumulative impacts expected from noise sources for the Non-Aviation alternatives.

Mitigation Measures. Noise mitigation measures would not be required for the No-Action Alternative because there are no land uses that are incompatible based on the guidelines given in Table 3.4-7.

4.4.5 Biological Resources

Analysis of biological impacts was conducted for the Proposed Action and alternatives.

Assumptions used in analyzing the effects include:

- Constructed parks and recreation lands would be vegetated with landscape species.
- All staging and other areas disturbed temporarily by construction would be placed in previously disturbed areas (e.g., paved or cleared areas).
- Proportions of direct disturbance associated with each land use category were determined based on accepted land use planning concepts. Development within each parcel could occur at one or more locations anywhere within that category.

The approximate location and estimated areal extent of wetlands, including vernal pools, and vernal pool terrain are based on field maps prepared for Mather Air Force Base (McGuire, Eatough, and Fong, Inc., 1991).

4.4.5.1 Proposed Action. Development of a civilian/military airport, industrial and commercial facilities, and residential areas along with aggregate mining would affect biological resources primarily through loss of vegetation and wildlife habitat. Furthermore, the Proposed Action could cause some increase in collision of aircraft and ground vehicles with animals, and increase the statistical probability of accidents, such as fires or spills of hazardous materials. Urban development would increase runoff of stormwater and pollutants from developed areas.

Vegetation. Overall, the Proposed Action would result in a maximum loss of approximately 1,868 acres of grassland (Table 4.4-24) and 63 acres of wetlands (26 acres along drainage channels and 37 acres in vernal pools). Phasing of development, however, would spread this disturbance over time. Wetland areas are discussed in greater detail under sensitive habitats.

Table 4.4-24. Direct Impacts of the Proposed Action on Vegetation (acres)

Habitat	1999	2004	2014	Total
Grassland [a]	781	538	549	1,868
Wetland [b]	18	33	12	63
Previously Disturbed [c]	260	192	92	544
Total	1,059	763	653	2,475

Notes: (a) Another 306 acres of grassland would be indirectly affected by park and recreation area development in the first phase.
(b) Vernal pools plus stream and ditch wetlands.
(c) Includes landscaped, developed (buildings and pavement), and barren areas.

About 43 percent of the disturbance would occur in the first phase; another 30 percent would be in the second phase, and the remainder in the third phase. Aggregate mining is proposed as a predevelopment land use for portions of the base and would result in a loss of 898 of the 1,868 acres of grassland that would be affected by development, although approximately 200 acres of the mined area would later be reclaimed as parks. Another 980 acres of grassland would be converted to parks and recreation areas, vegetated with landscape species, and frequently mowed and maintained. At least 391 acres of grassland would be directly affected, and approximately 306 acres would be indirectly affected through recreational activities and maintenance. Residential development would take up 479 acres of grassland; another 45 acres would be lost to airfield developments and 36 acres would be disturbed within the natural habitat.

Approximately 767 acres of grassland within the airfield land use category would not be disturbed during construction activities. At present, this area is periodically mowed for safety reasons and continuation of this practice would not further impact the area.

Increased human presence and use of the area (e.g., mountain biking, jogging, and possibly motor biking) due to adjacent residential development could have indirect adverse effects on vegetation within the 773-acre natural habitat located in the southern and southeastern areas of the base. Indirect effects could also occur as a result of sediment and materials (e.g., trash, fertilizers, or pesticides) carried in runoff from adjacent construction sites, from paved surfaces during operations, and from residential areas. Vegetation types that could be affected include grassland (675 acres), vernal pool wetlands (27 acres), and stream and ditch wetlands (10 acres). Impacts on wetlands are discussed below.

Increased human activity in the area would increase the potential for fires, particularly in the summer and fall when the grasslands are dry. Fires could affect both base grasslands and riparian areas. Grasslands would recover rapidly and could benefit from fires, while effects on riparian areas would be

moderate to long term and adverse because this sensitive community has a longer recovery time.

Wildlife. Effects on wildlife are related to habitat loss, construction activities, and operations.

Habitat Alteration and Loss. Direct loss of habitat (1,868 acres of grassland and 63 acres of stream wetlands and vernal pools) and alteration or fragmentation of 306 acres of grassland would affect resident wildlife species by displacement of mobile species to adjacent areas and mortality of less mobile species which include those individuals that are territorial and/or breeding. Assuming that adjacent habitat is limiting and already at its carrying capacity, the displaced animals would compete with residents for available resources, causing ecological disruption until populations decrease and equilibrium is re-established. Species that would be displaced include those with relatively small home ranges such as some birds (e.g., loggerhead shrike, American kestrel, western meadowlark, and burrowing owl), mammals (e.g., jackrabbit, western harvest mouse, and California ground squirrel), and reptiles. The loss of habitat would also affect wider ranging species that hunt in the area such as raptors (e.g., red-tailed hawk, sharp-shinned hawk, and Swainson's hawk) and predatory mammals (e.g., coyote, grey fox, and American badger). The ultimate effect would be a decrease in local populations of these species.

Converting a maximum of 1,931 acres of grassland, wetlands and vernal pools directly to industrial, commercial, parkland, and residential development and alteration fragmentation of 306 acres of grassland would increase the abundance of non-native species such as the house sparrow, rock dove, and European starling. It would also favor such native species as the house finch, northern mockingbird, American crow, and pocket gopher over less disturbance tolerant native species in competition for remaining resources. Use of herbicides and/or rodenticides in maintaining landscape areas could also adversely affect wildlife.

Effects of fires on wildlife would generally be short-term in grasslands because most species are fire-adapted, but short- to long-term in riparian areas until vegetation is restored.

Noise/Activity. Activities and noise associated with demolition and construction of facilities would generally have short-term effects on larger or highly mobile wildlife species since those intolerant of such disturbances could avoid the vicinity of the project. Operation of the airport would continue the aircraft noise and visual effects already occurring as a result of flight operations at Mather AFB. The frequency of noise events would increase as civil transport and general aviation flights increase to approximately 273,000 operations/year in 2014. Although 88 percent of all flights would involve non-jet aircraft that produce less noise than commercial or military jet aircraft, the percentage of commercial jet flights would increase over the 20-year period from 2 percent in

1999 to 11 percent in 2014 while military jet flights would remain constant. This increase in the number of jet flights would result in an overall increase in aviation noise, disturbing wildlife populations on or adjacent to the base. Those species unable to tolerate an increase in aircraft noise and activity would leave or avoid the area, but the overall impact on local wildlife populations outside the base would be minimal.

Noise from aggregate mining operations could have local, but long-term effects on adjacent wildlife populations since this activity would continue for up to 17 years. The mined material would move by conveyor to existing facilities off base. Therefore, noise associated with transport of material to the processing site would be minimal. As mining is completed, the land would be developed and noise effects would continue through the construction period.

Bird-Aircraft Collisions. Additional air traffic resulting from the Proposed Action would increase the potential for bird-aircraft collisions, although impacts on populations of most wildlife species would be minimal. Mather AFB presently has a total of 30 to 40 bird-aircraft strikes per year, involving primarily tricolored blackbirds and western meadowlarks. It is assumed that as air traffic increases, the potential for air strikes could also increase. Current precautions taken to reduce air strikes consist of altering habitat surrounding the airfield so that it is unsuitable for nesting, and cannon noise designed to scare birds off the runways. Impacts on common bird species, such as the western meadowlark, would be negligible. Effects on the tricolored blackbird are discussed below under Threatened and Endangered Species.

Effects on Aquatic Biota. Aggregate mining and facility construction would result in a loss of approximately 63 acres of ephemeral and intermittent aquatic habitats (i.e., 37 acres of vernal pools and 26 acres of drainage channels). Mather Lake and Morrison Creek would not be affected. Rerouting or re-establishment of drainage channels without channelization would make effects on aquatic biota of drainage channels temporary. Runoff of sediments from soils disturbed during construction would cause a temporary increase in turbidity in adjacent aquatic habitats, and aggregate mining could alter the local hydrology resulting in indirect impacts on some of the remaining habitats. Potential impacts on rare species are discussed in the section on Threatened and Endangered Species.

Threatened and Endangered Species. Species with declining populations are provided legal protection by the federal Endangered Species Act, the California Endangered Species Act, and the California Native Plant Protection Act. The federal act affords protection by requiring consultation with USFWS for potential project-related impacts to species formally listed as threatened or endangered and species which have been proposed for listing and are awaiting final rulemaking. Candidates for federal listing are not protected by law, although some federal agencies do accord some level of non-mandatory protection or

management considerations to these species (California Native Plant Society, 1988). The state of California lists species as endangered, threatened, and rare, and also designates candidates which are under review by CDFG for potential listing. All listed species and candidates are provided protection under California law.

The Air Force has conducted informal Section 7 consultation with the USFWS for potential land conveyance to private parties. If portions of the property containing listed species are transferred to another federal agency, that agency may be required to conduct additional consultation under Section 7 of the Endangered Species Act prior to irreversible or irretrievable commitment of resources to any project that could adversely affect them. Formal consultation under Section 7 of the Endangered Species Act is required if the federal agency determines that its action may affect listed species or critical habitat or if formal consultation is requested by the Director of the USFWS. Formal consultation is a process between the USFWS and the federal agency that concludes with the USFWS's issuance of a biological opinion that states whether or not the federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification or critical habitat. A no-jeopardy opinion may include restrictions on the amount of incidental adverse effects to listed species and critical habitat. A USFWS opinion that the project could jeopardize the continued existence of a listed species or result in the destruction or adverse modification of critical habitat, known as a jeopardy opinion, would also include reasonable and prudent alternatives, if any, that the federal agency could implement to avoid jeopardizing the listed species or critical habitat. If a jeopardy opinion is issued, the federal agency will either alter or cease its action to comply with the no-jeopardy mandate in Section 7(a)(2) of the Endangered Species Act or seek an exemption from this mandate under Section 7(h) of the Act.

For properties conveyed to non-federal and private parties, those parties would be subject to the prohibitions listed in Section 9 of the Endangered Species Act (16 U.S.C. § 1538) and 50 C.F.R. Part 17, Subparts C, D, F, and G. For certain activities involving the export, possession, taking, sale, or transport of threatened or endangered animal species, non-federal and private parties would be required to obtain a permit under Section 10 of the Endangered Species Act (16 U.S.C. § 1539) and 50 C.F.R. Part 17, Subparts C and D.

Several federally and state-listed endangered or threatened species and species under review for listing (candidate species) are present in the vicinity of Mather AFB and could be affected by the Proposed Action. Because no elderberry trees occur at Mather, the threatened valley elderberry longhorn beetle is not expected to be present or impacted in any way by base reuse. Development resulting in a loss of 63 acres of wetlands prior to 2014 would reduce breeding and foraging habitat available for the tricolored blackbird, a candidate (C2) for federal listing that is known to use the base, and possibly for the giant garter

snake, (state-listed [threatened]) and proposed for federal listing as an endangered species) that is potentially present on the base. The proposed 1,868-acre loss of grassland habitat and disturbance of 306 acres for recreational lands would reduce foraging habitat for the tricolored blackbird and the state-threatened Swainson's hawk and disturb breeding and foraging habitat for the burrowing owl, a state-designated species of special concern. The proposed 36-acre loss of vernal pool habitat could have long-term adverse effects on species potentially present, such as the California tiger salamander, a state species of special concern and candidate (C2) for federal listing; the western spadefoot toad, a state species of special concern; and 4 species of fairy shrimp, proposed candidates for federal listing, all of which depend on the presence of temporary pools for part or all of their life cycle. A loss in grassland or vernal pool habitat could also affect wintering long-billed curlews (C2 candidate for federal listing) which may forage on base; however, impacts on this species would be minimal. Rare plant species are unlikely to be affected because none were found on the base, although several vernal pool species could be present in better rainfall years.

Tricolored blackbirds are occasional victims of bird-aircraft strikes during the breeding season (April through July) and a continuation of this would have minimal impacts on their population. Flocks of up to 3,000 birds have been observed in the vicinity of the airfield. The long-billed curlew and Swainson's hawk could also be affected by aircraft strikes, but impacts on populations of these species would likely be minimal because airfield management would be undertaken to prevent such strikes for aircraft safety.

No federal or state-listed rare or endangered plant species have been located during on-base surveys (McGuire, Eatough and Fong, Inc., 1991). Due to drought conditions during these surveys, subsequent surveys by future developers in future years and/or comparative surveys at nearby known rare plant locations would be necessary to confirm their absence.

Any construction activity close to remaining wetland or grassland habitat would increase activity/noise disturbance for individuals of sensitive species (e.g., tricolored blackbird) that remain in the area. Roads that are built close to, or through preferred habitat increase the potential for individuals of sensitive species to be killed by vehicles. Overall impacts on sensitive species could be adverse, particularly for fairy shrimp, the tiger salamander, and tricolored blackbird.

Sensitive Habitats. Development prior to the year 2014 would result in the loss of 37 acres of vernal pool wetlands and 26 acres of stream and ditch wetlands as a result of aggregate mining and construction. Aggregate mining would affect 32 acres of vernal pools and 10 acres of stream amd ditch wetlands. Construction of residential units would impact 3 acres of vernal pools and 16

acres of stream and ditch wetlands, while airfield uses and commercial development would each affect 1 acre of vernal pool wetlands.

Vernal pool terrain has been estimated and is shown in Figure 4.4-3. The terrain consists of the actual watersheds containing concentrations of vernal pools. Disturbances within vernal pool terrain, outside the vernal pools themselves, may indirectly affect vernal pools by modifying the hydrological features of the watershed (e.g., changing surface or subsurface water flow into the pools, or causing the pools to drain). The total vernal pool terrain on the base is approximately 814 acres. The Proposed Action could disturb 230 acres of the terrain, potentially impacting pools west of Capehart Housing and at the north end of the base. Most of the pools to the east of Capehart housing and in the vicinity of Eagles Nest Road and the surrounding watershed would not be developed under the reuse plan. The 115 acres of vernal pool terrain (including vernal pool wetlands) occurring within the airfield land use category are assumed to remain undisturbed, although maintenance activities such as mowing of cattails to discourage tricolored blackbirds from using the runway area would continue to degrade wetlands along the flightline. Some vernal pools within residential and commercial land use areas, however, would be disturbed within the areas to be developed. Stream and ditch wetlands would likely be rerouted or redeveloped for site drainage and thus, losses would be temporary if drainages were not lined with concrete.

Wetlands and vernal pools could be indirectly affected by sedimentation associated with construction, scour from increased runoff, nutrients and pesticides from landscape areas, and other pollutants from developed areas (during construction and operations). Impacts could also occur as a result of increased human presence and access to the vernal pools due to residential development (bicycles, off-road vehicles, dogs, children, etc.). Because wetlands are sensitive communities and federal policies dictate no net loss of wetlands, any impacts would be adverse.

Cumulative Impacts. The Proposed Action would add to the loss of wetlands, particularly vernal pools and their associated sensitive species, and the loss of grassland habitat for sensitive wildlife species and raptor hunting resulting from the proposed 1,243 acres of aggregate mining adjacent to the base.

Mitigation Measures. Wetlands on base are currently protected under Executive Order 11990 and Section 404 of the Clean Water Act. Executive Order 11990 requires a federal agency to attach appropriate restrictions on the use of properties containing wetlands when conveying such lands to non-federal parties. Inclusion of such restrictions in the land conveyance to future project proponents, who would then be responsible for mitigating any impacts to these habitats, would protect wetlands from future developments that may not come under jurisdiction of the Clean Water Act. Most subsequent development projects resulting in dredge or fill of wetlands would be subject to

Section 404 of the Clean Water Act and require a permit from the Corps of Engineers. Stream alteration would require a 1601-1603 Agreement from CDFG.

Protection under Executive Order 11990 would depend on the type of stipulations placed on the land conveyance. Effectiveness could range from 0 to 100 percent. Section 404 of the Clean Water Act applies to wetlands larger than 1 acre, and should be effective in protecting the varied wetlands on Mather AFB. The level of effectiveness would depend on how much disturbance is granted by the COE through their permitting process.

Avoidance of direct and indirect impacts to wetlands, especially vernal pools, would be less than 100 percent effective in protecting these habitats unless a portion of the wastershed (vernal pool terrain) sufficient to ensure continued viability is also protected. Controlling runoff of pollutants to wetlands can be accomplished with existing techniques, but monitoring is necessary to ensure that the measures are employed correctly and that structures are maintained adequately. Controlling indirect effects from human recreational activities would be less than 100 percent effective unless monitoring to identify impacts and educational programs for nearby residents are carried out for as long as the habitat remains. Creation of replacement wetland habitats (either on or off site), can have varying success in mitigating that lost. Unless the new habitat is fully developed prior to the loss, no mitigation is obtained for the temporal loss of this habitat.

Reconstruction of wetlands has had varying degrees of success in the past. A pilot is being conducted by a local aggregate mining company, but the results will not be conclusive for several years. Until the methods for replacing the vernal pools to be lost have been proven effective, the regulatory agencies (USFWS, COE, and CDFG) are not likely to accept this as a mitigation. Monitoring restoration/replacement sites can improve the effectiveness of habitat replacement if measures to ensure that any remedial work necessary is completed.

Potential mitigations for impacts of future development projects could include: (1) avoidance of direct and indirect disturbance of wetlands through facility design; (2) on-site (if possible) replacement of any wetlands lost at a ratio determined through consultation with the USFWS , CDFG, and Corps of Engineers; (3) purchase and fencing of any off-site replacement habitat; and (4) monitoring (until habitat becomes well established) of any replacement wetlands required to determine the effectiveness of replacement and any remedial measures necessary. Avoidance of indirect disturbance could include controlling runoff from construction sites into drainages through use of berms, silt curtains, straw bales and other appropriate techniques. Equipment could be washed in areas where wash water could be contained and treated or evaporated.

Disturbance effects caused by ground vehicles could be reduced by establishing programs that encourage public transportation and non-motorized methods of transportation.

4.4.5.2 Non-Aviation with Mixed-Density Residential Alternative. Aggregate mining and development of residential housing, commercial, industrial, and recreational areas would effect biological resources primarily through loss of vegetation and associated wildlife habitat. Additional indirect effects would occur as described for the Proposed Action and from increased human population and access to vernal pools.

Vegetation. Impacts would be similar to those described for the Proposed Action. Because residential areas would replace the existing airfield, the amount of vegetation lost would be greater than that lost due to the Proposed Action. Development during the analysis would result in the loss of 2,479 acres of grasslands (Table 4.4-25) and 83 acres of wetland vegetation (46 acres along drainage channels and 37 acres in vernal pools). Residential development would replace 1,150 acres of grassland and industrial development would remove 26 acres. Aggregate mining would remove 866 acres of the grasslands; about 60 acres of the mined area would later be reclaimed as parks.

Table 4.4-25. Direct Impacts of the Non-Aviation With Mixed-Density Residential Alternative on Vegetation (acres)

Habitat	1999	2004	2014	Total
Grassland	975	627	877	2,479
Wetland [a]	25	26	32	83
Previously Disturbed [b]	374	278	436	1,088
Total	1,374	931	1,345	3,650

Notes: (a) Vernal pools plus stream and ditch wetlands.
(b) Includes landscaped, developed (buildings and pavement), and barren areas.

Development of recreation lands on base would result in a direct loss of 390 acres of grassland and indirect disturbance of another 300 acres. This would diminish native vegetation and wildlife habitat value, because the areas would be primarily vegetated with landscape species that would be routinely maintained. About 39 acres of grassland would be disturbed in the natural habitat. This includes 13 acres lost to new road development. Vegetation loss would be spread over three phases with approximately 40 percent in the first, 25 percent in the second, and 35 percent in the third.

The amount of natural habitat (772 acres) and potential indirect impacts to this area would be the same as described for the Proposed Action.

Wildlife. Impacts on wildlife for the Non-Aviation with Mixed-Density Residential Alternative would be similar to those described for the Proposed Action.

However, the degree of impact would be greater since the maximum loss of wildlife habitat would be about 30 percent more for grassland, and stream and ditch wetlands. Landscaping of residential areas would provide habitat for species (primarily non-native) tolerant of human activity and adaptedto this type of environment. An increase in these species could adversely affect local populations of native species through competition for limited resources associated with residential development. Aggregate mining may increase sedimentation affects on surrounding habitat and inadvertently lower habitat quality in those areas.

Activity and noise associated with aircraft would cease, while temporary noise sources associated with aggregate mining, demolition, and construction would have impacts similar to those described for the Proposed Action. Wildlife species intolerant of such disturbance would avoid the vicinity of the project during the time of the activity, but impacts on their populations would be minimal.

Other potential adverse impacts to wildlife associated with residential development include predation by domestic dogs and cats, handling by humans, and additional disturbance or mortality caused by off-road vehicle use.

Potential impacts to wildlife resulting from fires would be the same as those described for the Proposed Action.

Aquatic habitats would be lost as a result of developments on the base, but the amount lost would be larger than that of the Proposed Action (i.e., 20 acres more of drainage channel habitat). Direct and indirect impacts, however, would remain minimal for common aquatic species. Drainage channels would likely be rerouted or restored after aggregate mining is complete thereby making the habitat loss impact temporary. Rare species are discussed below under Threatened and Endangered Species.

Threatened and Endangered Species. Federally and state listed species that are present in the vicinity of Mather AFB and which may be adversely affected by this alternative are the same as those described under the Proposed Action. Impacts of habitat loss, however, would be greater since more grassland and wetland habitats would be replaced by structures and non-native vegetation.

Sensitive Habitats. A total of 37 acres of vernal pool wetlands and 46 acres of stream and ditch wetlands would be lost as a result of aggregate mining and construction. Aggregate mining would impact 32 acres of vernal pools and 9 acres of stream and ditch wetlands. It would also result in the loss of at least 296 acres of vernal pool terrain, primarily between the base residential areas and the airfield. Construction of low-density residential units would affect 5 acres of vernal pools and 34 acres of stream and ditch wetlands. Light industrial uses would disturb 3 acres of stream and ditch wetlands. Potential indirect impacts to wetlands and vernal pools caused by sedimentation,

increased runoff, pollutants, and increased human access to the vernal pools, would be an adverse impact.

Cumulative Impacts. Cumulative impacts would be as described for the Proposed Action, but base reuse would contribute a greater loss of wetlands.

Mitigation Measures. Measures to offset adverse effects would be as described for the Proposed Action.

4.4.5.3 General Aviation with Aircraft Maintenance Alternative. Aggregate mining and development of a civilian/military airport and industrial, commercial, and residential areas would affect biological resources primarily through loss of vegetation/habitat. Additional indirect effects would occur as described for the Proposed Action.

Vegetation. Impacts to vegetation would be similar to those described for the Proposed Action, although fewer acres of wetlands and vernal pools would be disturbed. Development would result in the loss of 1,640 acres of grassland and 28 acres of wetland vegetation (14 acres along drainage channels and 14 acres in vernal pools). Aggregate mining would result in the loss of 617 of the 1,640 acres of grassland. Approximately 48 acres of grassland would be converted directly to recreation land that would most likely be landscaped and mowed. Residential development would reduce grasslands by 879 acres. Approximately 1,028 acres of grassland in the airfield use category would remain undisturbed. Impacts to vegetation would be spread over time with approximately 30 percent in Phase 1, 30 percent in Phase 2, and 40 percent in Phase 3 (Table 4.4-26).

Natural habitat would total 951 acres, including 839 acres of grassland, 38 acres of disturbed area, 24 acres of stream and ditch wetlands, and 50 acres of vernal pools. About 42 acres of grassland and 6 acres of vernal pools would be lost due to road construction (36 acres) and fencing/trail development. Potential indirect impacts to preserved areas are the same as those described for the Proposed Action.

Wildlife. Impacts to wildlife by the this alternative would be similar to those described for the Proposed Action, although fewer acres of wetland and vernal pool habitat would be lost. The conversion of grassland to parkland would be a permanent habitat loss for most native wildlife species due to loss of natural vegetation and maintenance practices which usually include mowing and the use of herbicides and/or rodenticides. Impact to surrounding local wildlife populations would be minimal.

Impacts resulting from activity and noise associated with aircraft, mining, and construction would be similar to those described for the Proposed Action, but flight operations would drop by 19 percent overall and involve 92 percent less commercial jet activity. Therefore, disturbance caused by aviation noise and activity would be less than that for the Proposed Action and have minimal effects

Table 4.4-26. Direct Impacts of the General Aviation with Aircraft Maintenance Alternative on Vegetation (acres)

Habitat	1999	2004	2014	Total
Grassland	433	527	680	1,640
Wetland [a]	12	6	10	28
Previously Disturbed [b]	290	230	361	881
Total	735	763	1,051	2,549

Notes: (a) Vernal pools plus stream and ditch wetlands.
(b) Areas currently lacking vegetation due to landscaping, paving, or buildings.

on wildlife. Impacts to wildlife from air traffic, ground vehicles, and accidents would be the same as those described for the Proposed Action.

Aquatic habitat loss would be considerably less than for the Proposed Action: 14 acres of vernal pools and 14 acres of drainage channel habitat. Drainage channels would likely be replaced (although some may be channelized), which would make impacts temporary. Indirect effects of sediment runoff and alteration of hydrology would be similar to those described for the Proposed Action. Overall impacts on common aquatic species would be minimal, and effects on rare species are discussed below under Threatened and Endangered Species.

Threatened and Endangered Species. Federally and state listed species that are present in the vicinity of Mather AFB, and which may be adversely affected by the General Aviation with Aircraft Maintenance Alternative, are the same as those described under the Proposed Action. Impacts on species associated with vernal pools would be less than for the Proposed Action, however, because a smaller amount of habitat would be lost.

Sensitive Habitats. A total of 14 acres of vernal pool wetlands and 14 acres of stream and ditch wetlands would be lost as a result of aggregate mining and construction. Aggregate mining would result in a loss of 7 acres of vernal pools and 11 acres of stream and ditch wetlands along with 41 acres of vernal pool terrain. Residential development would impact 3 acres of stream and ditch wetlands, and airfield uses would affect 1 acre of vernal pools. Road construction through the natural habitat area would result in a loss of 6 acres of vernal pools. The majority of the vernal pools and vernal pool terrain in the southern portion of the base and to the west of base residential areas would be preserved. Potential indirect impacts to wetlands and vernal pools caused by sedimentation, increased runoff, pollutants, and increased human access to the vernal pools, as described for the Proposed Action, would also be adverse.

Cumulative Impacts. Cumulative impacts would be as described for the Proposed Action with slightly less wetland loss.

Mitigation Measures. Measures to offset adverse effects would be similar to those described for the Proposed Action.

4.4.5.4 Non-Aviation with Low-Density Residential Alternative. Aggregate mining and development of residential, commercial, industrial, and recreational areas would effect biological resources primarily through vegetation/habitat loss (Table 4.4-27). Additional effects would occur as a result of noise, runoff of pollutants from developed areas, and increased human population and access to vernal pools.

Table 4.4-27. Direct Impacts of the Non-Aviation with Low-Density Residential Alternative on Vegetation (acres)

Habitat	1999	2004	2014	Total
Grassland	848	674	942	2,464
Wetland [a]	15	8	14	37
Previously Disturbed [b]	339	235	416	990
Total	1,202	917	1,372	3,491

Notes: (a) Vernal pools plus stream and ditch wetlands.
(b) Areas currently lacking vegetation due to landscaping, paving, or buildings.

Vegetation. Development would result in the loss of 2,464 acres of grassland and 37 acres of wetland vegetation (24 acres along drainage channels and 13 acres in vernal pools). Aggregate mining would disturb 1,209 of the 2,464 acres of grassland. Another 48 acres of grassland would be converted directly to recreation lands and would be landscaped and routinely maintained. Phasing of development would spread the disturbance over time, with approximately 35 percent in the first phase, 25 percent in the second phase, and 40 percent in the third phase.

Natural habitat would total 1,037 acres, the highest amount of any of the reuse alternatives. Included within these areas would be 922 acres of grassland, 34 acres of stream and ditch wetlands, and 54 acres of vernal pools. Nearly all of the base vernal pool terrain would remain undeveloped. Approximately 46 acres of grassland, 5 acres of wetlands, and 1 acre of disturbed habitat would be lost as a result of road construction (36 acres) and development of fences and trails. Potential indirect impacts to these areas would be the same as those described for the Proposed Action. Potential impacts to vegetation resulting from fires would also be the same as those described for the Proposed Action.

Wildlife. Direct impacts to wildlife would be similar to those described for the Proposed Action. More grassland would be lost, although less wetland (including vernal pools) habitat would be lost and more habitat would be preserved for wildlife. Indirect impacts associated with increased residential development would be as described in the Non-Aviation with Mixed-Density Residential Alternative.

This reuse alternative would have less impact on aquatic habitats and biota than all but the General Aviation with Aircraft Maintenance Alternative. Prior to 2014, 24 acres of drainage channel habitat would be lost, at least temporarily, and 14 acres of vernal pools would be lost. This would result in a temporary loss of aquatic habitat. Direct and indirect impacts on common species would be minimal (see below for rare species).

Threatened and Endangered Species. Federally and state listed species that are present in the vicinity of Mather AFB and which may be adversely affected by this alternative are the same as those described under the Proposed Action. Level of impact, however, would be less for species associated with vernal pools.

Sensitive Habitats. A total of 13 acres of vernal pools and 24 acres of stream and ditch wetlands would be lost as a result of aggregate mining and construction. Aggregate mining would affect 5 acres of vernal pools and 15 acres of stream and ditch wetlands. Residential development would impact 4 acres of vernal pools and 8 acres of stream and ditch wetlands. Within the natural habitat, 4 acres of vernal pools and 1 acre of stream and ditch wetland would be lost. Of this loss, road construction would affect 2 acres of vernal pools and the 1 acre of stream and ditch wetland. As described for the Proposed Action, potential indirect impacts to wetlands and vernal pools resulting from sedimentation, increased runoff, pollutants and increased human access to the vernal pools, would also be adverse.

Cumulative Impacts. Cumulative impacts would be as described for the Proposed Action, but would result in the loss of 25 fewer acres of wetlands.

Mitigation Measures. Measures to offset adverse effects would be similar to those described for the Proposed Action.

4.4.5.5 Other Land Use Concepts. Since each independent transfer, conveyance, or land use proposal does not require the entire land area of the base, the impacts of each on biological resources are evaluated as an overlay on the existing land use plans and would be additive to impacts already described for each alternative. Only those proposals for which biological impacts exist are discussed herein.

Caltrans R&D Center

Proposed Action. The test track and facilities would occupy 525 acres in the southern part of the base, allowing for continuation of aviation activities. Development of the track would impact biological resources by reducing the amount of natural habitat by 84 acres. Wetlands would be adversely impacted, as stream and ditch wetlands would be reduced by 8 acres and vernal pool wetlands would be reduced by 6 acres, adding to the losses already described for the Proposed Action. In addition, loss of 382 acres of recreation and parkland areas would reduce habitat for wildlife adapted to these habitats.

Non-Aviation with Mixed-Density Residential Alternative. The test track and facilities would occupy 470 acres in the northern part of the base, in the area presently occupied by the airfield. No natural habitat would be lost. About 0.3 acres of additional vernal pools would be lost, as well as 2 acres of stream and ditch wetlands and some vernal pool terrain. These impacts would be adverse. Another 23 acres of wildlife habitat in recreation and parkland areas would also be lost.

General Aviation with Aircraft Maintenance Alternative. Development would occur in the southern part of the base, in the same location as described for the Proposed Action. Natural habitat would be reduced by 72 acres. Approximately 7 additional acres of stream and ditch wetlands and 4 acres of vernal pool wetlands would be lost. This impact would be adverse. About 110 acres of park and recreational habitat for wildlife would be lost as well.

Non-Aviation with Low-Density Residential Alternative. Development would occur in the northern part of the base. Three acres of natural habitat would be lost. Approximately one additional acre of vernal pools would be lost, as well as 3 acres of stream and ditch wetlands and some vernal pool terrain. This impact would be adverse.

Theme Park

Proposed Action. The theme park would be located on 2,042 acres in the southeastern portion of the base. Development of the park would result in the loss of 676 of the 773 total acres of natural habitat (primarily grassland). Vernal pool wetlands would be reduced by an additional 25 acres, and stream and ditch wetlands would be reduced by an additional 16 acres. Vernal pool terrain would also lose acreage. These impacts would be adverse. Wildlife habitat in 769 acres of recreational areas would also be lost.

Non-Aviation with Mixed-Density Residential Alternative. Under this alternative the theme park would occupy 2,048 acres in the north-central area of the base, in land that is presently dominated by the airfield. No natural habitat would be lost as a result of this development. Approximately 4 additional acres of vernal pool wetlands, 7 additional acres of stream and ditch wetlands, and vernal pool terrain would be lost, however. This impact would be adverse.

General Aviation with Aircraft Maintenance Alternative. The theme park would be located on 2,042 acres in the southeastern part of the base, and 492 acres of natural habitat would be lost. Approximately 23 additional acres of vernal pools, 16 additional acres of stream and ditch wetlands, and vernal pool terrain would be lost. Impacts to these areas would be adverse.

Non-Aviation with Low-Density Residential Alternative. Positioning of the theme park on this alternative is in the north-central portion of the base, and 13 acres of natural habitat would be lost. Approximately 5 additional acres of

vernal pools, 8 additional acres of stream and ditch wetlands, and additional vernal pool terrain would also be lost. Impacts to wetland areas would be adverse.

4.4.5.6 No-Action Alternative. Maintenance of the base under caretaker status would have no adverse effects on biological resources. A reduction in human activity and a cessation of aircraft flights would reduce disturbance to wildlife on and in the vicinity of the base. Habitat quality for wildlife could improve if mowing of grasslands is terminated. Stream wetlands would be unaffected, and vernal pools could benefit from reduced disturbances (e.g., mowing and disking firebreaks) in their watershed.

4.4.6 Cultural Resources

Only those potential historic properties determined to be significant under cultural resource legislation are subject to protection or consideration by a federal agency. According to National Register criteria (36 CFR 60.4), the quality of significance is present in districts, sites, buildings, structures, and objects that:

- Are associated with events that have made a significant contribution to the broad patterns of history
- Are associated with the lives of persons significant in the past
- Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic value; or represent a significant and distinguishable entity whose components may lack individual distinction
- Have yielded, or may be likely to yield, information important in prehistory or history.

To be listed in or considered eligible for listing in the National Register, a cultural resource must meet at least one of the above criteria and must possess integrity of location, design, setting, materials, feeling, or association. Integrity is defined as the authenticity of a property's historic identity, as evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric occupation or use. If a resource retains the physical characteristics it possessed in the past, it has the capacity to convey information about a culture or people, historical patterns, or architectural or engineering design and technology. Significant cultural resources, either prehistoric or historic in age, are referred to as "historic properties."

Evaluating the significance of traditional Native American resources requires consultation with affected tribal groups to develop relevant criteria for establishing the importance of tangible and intangible resources. Certain categories of tangible Native American cultural resources, such as ancestral settlements or petroglyph sites, may be afforded protection through their eligibility for listing in the National Register. However, natural features such as

plants, animals, or prominent mountains are not addressed in historic preservation legislation unless their historic use can be documented. Natural features may be afforded protection by the American Indian Religious Freedom Act.

There are no specific Air Force guidelines for determining the importance of paleontological resources. However, a useful guide for determining importance has been provided in a 1978 memorandum from the Acting Associate Director of the Bureau of Land Management. According to this memorandum, a paleontological resource is of scientific or educational value if it:

- Provides important information on the evolutionary trends among organisms, relating living inhabitants of the earth to extinct organisms
- Provides important information regarding development of biological communities or the interaction between botanical and zoological biota
- Demonstrates unusual or spectacular circumstances in the history of life
- Is in short supply and in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and is not found in other geographic locations.

The memorandum also states explicitly that all vertebrate fossils have been categorized as being of significant scientific value.

A project affects a cultural resource when it alters the resource's characteristics, including relevant features of its environment or use, that qualify it as significant according to National Register criteria. Effects may include:

- Physical destruction, damage, or alteration of all or part of the resource
- Alteration of the character of the surrounding environment that contributes to the resource's qualifications for the National Register
- Introduction of visual, audible, or atmospheric elements that are out of character with the resource or alter its setting
- Neglect of a resource resulting in its deterioration or destruction.

Potential impacts for this EIS were assessed by (1) identifying project activities that could directly or indirectly affect cultural resources; (2) identifying the known or expected cultural resources in areas of potential impact; and (3) determining whether a project activity would have no effect, no adverse effect, or an adverse effect on cultural resources (36 CFR 800.9).

4.4.6.1 Proposed Action. Since no significant archaeological or historic resources or structures exist on Mather AFB, reuse activities will not affect these resources. Furthermore, no concern was expressed by Native Americans when consulted regarding reuse activities on base. Therefore, reuse activities would not affect Native American resources.

Paleontological resources may exist beneath the surface on Mather AFB. The only activity that may potentially disturb these deeply buried remains is aggregate mining. The Proposed Action would lead to mining 1,203 acres within the boundaries of Mather AFB, thereby creating potentially adverse impacts to significant paleontological resources, if present.

Cumulative Impacts. The Proposed Action would add to the loss of paleontological resources associated with aggregate mining in the Sacramento Area.

Mitigation Measures. Measures which could be applied to mitigate potential effects to paleontological resources include covenants in the transfer/conveyance documents permitting paleontologists to inspect ground disturbance activities and excavate fossil remains thus discovered.

4.4.6.2 Non-Aviation with Mixed-Density Residential Alternative. Impacts are the same as listed for the Proposed Action, except that 1,088 acres would be affected by mining activities.

Cumulative Impacts. Cumulative impacts would be the same as those described for the Proposed Action.

Mitigation Measures. Cumulative impacts would be the same as those described for the Proposed Action.

4.4.6.3 General Aviation with Aircraft Maintenance Alternative. Impacts are the same as listed for the Proposed Action except that 1,163 acres would be affected by mining activities.

Cumulative Impacts. Cumulative impacts would be the same as those described for the Proposed Action.

Mitigation Measures. Potential mitigation measures would be the same as those cited for the Proposed Action.

4.4.6.4 Non-Aviation with Low-Density Residential Alternative. Impacts are the same as those listed for the Proposed Action, except that 1,605 acres would be affected by mining activities.

Cumulative Impacts. Cumulative impacts would be the same as those described for the Proposed Action.

Mitigation Measures. Potential mitigation measures would be the same as those cited for the Proposed Action.

4.4.6.5 Other Land Use Concepts. There will be no effect on cultural resources from the implementation of any of these proposals.

Cumulative Impacts. No cumulative impacts are anticipated in association with the implementation of any of these proposals.

Mitigation Measures. No mitigation measures would be required under any of these proposals.

4.4.6.6 No-Action Alternative. There would be no effect on cultural resources resulting from implementation of the No-Action Alternative, because the Mather AFB property would remain under Federal jurisdiction. Thus, the project would not be considered an undertaking under cultural resource legislation.

Cumulative Impacts. No cumulative impacts are anticipated in association with the implementation of the No-Action Alternative.

Mitigation Measures. No mitigation measures would be required under this alternative.

4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that the use of these resources will have on future generations. Irreversible effects primarily result from use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Irretrievable resource commitments involve the loss in value of an affected resource that cannot be restored as a result of the action (e.g., extinction of a threatened or endangered species, or the disturbance of a cultural site):

- Land lost due to widening of roadways
- Loss of wetlands, permanent if not replaced, and temporary if replaced
- Loss of grassland habitat for wildlife
- Loss of vernal pool habitat for rare, threatened, or endangered species. Four species of fairy shrimp are being considered for federal listing or are candidates for listing; the California tiger salamander, western spadefoot toad, and several plant species inhabit vernal pools in the area
- The mining of aggregate would constitute an irreversible and irretrievable commitment of mineral resources
- Development over aggregate deposits will result in irretrievable commitment of the resource
- Potential loss of paleontological resources by aggregate mining.

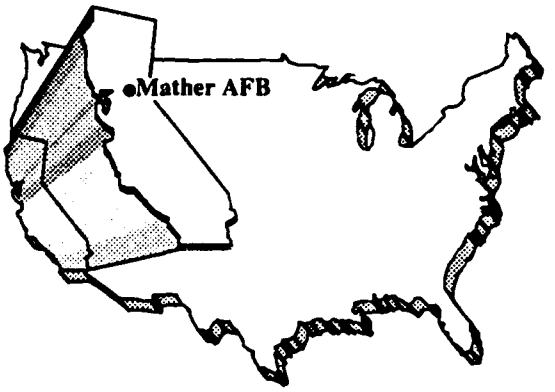
4.6 RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY OF THE ENVIRONMENT

Short-term uses of the biophysical components of man's environment include direct construction-related disturbances and direct impacts associated with an

increase in population and activity that occurs over a period of less than 5 years. Long-term uses of man's environment include those impacts occurring over a period of more than 5 years, including permanent resource loss:

- Development (primarily residential) over aggregate deposits prior to extraction will result in long-term loss of the resource.
- Potential permanent loss of paleontological resources will result from aggregate mining operations.
- Short-term use by aggregate mining would result in long-term loss of wetlands and habitat for species associated with vernal pools. Mitigation (replacement) of vernal pools is not a proven technology at this time.
- Short-term congestion of roadways will require widening.
- Construction effects from the Proposed Action and alternatives would result in short-term adverse potential impacts on the IRP process. Aggregate operations may impact both monitoring wells and the effectiveness of the pump and treat systems that may be installed as part of the remedial actions. Mitigation measures would include the monitoring of the effects on the cone of depression for any pump and treat systems.

THIS PAGE INTENTIONALLY LEFT BLANK



CHAPTER 5

5.0 CONSULTATION AND COORDINATION

The federal, state, and local agencies and private agencies/organizations that were contacted during the course of preparing this EIS are listed below.

FEDERAL AGENCIES

Environmental Protection Agency
Federal Aviation Administration
United States Air Force, Mather AFB:
- Airspace Management
- Air Traffic Control
- Base Closure Office
- Base Operations
- Bioenvironmental Engineering Services
- Entomology
- Environmental and Contract Planning
- Environmental Management
- Hospital Facility Management
- Real Property Disposal
- Sanitation

United States Air Force, McClellan AFB:
- Air Traffic Control

United States Department of Agriculture, Soil Conservation Service
United States Department of the Interior/National Park Service
United States Department of Transportation
United States Fish and Wildlife Service
Veterans Administration

STATE AGENCIES

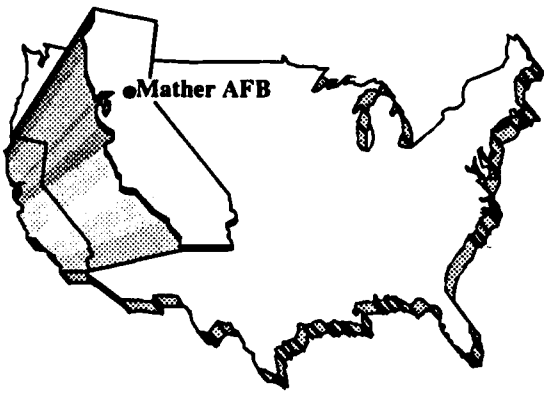
California Air Resources Board
California Department of Forestry and Fire Protection
California Department of Fish and Game
California Department of Parks and Recreation
California Department of Transportation (Caltrans)
California Department of Transportation, Division of Aeronautics
California State University - Planning Department
California Environmental Protection Agency
California Department of Water Resources
California Energy Commission
California Office of Historic Preservation
Native American Heritage Commission
State of California Department of Health Services, Department of Toxic Substances Control
State of California Department of Health Services, Public Water Division
University of California, Berkeley, Museum of Paleontology

LOCAL/REGIONAL AGENCIES

Arden-Cordova Waste Service
Cameron Airpark
Citizen's Utilities Company
City of Folsom
City of Sacramento Water District
County of Sacramento
Rancho Cordova Chamber of Commerce
Sacramento Area Commission on Mather Conversion
Sacramento Area Council of Governments
Sacramento Audobon Society
Sacramento County Air Pollution Control District
Sacramento County Department of Airports
Sacramento County Department of Public Works
Sacramento County Environmental Department, Hazardous Materials Division
Sacramento County Mather Internal Study Team
Sacramento County Planning and Community Development Department
Sacramento County Regional Transportation District
Sacramento County Regional Wastewater Treatment Plant
Sacramento County Solid Waste Management Division
Sacramento County Transportation Division
Sacramento County Water Agency
Sacramento County Water District
Sacramento County Water Quality Division
Sacramento County Water Resources Division
Sacramento Metropolitan Air Quality Management District
Sacramento Metropolitan Airport
Sacramento Municipal Utilities District
The Planning Center - City of Sacramento

PRIVATE ORGANIZATIONS

Aggregate Producers Association
Granite Construction Company
Hodges and Shutt
McClintock, Becker, and Associates
National Solid Waste Management Association
P&D Technologies
Pacific Gas & Electric Company
RMC Lonestar
Sunrise Waste Disposal Company
Teichert and Son, Inc.



CHAPTER 6

6.0 LIST OF PREPARERS AND CONTRIBUTORS

Thomas J. Bartol, Lieutenant Colonel, U.S. Air Force, Director Environmental Division, AFRCE-BMS/DEV
B.S., 1972, Civil Engineering, U.S. Air Force Academy, Colorado Springs
M.S., 1980, Management, Purdue University, Indiana
Years of Experience: 19

Robert W. Blakely, Airspace and Aircraft Operations Analyst, Science Applications International Corporation
B.S., 1961, Aviation Management, Auburn University
Years of Experience: 29

Steven H. Bonner, Captain, U.S. Air Force, Chief, Closure Operations Consolidated Assistance and Relocation Effort
B.A., 1982, Business Administration, University of Texas, Austin
Years of Experience: 7

Tony Burn, Environmental Planner, Robert D. Niehaus, Inc.
B.S., 1990, City/Regional Planning, California Polytechnic University, San Luis Obispo, California
Years of Experience: 2

Jon A. Ciarletta, Senior Technical Programmer, Acentech, Inc.
B.A., 1987, Psychology, California State University, Northridge
M.S., 1990, Experimental Psychology, California State University, Northridge
Years of Experience: 4

Christopher Clayton, Senior Economist, Science Applications International Corporation
B.A., 1966, Geography (Honours), Oxford University
M.A., 1968, Geography, University of Cincinnati
Ph.D., 1972, Geography, Clark University
Years of Experience: 20

Mike Costanzo, Regional Systems Manager, Robert D. Niehaus, Inc.
B.A., 1979, Geography, University of California, Santa Barbara
M.A., 1981, Geography, University of California, Santa Barbara
Ph.D., 1985, Geography, University of California, Santa Barbara
Years of Experience: 13

Sandra Lee Cuttino, P.E., Environmental Manager Associate, The Earth Technology Corporation
B.S., 1979, Civil Engineering, University of California, Davis
Years of Experience: 12

Paul Davis, Deputy Program Manager, Robert D. Niehaus, Inc.
B.S., 1978, Environmental Science, University of California, Riverside
M.A., 1984, Environmental Administration, University of California, Riverside
Years of Experience: 13

Jackie Eldridge, Senior Technical Editor, The Earth Technology Corporation
B.S., 1971, Biology, Fairleigh Dickinson University, New Jersey
M.S., 1979, Marine and Environmental Science, Long Island University, New York
M.B.A., 1983, National University, California
Years of Experience: 16

David Essex, Staff Environmental Specialist, The Earth Technology Corporation
B.S., 1991, Environmental Science, University of California, Riverside
Years of Experience: 1

Kip F. Evans, Air Quality Analyst, Science Applications International Corporation
B.A., 1991, Environmental Studies, University of California, Santa Barbara
Years of Experience: 1

Peter Figura, Biologist, Science Applications International Corporation
B.A., 1990, Environmental Science, Claremont McKenna College, Claremont, California
Years of Experience: 1

Derence Fivehouse, Major, Staff Judge Advocate, U.S. Air Force
B.A., 1978, International Affairs, University of Colorado, Boulder
J.D., 1980, Law, University of Arkansas, Fayetteville
LL.M., 1990, Environmental Law, George Washington University, Washington, DC
Years of Experience: 10

Nathan Gale, Resource Studies Manager, Robert D. Niehaus, Inc.
B.A., 1978, Middle Eastern Studies, University of California, Santa Barbara
M.A., 1979, Geography, University of California, Santa Barbara
Ph.D., 1985 Geography, University of California, Santa Barbara
Years of Experience: 11

Aaron Goldschmidt, Environmental Analyst, Robert D. Niehaus, Inc.
B.A., 1984, Geography, University of California, Santa Barbara
M.A., 1987, Geography, University of California, Santa Barbara
Years of Experience: 6

Peter Grill, Senior Staff Environmental Specialist, The Earth Technology Corporation
Environmental Studies, California State University, San Bernardino
Years of Experience: 3

Alan Harris, Environmental Scientist, Science Applications International Corporation
B.A., 1984, Environmental Studies, University of California, Santa Cruz
M.L.A., 1991, Environmental Planning, University of California, Berkeley
Years of Experience: 5

Thomas Jensen, Senior Environmental Scientist, Science Applications International Corporation
B.A., 1983, Economics, University of California, Los Angeles
M.A., 1990, Public Policy, Claremont Graduate School
Years of Experience: 11

Stephen Lind, Consultant, Acentech, Inc.
B.A., 1984, Physics, University of Northern Iowa
M.S., 1988, Engineering, University of Texas, Austin
Years of Experience: 7

William R. Livingstone, Principal Planner, Robert D. Niehaus, Inc.
B.A., 1950, Architecture, University of Southern California
M.A., 1966, Urban and Regional Planning, University of Southern California
Years of Experience: 31

Doug McDonald, The Earth Technology Corporation
B.L.A., 1986, Landscape Architecture and Environmental Planning, Utah State University
Years of Experience: 5

William Muir, Senior Project Geologist, The Earth Technology Corporation
B.S., 1980, Geology, California State University, Long Beach
M.S., 1984, Geology, California State University, Long Beach
Years of Experience: 11

Mary Jo Nicoletti, Analyst, Science Applications International Corporation
B.A., 1983, Economics, University of California, San Diego
M.S.B.A., 1988, Business Analysis, San Francisco State University
Years of Experience: 7

Robert Niehaus, Principal Economist, Robert D. Niehaus, Inc.
B.A., 1972, Government Oberlin College, Ohio
Ph.D., 1979, Economics, University of Maryland, College Park
Years of Experience: 20

Ramon E. Nugent, Supervisory Consultant, Acentech Inc.
B.S., 1969, Engineering Science, Iowa State University, Ames
Years of Experience: 22

Paul U. Pawlik, Economist, U.S. Air Force, AFRCE-BMS/DEPV
B.A., 1965, Business Administration, North Central College
M.A., 1967, Economics, Roosevelt University
Ph.D., 1972, Economics, University of Arizona
Years of Experience: 20

Karen Pope, Biologist, Science Applications International Corporation
B.A., 1991, Environmental Science, Claremont McKenna College, Claremont, California
Years of Experience: 1

Laird M. Proctor, Environmental Scientist, Science Applications International Corporation
B.S., 1974, Zoology, Arizona State University, Tempe, Arizona
Certification, 1988, Hazardous Materials Management, University of California, Davis
Years of Experience: 4

James Rudolph, Archaeologist, Science Applications International Corporation
B.A., 1972, Anthropology, University of Georgia
M.A., 1977, Anthropology, Southern Illinois University-Carbondale
Ph.D., expected 1991, Anthropology, University of California, Santa Barbara
Years of Experience: 16

Sam C. Rupe, Major, U.S. Air Force, Staff Judge Advocate, AFRCE-BMS/DES
B.S., 1977, History, U.S. Air Force Academy, Colorado Springs, Colorado
J.D., 1984, Law, University of Miami, Miami, Florida
LL.M., 1991, Environmental Law, George Washington University, Washington, DC
Years of Experience: 7

Adrian R. Sanchez, Senior Project Environmental Specialist, The Earth Technology Corporation
B.A., 1979, Economics, California State University, San Bernardino
M.A., 1983, Economics, University of Notre Dame
Years of Experience: 7

Robert M. Silsbee, Economic Analyst, Robert D. Niehaus, Inc.
B.A., 1980, Economics/Environmental Studies, University of California, Santa Barbara
M.A., 1989, Economics, University of California, Santa Barbara
Years of Experience: 12

Charles H. Smith, Supervising Environmental Engineer, Mather AFB
B.S., 1954, Chemical Engineering, Northwestern University, Evanston, Illinois
M.S., 1955, Chemical Engineering, Northwestern University, Evanston, Illinois
Ph.D., 1958, Chemical Engineering, Northwestern University, Evanston, Illinois
Years of Experience: 38

John K. Sollid, Chief Environmental Protection Branch, U.S. Air Force, AFRCE-BMS/DEVP
B. Arch., 1968, Architecture, Tulane University, New Orleans
Years of Experience: 20

Lisbeth A. Springer, AICP, Program Manager, Science Applications International Corporation
B.A., 1975, Sociology, cum laude, Colorado College
M.C.R.P., 1980, City and Regional Planning, Harvard University
Years of Experience: 11

Dennis L. Sullivan, Major, U.S. Air Force, Closure Program Manager, AFRCE-BMS/DEVE
B.S., 1973, Civil Engineering, Purdue University, West LaFayette, Indiana
M.S., 1979, Civil Engineering, University of New Mexico, Albuquerque
Years of Experience: 18

Robert Thomson, Science Applications International Corporation
B.S., 1973, Zoology, University of California, Davis
M.S., 1976, Ecology, University of California, Davis
Years of Experience: 16

Robert A. Thompson, Environmental and Airspace Specialist, Science Applications International Corporation
B.S., 1968, Mathematics, Heidelberg College
M.S., 1979, Human Resources Management, Pepperdine University, California
Years of Experience: 22

Rosemary Thompson, Senior Biologist, Science Applications International Corporation
B.A., 1967, Zoology, University of Missouri
Ph.D., 1972, Scripps Institution of Oceanography, University of California, San Diego
Years of Experience: 21

Sebastian Tindall, Senior Environmental Scientist, Science Applications International Corporation
B.A., 1978, Biology and Chemistry, University of California, Santa Cruz
M.S., 1982, Chemistry, University of California, Santa Cruz
Years of Experience: 2

Karin Uphoff, Biologist, Science Applications International Corporation
B.S., 1985, Zoology, Oregon State University
M.S., 1990, Zoology, Arizona State University
Years of Experience: 6

Jeff Vittuci, Senior Economist, Robert D. Niehaus, Inc.
B.A., 1974, Environmental Studies, San Jose State University, California
M.A., 1978, Urban Economics, University of California, Santa Barbara
Years of Experience: 13

Mary L. Vroman, Major, U.S. Air Force, Deputy, Programs and Environmental Division, AFRCE-BMS/DEV
B.S., 1977, Engineering Operations, Iowa State University
M.S., 1986, Engineering Management, Air Force Institute of Technology
Years of Experience: 13

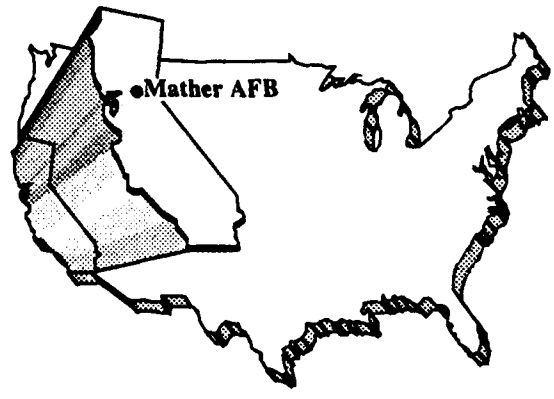
Matthew Werner, Associate, The Earth Technology Corporation
B.A., 1969, Geology, Franklin and Marshall College, Pennsylvania
Ph.D., 1973, Geology, Pennsylvania State University, Pennsylvania
Years of Experience: 17

Hayley-Jane Wihongi, Environmental Analyst, Robert D. Niehaus, Inc.
B.S., 1987, Sociology, Brigham Young University, Utah
Years of Experience: 4

Stephen E. Ziemer, Senior Air Quality Specialist, Science Applications International Corporation
B.S., 1976, Environmental Engineering, Southern Illinois University
M.S., 1978, Environmental Engineering, Southern Illinois University
Years of Experience: 12

Keith R. Zwick, Site Planning Manager, The Earth Technology Corporation
B.S., 1966, Landscape Architecture, Kansas State University, Manhattan
Years of Experience: 23

THIS PAGE INTENTIONALLY LEFT BLANK



CHAPTER 7

7.0 REFERENCES

A. Teichert and Son, Inc. and Granite Construction Co., 1990. Concept paper for the Sacramento Area Commission on Mather Conversion. Potential Aggregate Mining Zones and Reclamation Examples.

A. Teichert and Son, Inc., Granite Construction Co., and Lonestar Industries, 1991. Concept Paper for the Transfer of Mather Air Force Base Aggregate Property.

AeroVironment Inc., 1987. Installation Restoration Program – Confirmation/Quantification, Vol. 1 and 2, Phase II Stage 2, prepared for the U.S. Air Force, June.

AeroVironment Inc., 1988. Installation Restoration Program Phase II - Confirmation/Quantification, Stage 3, Final Report for Mather Air Force Base, Sacramento, California, Final Report (July 1986 to February 1988).

Air Resources Board, 1989a. California Air Quality Data, Vol XX, Technical Support Division, Emission Inventory Branch, California.

Air Resources Board, 1989b. Proposed Identification of Districts Affected by Transport of Air Pollutants which Contribute to Violations of the State Ambient Air Quality Standard for Ozone, Meteorology Section, Modeling and Meteorology Branch, Technical Support Division, California, October.

Air Resources Board, 1990. California Air Quality Data, Vol XXI, Technical Support Division, Emission Inventory Branch, California.

Air Resources Board, 1991a. Area Designations for State Ambient Air Quality Standards, Air Quality Data Review Section, Air Quality Data Branch, Technical Support Division, California, July.

Air Resources Board, 1991b. California Air Quality Data, Vol XXII, Technical Support Division, Emission Inventory Branch, California.

Air Resources Board, 1991c. Emission Inventory, 1989, Emission Inventory Branch, Technical Support Division, California, August.

American National Standards Institute, 1983. Specification for sound level meters, ANSI S1.4-1983.

American National Standards Institute, 1990. Sound level descriptors for determination of compatible land use, ANSI 512.40.

Ames, D.R., 1974. Sound stress and meat animals. Proceedings of the International Livestock Environment Symposium, Lincoln, Nebraska, 324-330.

AMTRAK, 1991. Letter from Arthur L. Lloyd, Director, Public Affairs-West.

Anton-Guirgis, H., B. Culver, S. Wang, and T. Taylor, 1986. Exploratory Study of the Potential Effects of Exposure to Sonic Boom on Human Health, Vol 2: Epidemiological Study, Report No. AAMRL-TR-86-020.

ARB, see Air Resources Board.

Belanovskii, A., and V. A. Omel'yanenko, 1982. Acoustic Stress in Commercial Poultry Production, Soviet Agriculture Science.

Bennyhoff, J. A., 1977. Ethnogeography of the Plains Miwok, University of California Center for Archaeological Research 5, Davis.

BLM, see U.S. Department of the Interior, Bureau of Land Management.

Bolt, Beranek and Newman Inc., 1977. Power plant construction noise guide, Report No. 3321, May.

Bowles, A., P. Yochem, and F. Awbrey, 1990. The Effects of Aircraft Overflights and Sonic Booms on Domestic Animals, NSBIT Technical Operating Report No. 13, BBN Laboratories Inc.

Boyle Engineering Corporation, 1989. Sacramento County Water Plan Supplement - 1989, (SCWAWP), prepared by Boyle Engineering Corporation for the County of Sacramento, California.

CALTHORPE Associates, 1990. Transit-Oriented Development Guidelines, September.

California Department of Conservation, Division of Mines and Geology (CDMG), 1988. Mineral Classification: Portland Cement Concrete Grade Aggregate in the Sacramento – Fairfield Production Consumption Region, Special Report 156.

California Department of Transportation, March 1991. Personal communication between Joe Avis, Caltrans, and Hayley Wihongi, Robert D. Niehaus, Inc.

California Department of Water Resources, 1978. Evaluation of Ground Water Resources: Sacramento Valley, Bulletin 118-6.

California Energy Commission, 1990. 1990 Electricity Report, P-106-90-002, Sacramento California, October.

California State Department of Health Services, 1986. Form 8304, Public Water Supply Branch.

California State Department of Health Services, 1987. Form 8304, Public Water Supply Branch.

California State Department of Health Services, 1988. Form 8304, Public Water Supply Branch.

California State Department of Health Services, 1989. Form 8304, Public Water Supply Branch.

California State Department of Health Services, 1990. Form 8304, Public Water Supply Branch.

Campbell, R., 1991. Telephone interview with Russell Campbell, Sacramento Water/Wastewater Supervisor.

Canter, L., S. Atkinson, and L. Leistritz, 1985. Impact of Growth: A Guide for Socioeconomic Impact Assessment and Planning, Lewis Publishing, Chelsea, Michigan.

Cappola, J., 1990. Water Supply Assessment Section of the Mather Air Force Base Reuse Plan, Aviation Alternative.

Carlisle, F. L., and R. Batha, 1990. Analysis of Electrical and National Gas Distribution Systems Section of the Mather Air Force Base Reuse Plan, Aviation Alternative.

Carson, J. D., 1991. Senior Northern Division Engineer, letter regarding Arden-Cordova's incorporating Mather AFB into their own system.

CDMG, see California Department of Conservation.

Charles D. Bailey and Associates, 1990. Appraisal for Mather Air Force Base, Sacramento, California.

CH2M Hill, 1982. Installation Restoration Program Records Search for Mather Air Force Base, Phase I Stage 1, prepared for the U.S. Air Force, June.

City of Folsom, 1988. Folsom General Plan.

Council on Environmental Quality, 1978. Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act.

Department of the Air Force, Headquarters 323 FTW, 1989. Wing Regulation 60-1; Air Traffic Control Procedures.

DHS, see California State Department of Health Services.

EBASCO Environmental, 1990. Preliminary Draft Environmental Impact Statement Base Closure for Sacramento Army Depot, California, Prepared for Department of the Army Headquarters, Army Materiel Command Alexandria, Virginia and U.S. Army Corps of Engineers Sacramento District, California, prepared by EBASCO Environmental, November.

Environmental Science Associates, 1990. Draft Broadstone Master Plan Environmental Impact Report.

EPA, see U.S. Environmental Protection Agency.

FAA, see Federal Aviation Administration.

Federal Aviation Administration, 1982. INM Integrated Noise Model Version 3 User's Guide, FAA-EE-81-17, October.

Federal Aviation Administration, 1983a. Airport Capacity and Delay (Advisory Circular 150/5060-5).

Federal Aviation Administration, 1983b. Policies and Procedures for Considering Environmental Impacts, FAA Order 1050. ID.

Federal Aviation Administration, 1985. Airport Environmental Handbook, Order 5050.4A, October.

Federal Aviation Administration, 1988a. Heliport noise model (HNM) version 1.1 user's guide, Report No. DOT/FAA/EE-88-2.

Federal Aviation Administration, 1988b. Letter of Agreement between Oakland Air Route Traffic Control Center and Sacramento TRACON concerning procedures for the coordination and control of air traffic.

Federal Aviation Administration, 1988c. Noise levels for U.S. certified and foreign aircraft. (Advisory Circular No. 36-1E).

Federal Aviation Administration, 1990. Standard for Specifying Construction of Airports, (Change 10), Temporary Air and Water Pollution, Soil Erosion and Siltation Control, Advisory Circular 150/5370-10, June.

Federal Highway Administration, 1978. FHWA highway traffic noise prediction model, Report No. FHWA-RD-77-108, December.

Fidell, S., T. J. Schultz, and D. M. Green, 1988. A theoretical interpretation of the prevalence rate of noise-induced annoyance in residential populations. Journal of the Acoustical Society of America, 84(6), 2109-2113.

Frerichs, R., B. Beeman, and A. Coulson, 1980. Los Angeles Airport Noise and Mortality - Faulty Analysis and Public Policy, American Journal of Public Health, 70, 357-362.

Freuer, T., 1991. Personal communication with Ted Freuer, District Manager, Citizens Utility, Sacramento, California, April.

Goldstein, J. and J. Lukas, 1980. Noise and Sleep: Information Needs for Noise Control, Proceeding of the Third International Congress on Noise as a Public Health Problem, ASHA Report No. 10,442-448.

Helley, E. J. and D. S. Harwood, 1985. Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierran Foothills, California, U.S.G.S.

Holliman, Hackard & Taylor and GW Consulting Engineers, 1990. Application for Dredge and Fill Permit Under Section 404 of the Clean Water Act (42 U.S.C. § 1344), prepared for Aspen VI Mining Project, Teichert Aggregates, Sacramento, California.

Institute of Traffic Engineers, 1991. Trip Generation, 5th ed.

IT Corporation, 1990. Remedial Investigation/Feasibility Study for Mather Air Force Base California, Vol. 1: Draft Final Work Plan for Group 2 Sites, prepared for the U.S. Air Force HDQ ATC/DEEV, Randolph AFB Texas, April.

Kroeber, A. L., 1925. Handbook of the Indians of California. United States Bureau of American Ethnology, Bulletin 78, Smithsonian Institution, Washington, D.C.

Kull, R. C., and A. D. Fisher, 1986. Supersonic and subsonic aircraft noise effects on animals: a literature survey (AAMRL-TR-87-032). Noise and Sonic Boom Impact Technology (NSBIT) ADPO, Human Systems Division, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio 45433-6573.

Lukas, J., 1975. Noise and Sleep: A Literature Review and a Proposed Criterion for Assessing Effect, Journal of the Acoustical Society of America, 58(6).

Marcoa Publishing, 1990. Mather Air Force Base.

Mattina, L. M., 1991. Telephone interview with Linda M. Mattina, Major Accounts Representative, Pacific Gas and Electric Company, Sacramento, California, April.

Maxfield, P., 1991. Telephone interview with Patrick Maxfield, Sacramento County Solid Waste Division.

McDonald, William, 1989. Southern California Water Company Arden System Master Design, Memorandum.

McGuire, Eatough and Fong, Inc., 1990. Wetlands and Vernal Pools Survey Mather Air Force Base, California MAB90-7004, and Report, November.

McIvers, K. J., 1985. An Archeological Survey of Mather Air Force Base, Sacramento County, California. Foundation of California State University, Sacramento.

Merritt, F., 1988. Editor, Standard Handbook for Civil Engineers, McGraw-Hill Publishing.

Miller, M. T., 1990. A History of Mather Field, 1918-1990.

Montgomery, J. M., Consulting Engineers, Inc., 1985. Sacramento Regional County Sanitation District, Executive Summary, Project Report for Expansion of Sacramento Regional Wastewater Treatment Plant, December.

Moratto, M. J., 1984. California Archaeology, Academic Press, New York.

Moulton, C. L., 1990. Air Force Procedure for Predicting Aircraft Noise Around Airbases: Noise Exposure Model (NOISEMAP) User's Manual, (Report AAMRL-TR-90-011), Human Systems Division/Air Force Systems Command, Wright-Patterson Air Force Base, Ohio, February.

National Academy of Sciences, 1977. Guidelines for Preparing Environmental Impact Statements on Noise, Report of Working Group 81, Committee on Hearing, Bioacoustics, and Biomechanics, National Research Council, Washington, DC.

National Academy of Sciences, 1981. The Effects on Human Health from Long-term Exposure to Noise, Report of Working Group 81, Committee on Hearing, Bioacoustics and Biomechanics, The National Research Council, Washington, DC.

Omni-Means, Ltd., 1988. Mather Air Force Base Comprehensive Plan Traffic Element, Final Report, Roseville, California.

Pacific Gas and Electric Company, 1990. Rule 15, Gas Main Extensions.

Peat Marwick Main and Co., 1989. Elk Grove Unified School District, County of Sacramento, Elk Grove, California. Combined Financial Statements with accompanying Supplementary Information, June 30, 1989 (with independent auditor's reports thereon), Sacramento, California.

Pearsons, K., D. Barber & B. Tabachnick, 1989. Analyses of the predictability of noise-induced sleep disturbance, Report No. HSD-TR-89-029, Canoga Park, California, BBN Systems and Technologies Corporation.

PG&E, see Pacific Gas and Electric Company.

Raymond Vail and Associates, 1987. Base Comprehensive Plan Mather Air Force Base.

Sacramento Area Council of Governments Airport Land Use Commission, 1987. Mather Air Force Base Comprehensive Land Use Plan.

Sacramento Area Council of Governments, 1988. Base Comprehensive Plan Mather Air Force Base.

Sacramento County, 1978. Cordova Community Plan.

Sacramento County, 1985a. The Sacramento County General Plan.

Sacramento County, 1985b. Vineyard Community Plan.

Sacramento County, 1986. Zoning Code, Chapter 35, Article 4, Section 235-60, Noise Standards, p. 204.

Sacramento County, 1989. Report of the Airport Consultant on the Proposed Issuance County of Sacramento, California, Airport System Revenue Bonds, Series 1989, Peat Marwick Main & Co., San Francisco, California, July 20.

Sacramento County, 1990. Draft Transportation Plan, Draft Circulation Element, County General Plan, Map, 1 inch = 1 mile, prepared for Sacramento County Planning Department.

Sacramento County, 1991. Mather Air Force Base Reuse Study: Traffic Analysis and Infrastructure Report, Transportation Division Transportation Planning Section, 24 September.

Sacramento County Department of Public Works, 1985. Sanitation District, Project Report for Expansion of SRCWTP, Montgomery Engineering.

Sacramento County Department of Public Works, 1988. Solid Waste Management Division, Sacramento County Solid Waste Management Plan Revision (Final Draft).

Sacramento County Department of Public Works, 1989a. Solid Waste Management Division, Amending Document of the County Solid Waste Management Plan.

Sacramento County Department of Public Works, 1989b. Transportation Division, Traffic Volume Flow Map.

Sacramento County Department of Public Works, 1990. Preliminary Assessment of Public Infrastructure, Mather AFB Aviation Alternative.

Sacramento County Department of Public Works, 1991. Sanitation District, Master Plan, John Carollo Engineers.

Sacramento County Planning and Community Development Department, 1990. Sacramento County General Plan Public Review Draft.

Sacramento County Planning Department, 1981. County of Sacramento Water Utility Districts.

Sacramento County Planning Department, 1990. General Plan Land use Map.

Sacramento County Planning Department, 1991a. Public Review Land Use Diagram.

Sacramento County Planning Department, 1991b. Vineyard Community Plan Land Use/Zoning Plan Map.

Sacramento County Regional Transit Authority, 1991. Regional Transit Bus and Metro Schedule.

Sacramento County Water Agency, 1989. Water Plan Supplement, Oil Engineering Corp., December.

Sacramento County Water District, 1990. Water Quantity (printout), Sunrise District.

Sacramento Metropolitan Air Quality Management District, 1989. Sacramento Valley Air Basin Trends Report Scenario TND85 CS985 County of Sacramento, Environmental Management Department, Sacramento California, October.

Sacramento Metropolitan Air Quality Management District, 1991a. Sacramento 1991 Air Quality Attainment Plan, County of Sacramento, Environmental Management Department, Sacramento, California, July 24.

Sacramento Metropolitan Air Quality Management District, 1991b. Rules And Regulations, County of Sacramento, Environmental Management Department, Sacramento California, May.

Sacramento Regional Wastewater Treatment Plant, undated. Sacramento Regional Wastewater Treatment Plant: Operation and Technical Issues Brochure.

Sacramento Municipal Utility District, 1991. Kilowatt History (printout).

Segal, H. M., 1988a. A Microcomputer Pollution Model for Civilian Airports and Air Force Bases - MODEL APPLICATION AND BACKGROUND, U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, Washington, DC., FAA FFA-EE-88-5; United States Air Force, Engineering Services Center, Tyndall Air Force Base, Florida, USAF ESL-TR-88-55, August.

Segal, H. M., 1988b. A Microcomputer Pollution Model for Civilian Airports and Air Force Bases - MODEL DESCRIPTION. U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, Washington, DC., FAA FFA-EE-88-4; United States Air Force, Engineering Services Center, Tyndall Air Force Base, Florida, USAF ESL-TR-88-53, August.

Segal, H. M., 1988c. A Microcomputer Pollution Model for Civilian Airports and Air Force Bases - USER'S GUIDE - ISSUE 2. U.S. Department of Transportation, Federal Aviation Administration, Office of Environment and Energy, Washington DC., FAA FFA-EE-88-6; United States Air Force, Engineering Services Center, Tyndall Air Force Base, Florida, USAF ESL-TR-88-54, August.

Seitchek, G. D., 1985. Aircraft Engine Emissions Estimator, Final Report, Air Force Engineering and Services Center, Tyndall AFB, Florida, November.

SMAQMD, see Sacramento Metropolitan Air Quality Management District.

SMUD, see Sacramento Municipal Utility District.

SRWTP, see Sacramento Regional Wastewater Treatment Plant.

Stanton, L., 1991. Personal communication between Lisa Stanton, Sacramento County Department of Airports and Tinig Longdon, Robert D. Niehaus, Inc., April 12.

Sugnet & Associates, 1990. Biotic Resources Assessment and Wetlands Mitigation Plan, prepared for Hackard, Taylor & Phillips, Sacramento.

Thomas, H. E. and D. A. Phoenix, 1976. Summary Appraisals of the Nation's Ground Water Resources - California Region, USGS Professional Paper 813-E.

Thompson, S. and S. Fidell, 1989. Feasibility of epidemiologic research on nonauditory health effects of residential aircraft noise exposure. BBN Report No. 6738, Canoga Park, CA: BBN Systems and Technologies.

Transportation Research Board, 1985. Highway Capacity Manual, Special Report 209. Natural Research Council, Washington, DC.

U.S. Air Force, 1982. Air Installation Compatible Use Zone Report Mather Air Force Base, California.

U.S. Air Force, 1983. Base Comprehensive Plan, Base Plan, Mather AFB, Tab No. C-1.

U.S. Air Force, 1988. Real Property Study for Mather Air Force Base.

U.S. Air Force, 1989a. Base Comprehensive Plan, Mather AFB, prepared by Vail, Raymond and Associates.

U.S. Air Force, 1989b. Mather AFB Economic Resource Impact Statement: FY 1988, The Cost Branch, 323D Comptroller Division, Mather AFB, California.

U.S. Air Force, 1990a. California, Final Site Inspection Report for Mather Air Force Base, prepared by Martin Marietta for the U.S. Department of Energy, August.

U.S. Air Force, 1990b. Central Heat and Gas System, Mather AFB, Tab No. G-5, Map, 1 inch = 400 ft.

U.S. Air Force, 1990c. Draft Environmental Impact Statement for Disposal and Reuse of Pease Air Force Base New Hampshire, December.

U.S. Air Force, 1990d. Electrical Distribution System, Mather AFB, Tab No. G-4, Map.

U.S. Air Force, 1990e. Environmental Compliance Assessment and Management Program (ECAMP) Report, prepared by Environmental Management, Mather AFB, California, May.

U.S. Air Force, 1990f. Final Environmental Impact Statement for Closure of George AFB, California, December.

U.S. Air Force, 1990g. Final Environmental Impact Statement for the Closure of Mather AFB, prepared for Headquarters, ATC, Randolph AFB, Texas, March.

U.S. Air Force, 1990h. History of Mather Field.

U.S. Air Force, 1990i. Mather AFB Site Investigation Report, prepared by I. T. Corp.

U.S. Air Force, 1990j. Map of Facilities and Surroundings, Mather AFB.

U.S. Air Force, 1990k. Oil and Hazardous Substance Spill Prevention and Response Plan (MAFB Plan 705), Readiness Divisional Commander, Mather AFB, California, January.

U.S. Air Force, 1990l. Final Environmental Impact Statement for Closure of Mather AFB, California

U.S. Air Force, 1990m. Sanitary Sewage System, Mather AFB, Tab No. G-2, Map.

U.S. Air Force, 1990n. Water Supply System, Mather AFB, Tab No. G-1, Map, 1 inch = 400 ft.

U.S. Air Force, 1991a. Asbestos Management Plan for Mather AFB, prepared by the Environmental Management Office, Mather AFB, California, January.

U.S. Air Force, 1991b. Hazardous Waste Management Plan, Environmental Management, Mather AFB, California, April.

U.S. Air Force, 1991c. Mather AFB Real Property Listing.

U.S. Air Force, 1991d. Natural Resources Management Program for Mather Air Force Base.

U.S. Air Force, 1991e. Socioeconomic Economic Impact Analysis Study.

U.S. Bureau of the Census, 1991. Preliminary results of the 1990 Census of Population and Housing, Bureau of the Census, Suitland, Maryland.

U.S. Bureau of Reclamation, 1988. American River Service Area Water Contracting Program, Draft Environmental Impact Statement.

U.S. Department of Agriculture, 1954. Soil Survey: Sacramento Area California.

U.S. Department of Agriculture, 1991. Soil Survey: Sacramento Area California.

U.S. Department of the Interior, Bureau of Land Management, 1978. USDI Manual 8411, Upland Visual Resource Inventory and Evaluation.

U.S. Department of Transportation, 1980. Guidelines for considering noise in land use planning and control, Federal Interagency Committee on Urban Noise.

U.S. Department of Transportation, 1983. Airport Capacity and Delay, Federal Aviation Administration, Advisory Circular 150/5060-5, September 23.

U.S. Department of Transportation, 1984. Procedures for Handling Airspace Matters, Federal Aviation Administration Handbook 7400.2C, May 1.

U.S. Department of Transportation, 1989. Airport Design, Appendix 12, Airplane Data, and Appendix 13, Airplane Arranged by Airplane Manufacturer, and Airport Reference Code, Federal Aviation Administration Advisory Circular 150/5300-13, September 29.

U.S. Environmental Protection Agency, 1971. Noise from construction equipment and operations, building equipment, and home appliances (EPA Publication No. NTID300.1), Washington, DC., December.

U.S. Environmental Protection Agency, 1974. Information on levels of environmental noise requisite to protect public health and welfare with an adequate margin of safety, (EPA Publication No. 550/9-74-004), Washington, DC.

U.S. Environmental Protection Agency, 1977. Guideline For Air Quality Maintenance Planning and Analysis, Volume 10, Procedures for Evaluating Air Quality Impacts of New Stationary Sources, EPA Document No. 450/4-77-001.

U.S. Environmental Protection Agency, 1985a. AP-42 Compilation of Air Pollutant Emission Factors. Volume I. Stationary Point and Area Sources, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, September.

U.S. Environmental Protection Agency, 1985b. AP-42 Compilation of Air Pollutant Emission Factors. Volume II. Mobile Sources, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, September.

U.S. Environmental Protection Agency, 1987. Industrial Source Complex (ISC) Dispersion Model User's Guide, Second Edition (Revised), Volume I, EPA Document No. 450/4-88-002a, December.

U.S. Environmental Protection Agency, 1991a. AP-42 Draft Compilation of Air Pollutant Emission Factors For Aircraft. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, June.

U.S. Environmental Protection Agency, 1991b. National Air Quality and Emissions Trends Report, 1989, Office of Air Quality Planning and Standards, Technical Support Division, Research Triangle Park, North Carolina, February.

U.S. Forest Service, 1977. National Forest Landscape Management: The Visual Management System.

USFS, see U.S. Forest Service.

U.S. Geological Survey, 1978. Evaluation of Ground Water Resources: Sacramento Valley, State of California Department of Water Resources, Bulletin 118-6, August.

U.S. Geological Survey, 1985. Chemical Quality of Ground Water in Sacramento and Western Placer Counties, California, prepared in cooperation with the California Department of Water Resources, Report 85-4164.

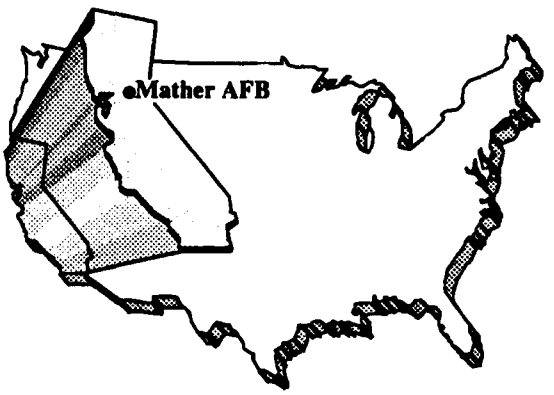
Weston, 1986. Installation Restoration Program Confirmation/Quantification, Vol. 1 and 2 Phase II, Stage 1. prepared for the U.S. Air Force, June.

Wong, J., 1990. Sanitary Sewer Assessment Section of the Mather Air Force Base Reuse Plan, Aviation Alternative.

Wong, J., 1991. Wastewater Information (letter). County of Sacramento, Water Quality Division.

Wong, J., 1992. Personal communication.

THIS PAGE INTENTIONALLY LEFT BLANK



CHAPTER 8

8.0 INDEX

A

A-weighted sound level (dBA), 3-82, 4-138, 4-141, 4-153
Aboveground storage tanks, 3-58, 3-61, 4-83, 4-87, 4-94, 4-96
Accident Potential Zone (APZ), 3-11, 3-15, 3-16
Aesthetics, 1-6, 3-8, 3-17, 4-5, 4-12, 4-14, 4-15, 4-17
Air Installation Compatible Use Zone (AICUZ), 3-15, 3-16, 3-17, 3-18
Air Route Traffic Control Center (ARTCC), 3-30
Air traffic control (ATC), 1-4, 3-35, 4-21, 4-27, 4-40
Air transportation, 3-2, 3-35
Aircraft maintenance, 4-85
Airfield, 2-6, 2-8, 2-14, 2-19, 2-21, 2-26, 2-31, 2-34, 2-36, 3-7, 3-8, 3-9, 3-11, 3-15, 3-18, 3-35, 4-5, 4-26, 4-28, 4-32, 4-37, 4-40, 4-46, 4-49, 4-51, 4-52, 4-53, 4-55, 4-58, 4-64, 4-68, 4-70, 4-80, 4-103, 4-110, 4-113, 4-114, 4-119, 4-129, 4-134, 4-169, 4-171, 4-173, 4-174, 4-176, 4-178, 4-182
Airport Layout Plan (ALP), 1-3, 1-4
Airspace, 3-29, 3-30, 4-21, 4-22, 4-26, 4-27, 4-29, 4-30, 4-32, 4-35, 4-40, 4-41, 4-46, 4-49
AMTRAK, 3-36, 4-29, 4-35, 4-41, 4-46, 4-49
Announcement effects, 4-2
Aquifer, 3-49, 4-116
Asbestos-containing material (ACM), 3-61, 3-64, 4-55, 4-61, 4-67, 4-73, 4-83, 4-89, 4-96
Asbestos-containing materials, 3-64
Aviation maintenance, 2-12, 2-28, 4-85
Aviation support, 2-10, 2-12, 2-14, 2-28, 3-11, 4-5, 4-48, 4-80, 4-119, 4-129, 4-134

B

Base Closure and Realignment Act (BCRA), 1-1, 1-2, 2-1
Birds, 4-171, 4-173
Bureau of Land Management (BLM), 2-47, 4-164

C

California Ambient Air Quality Standards (CAAQS), 4-117, 4-120, 4-121, 4-122, 4-126, 4-130, 4-131, 4-134
California Clean Air Act (CCAA), 4-120
California Code of Regulations (CCR), 3-47, 3-48, 3-49, 3-65
Caltrans, 2-3, 2-40, 2-50, 3-22, 4-5, 4-17, 4-47, 4-76, 4-93, 4-115, 4-116, 4-136, 4-163, 4-181
Carbon Monoxide (CO), 1-6, 4-118, 4-122, 4-125, 4-133
Clear Zone (CZ), 2-23, 2-24, 2-37, 3-11, 3-15, 3-16
CO, 4-132
Code of Federal Regulations (CFR), 3-47, 3-59, 3-64
Compatible Use District (CUD), 3-15
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 3-46, 3-48, 3-52, 3-60
Council on Environmental Quality (CEQ), 1-1, 1-7, 4-1

D

Day-night average sound level (DNL), 3-16, 4-138, 4-139, 4-140, 4-141, 4-142, 4-150, 4-153, 4-155, 4-161, 4-162, 4-163, 4-164, 4-165, 4-166
Decibel (dB), 3-17, 3-82, 4-138, 4-153, 4-163, 4-164, 4-165, 4-166
Defense Environmental Restoration Program (DERP), 3-49
Defense Reutilization and Marketing Office (DRMO), 4-95
Department of Health Services (DHS), 3-48, 3-49, 3-59, 4-83
Disposal management team (DMT), 2-52, 3-29, 3-47, 3-49, 3-59, 3-65, 4-76, 4-79, 4-91, 4-94, 4-95, 4-96
Distance Measuring Equipment (DME), 4-27
Dormitories, 2-51

E

Elementary schools, 3-11
Employment, 1-7, 2-6, 2-17, 2-24, 2-33, 2-38, 3-1, 3-5, 3-7, 4-2, 4-4, 4-5, 4-49

Energy, 3-38, 3-44, 3-45, 3-46, 4-55, 4-58, 4-62, 4-68, 4-74, 4-76, 4-186

F

Family housing, 3-8, 3-11, 3-12, 3-18
Feasibility study (FS), 3-50
Feasiblity study (FS), 3-50
Federal Aviation Administration (FAA), 1-3, 3-15, 3-29, 3-30, 3-34, 3-42, 4-22, 4-27, 4-28, 4-126, 4-139, 4-140, 4-141
Federal Aviation Regulation (FAR), 1-3, 3-29
Federal Bureau of Prisons (BOP), 4-5
Federal Correctional Complex (FCC), 4-17
Federal Highway Administration (FHWA), 2-40, 4-141
Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), 3-64, 4-83, 4-96
Federal Property Management Regulations (FPMR), 2-1
Federal transfers, 2-39, 2-47, 2-54, 4-1, 4-4, 4-76, 4-105, 4-115, 4-135, 4-161
Fleet mix, 4-27, 4-40
Fungicides, 3-47, 3-64, 3-65

G

General Plan, 2-4, 3-14, 4-9, 4-12, 4-14, 4-15, 4-57, 4-141
    Sacramento County, 3-14, 3-22, 4-15
Geology and soils, 3-1, 4-97
Golf course, 2-14, 2-22, 2-31, 2-34, 2-36, 2-37, 2-50, 2-52, 3-12, 3-17, 3-38, 3-39, 3-41, 3-42, 3-64, 3-65, 4-17, 4-51, 4-58, 4-96, 4-116, 4-165
Groundwater, 1-5, 1-6, 3-38, 3-39, 3-52, 3-53, 3-58, 3-60, 4-53, 4-60, 4-66, 4-80, 4-82, 4-83, 4-94, 4-106, 4-107, 4-108, 4-109, 4-110, 4-111, 4-112, 4-113, 4-114, 4-115, 4-116

H

Hazardous materials, 1-5, 1-7, 3-1, 3-41, 3-46, 3-47, 3-59, 4-1, 4-77, 4-78, 4-84, 4-85, 4-88, 4-91, 4-93, 4-94, 4-95, 4-96, 4-110, 4-114, 4-168
Hazardous Materials Transportation Act (HMTA), 3-47
Hazardous waste, 1-5, 2-52, 3-12, 4-1, 4-67, 4-73, 4-77, 4-78, 4-79, 4-84, 4-85, 4-88, 4-91, 4-93, 4-94, 4-95, 4-96
Herbicides, 3-1, 4-77, 4-83, 4-88, 4-89, 4-95, 4-96, 4-170
Highway conditions, 3-20

I

Independent land use concepts, 2-1, 2-54, 4-4, 4-47, 4-161
Installation Restoration Program (IRP), 1-5, 1-7, 3-1, 3-48, 3-49, 3-50, 3-52, 3-53, 3-55, 3-59, 3-60, 4-77, 4-79, 4-80, 4-84, 4-85, 4-88, 4-89, 4-91, 4-94, 4-95, 4-96, 4-187
Instrument Flight Rules (IFR), 3-29, 3-30, 4-27, 4-29, 4-32, 4-46, 4-49
Instrument landing system (ILS), 3-35, 4-27, 4-32, 4-46, 4-49

L

Land use, 1-6, 2-2, 2-3, 2-4, 2-5, 2-6, 2-14, 2-18, 2-19, 2-21, 2-22, 2-26, 2-34, 2-36, 2-39, 2-40, 2-52, 3-1, 3-8, 3-9, 3-12, 3-14, 3-15, 3-16, 3-17, 4-5, 4-10, 4-12, 4-15, 4-17, 4-22, 4-30, 4-35, 4-36, 4-42, 4-48, 4-49, 4-51, 4-54, 4-55, 4-57, 4-58, 4-60, 4-61, 4-62, 4-67, 4-68, 4-70, 4-78, 4-83, 4-85, 4-91, 4-119, 4-126, 4-129, 4-131, 4-139, 4-140, 4-141, 4-169, 4-174, 4-181
Landfill, 2-18, 3-53, 3-55, 3-57, 3-58, 3-64, 4-54, 4-55, 4-61, 4-67, 4-68, 4-73, 4-94

M

Mammals, 4-170
Mather Internal Study Team (MIST), 1-8, 2-1), 2-2
Medical and biohazardous waste, 3-1, 4-77, 4-84, 4-88, 4-91, 4-96
Military operations area (MOA), 4-28
Military training routes (MTRs), 4-28

N

National Ambient Air Quality Standards (NAAQS), 4-117, 4-120, 4-122, 4-126, 4-130, 4-131, 4-134
National Environmental Policy Act (NEPA), 1-1, 1-2, 1-5, 1-7, 4-1
National Pollution Discharge Elimination System (NPDES), 4-78
Native American Resources, 4-183

Nitrogen dioxides (NO_2), 4-122, 4-124
Nitrogen oxides (NOx), 4-118, 4-120, 4-121, 4-126, 4-130, 4-131, 4-134
Noise exposure model (NOISEMAP), 4-141
Notice of Intent (NOI), 1-5

O

Occupational Safety and Health Administration (OSHA), 3-61, 4-78, 4-95
Off road vehicle (ORV), 4-174, 4-177
Ozone (O3), 1-6, 4-120, 4-121

P

Paleontological Resources, 4-185, 4-186, 4-187
Particulate matter (PM_{10}), 4-119, 4-121, 4-122, 4-123, 4-125, 4-126, 4-129, 4-130, 4-131, 4-133, 4-134
Pesticides, 3-1, 3-47, 3-64, 3-65, 4-77, 4-83, 4-88, 4-89, 4-91, 4-95, 4-96, 4-169
Polychlorinated biphenyls (PCBs), 3-1, 3-65, 4-77, 4-84, 4-88, 4-91, 4-94, 4-96
Population, 2-17, 2-24, 2-33, 2-38, 2-39, 2-53, 3-1, 3-5, 3-12, 3-36, 3-40, 3-42, 3-45, 3-46, 4-2, 4-4, 4-5, 4-23, 4-29, 4-32, 4-35, 4-37, 4-41, 4-46, 4-49, 4-51, 4-53, 4-54, 4-55, 4-56, 4-58, 4-60, 4-61, 4-62, 4-63, 4-64, 4-66, 4-67, 4-68, 4-69, 4-70, 4-72, 4-73, 4-74, 4-75, 4-76, 4-77, 4-109, 4-117, 4-118, 4-121, 4-137, 4-170, 4-171, 4-173, 4-177, 4-178, 4-180

R

Radon, 3-1, 3-66, 4-77, 4-84, 4-88, 4-91, 4-94, 4-96
Railroads, 3-36
Reactive organic grass (ROG), 4-118, 4-120, 4-121, 4-126, 4-130, 4-131, 4-134
Record of Decision (ROD), 1-3
Remedial action (RA), 3-50
Resource Conservation and Recovery Act (RCRA), 3-46, 4-79
Roadways, 2-39, 3-2, 3-19, 3-20, 3-22, 3-26, 3-29, 4-20, 4-22, 4-26, 4-30, 4-35, 4-37, 4-40, 4-42, 4-47, 4-123, 4-132, 4-155, 4-161, 4-186, 4-187

S

Sacramento Area Committee on Mather Conversion (SACOMC), 2-2
Sensitive habitats, 4-168, 4-173, 4-177, 4-179, 4-181
Site inspection (SI), 3-50
Solid waste, 2-18, 2-25, 2-34, 2-39, 3-43, 3-46, 3-53, 3-59, 4-49, 4-54, 4-55, 4-58, 4-61, 4-67, 4-73, 4-77
Sound exposure level (SEL), 4-138, 4-139, 4-150
Sulfer dioxide (SO_2), 4-122, 4-123, 4-130, 4-132, 4-135
Superfund Amendments and Reauthorization Act (SARA), 3-49, 3-50, 4-78
Surface water, 3-58, 4-83, 4-97, 4-106, 4-107, 4-108, 4-109, 4-110, 4-111, 4-112, 4-113, 4-114, 4-115, 4-116

T

Tactical air navigation (TACAN), 3-35, 4-32, 4-46, 4-49
Temporary lodging facilities, 3-12
Terminal radar approach control (TRACON), 1-4, 3-30
Threatened and endangered species, 4-171, 4-177, 4-179, 4-181, 4-186
Toxic Substance Control Division (TSCD), 3-65
Traffic control conditions, 3-19
Trichloroethylene (TCE), 3-52, 3-53, 3-58, 4-94

U

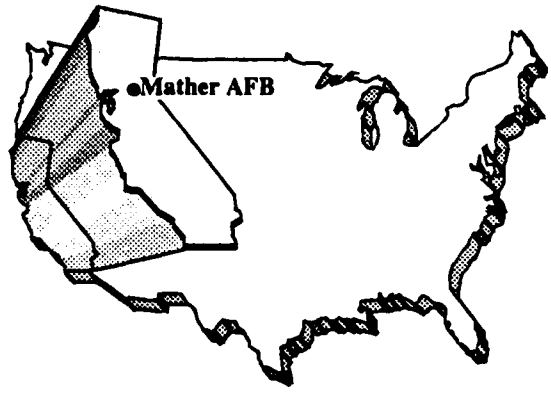
U.S. Code (USC), 3-46
U.S. Department of Housing and Urban Development (HUD), 2-1, 4-164
U.S. Fish and Wildlife Service (USFWS), 4-175
Underground storage tanks (USTs), 3-55, 3-56, 3-57, 3-59, 3-60, 3-61, 4-78, 4-83, 4-84, 4-87, 4-89, 4-91, 4-94, 4-96

V

Vegetation, 3-64, 4-168, 4-169, 4-170, 4-176, 4-177, 4-178, 4-180
Very high frequency omnidirectional range (VOR), 4-27
Visual flight rules (VFR), 3-29, 3-30, 3-35, 4-27, 4-29, 4-32, 4-46, 4-49
Visual resources, 3-17
Visual sensitivity, 3-17, 3-18

W

Wastewater, 2-18, 2-25, 2-33, 2-39, 3-38, 3-40, 3-41, 3-42, 3-43, 4-49, 4-53, 4-54, 4-57, 4-60, 4-66, 4-67, 4-72, 4-73, 4-74, 4-76, 4-77, 4-109
Water supply, 2-18, 3-14, 3-38, 3-53, 4-50, 4-51, 4-52, 4-53, 4-57, 4-58, 4-60, 4-66, 4-70, 4-71, 4-106, 4-107, 4-108, 4-111, 4-112, 4-116
Wetlands, 1-6, 2-34, 2-36, 2-53, 3-12, 4-168, 4-169, 4-170, 4-172, 4-173, 4-174, 4-175, 4-177, 4-178, 4-180, 4-181, 4-182, 4-183, 4-186



CHAPTER 9

9.0 PUBLIC COMMENTS AND RESPONSES

INTRODUCTION

The Air Force has complied with the NEPA mandate of public participation in the environmental impact analysis process primarily in two ways:

- A public hearing was held in Rancho Cordova, California, on January 14, 1992, at which the Air Force presented the findings of the Draft Environmental Impact Statement (DEIS) for disposal and reuse of Mather AFB and invited public comments.

- The subject DEIS was made available for public review and comment from December 1991 through February 1992.

Public comments received both verbally at the public meeting and in writing during the response period have been reviewed and are addressed by the Air Force in this chapter.

ORGANIZATION

This Public Comment and Response chapter is organized into several subsections, as follows:

- This Introduction, which describes the process, organization, and approach taken in addressing public comments

- A section of consolidated comments and responses

- An index of commentors

- A transcript of the public hearing

- Photocopies of all written comments received.

These sections are described below.

Comments received that are similar in nature or address similar concerns have been consolidated to focus on the issue of concern, and a response is provided that addresses all of the similar comments. Some comments simply state a fact or an opinion, for example, "the DEIS adequately assesses the impacts on [a resource area]." Such comments, although appreciated, do not require a specific response and are not called out herein. The comments and responses are grouped by area of concern, as follows:

1.0 Air Force Policy
2.0 Purpose and Need for Action

3.0 Alternatives Including the Proposed Action
4.0 Land Transfer/Disposal
5.0 Local Community
6.0 Land Use/Aesthetics
7.0 Transportation
8.0 Airspace
9.0 Utilities
10.0 Hazardous Materials/Waste Management
11.0 Soils and Geology
12.0 Water Resources
13.0 Air Quality
14.0 Noise
15.0 Biological Resources
16.0 Cultural Resources
17.0 Socioeconomic Impact Analysis Study

Within each area, each consolidated comment-response is numbered sequentially. For example, under 9.0 Utilities, individual comments-responses are numbered 9.1, 9.2, etc. At the end of each numbered comment is a set of numbers that refer to the specific comment in the documents received that were combined into that consolidated comment. The numbers of the individual comments are indicated in parentheses, e.g. (6-8, 11-13, 15-6, 15-22). Comment 6-8, for example, refers to document 6, comment number 8. A reader who wishes to read the specific comment(s) received may turn to the photocopies of the documents included in this section. Below each comment number is the number of the consolidated comment in which the specific comment has been encompassed, e.g. 7.5. Thus, the reader may reference back and forth between the consolidated comments-responses and the specific comment documents as they were received.

It should be further noted that some comments in the documents received are not included in the consolidated comment-response section. These comments fall into two categories:

- Comments to which no response is required, as explained above
- Comments regarding the Socioeconomic Impact Analysis Study (SIAS).

Effects upon the physical or natural environment that may result from projected changes in certain socioeconomic factors that are associated with or caused by the disposal or reuse of the base are addressed within this EIS. Other socioeconomic issues, such as the region's employment base, school budgets, municipal/state tax revenues, municipal land planning, medical care for military retirees and dependents, local governments and services, real estate, and economic effects on utility systems and specific businesses are beyond the scope of NEPA and CEQ requirements. Analysis of impacts associated with most of these issues is provided in the SIAS; that public

document will also support the base reuse decision-making process. All comments pertaining solely to issues addressed in the SIAS were considered beyond the scope of this EIS, and so are not addressed in this comment and response chapter. However, those comments have been reviewed and responses have been provided to each commentor. Comments concerning socioeconomic issues addressed in the SIAS only are indicated with an S on the photocopies of the comment documents. Comments related to socioeconomic factors that are addressed in this EIS (e.g., population, employment) have been included in this comment-response chapter.

Finally, it should be emphasized that not only have responses to EIS comments been addressed in this comment-response chapter, as explained, but the text of the EIS itself has also been revised, as appropriate, in response to the concerns expressed in the public comments.

The list of commentors includes the name of the commentor, the identifying document number that has been assigned to it, and the page number in this chapter on which the photocopy of the document is presented.

1.0 POLICY

1.1 Comment: The public sector should be targeted for a market initiative, to identify interest in developing a site at Mather AFB. (1-16)

Response: Section 2.1 describes the disposal process for Mather AFB. Priority consideration is given to requests for transfer to other DOD departments. Subsequently, surplus property is made available to federal, state, and local agencies, and to the public. The county of Sacramento received numerous proposals for the reuse of Mather lands and facilities; those selected by the Board of Supervisors will be forwarded to DOD.

1.2 Comment: The Draft EIS does not adequately address impacts of the Sacramento Housing and Redevelopment Agency's (SHRA's) proposed reuse of buildings as housing for homeless individuals. The Draft EIS should be reissued with an analysis of the environmental and socioeconomic effects of SHRA's proposed project. (1-11, 1-12, 1-13, 18-1)

Response: Under provisions of the McKinney Homeless Assistance Act, the federal government is required to determine the suitability of underutilized, unutilized, and/or excess buildings and land for use by homeless assistance providers. Suitable property may then be made available to those providers by the Department of Health and Human Services.

SHRA's interest in acquiring dormitory units for use by the homeless was considered in the DEIS as an overlay to the Proposed Action and alternatives under Other Land Use Concepts. Environmental analysis is adequate and appropriate for the nature of the Air Force disposal decision. The Air Force will not reissue the DEIS to include an analysis of these effects.

1.3 Comment: A landmark should be established to honor the memory of Lieutenant Mather after the base is closed. (3-1)

Response: Section 2.3.4.3 notes that the Mather Heritage Foundation has requested the conveyance of a parcel of land upon which to erect a commemorative statue.

1.4 Comment: The use of portions of Mather AFB for low income or homeless housing should not be encouraged. (3-2)

Response: The McKinney Homeless Assistance Act mandates that underutilized, unutilized, or surplus property of the federal government be considered for suitability as housing for the homeless. Whether or not homeless or low income housing is actually incorporated into reuse development plans cannot be foreseen or determined at this time.

1.5 Comment: If reused as an air cargo airport, the Mather airfield could be reactivated if needed for future war efforts. (9-2)

Response: The Secretary of Defense proposed certain military base closures and realignments in part due to a reassessment of threats to the National security. Under FAA auspices, however, U.S. government-owned aircraft may utilize any airport established in whole or part through federal grants. This priority could be exercised in the event of war.

1.6 Comment: The California Department of Fish and Game requests written notification of actions or decisions regarding the disposal and reuse of Mather AFB. (17-3)

Response: The regional office cited in the request has been added to the distribution list for the FEIS and the ROD.

1.7 Comment: The Air Force should ensure micro-scale environmental protection by placing appropriate conditions on the property conveyance. (19-68)

Response: The BCRA of 1988 delegated the Administrator of General Services' authority to dispose of excess and surplus property resulting from closure of military installations under the Act to the Secretary of Defense. The Secretary of Defense in turn delegated this authority to the Secretaries of the applicable military services. The delegated authority of the Secretary of the Air Force or his representative to impose restrictions on the future use of surplus property may be limited. In the absence of otherwise explicit legal authority, it is questionable whether the Air Force has legal authority to impose, as a restriction on future land use, a requirement for specific mitigation measures by the reuser of the conveyed military property as a condition of conveyance. Environmental protection required as a result of specific redevelopment activities would be the responsibility of the reuse proponent.

1.8 Comment: The Air Force should include within the EIS a discussion of opportunities for pollution prevention, energy conservation and waste minimization. Implementation of these programs should be encouraged during the redevelopment process. (19-69, 19-71)

Response: The development and implementation of specific programs which would mitigate reuse impacts in resource areas such as air quality, electrical demand, and solid waste disposal demand would be the responsibility of the reuse proponent.

1.9 Comment: The EIS should include a definition of baseline conditions. (19-73)

Response: Section 3.1 defines baseline conditions as those projected at the time of closure.

1.10 Comment: The EIS should provide the rationale behind the Proposed Action assumption regarding the need for an airport facility in the Sacramento area. (19-74)

Response: Recommendations and rationale for specific reuse of Mather AFB were derived from the redevelopment agency's proposed plan which included the assumption that Executive Airport would close. Further, the Air Force verified the need for an airport facility based on increased population projections over the next 20 years. Section 2.1 discusses the development of those plans, including aviation-related scenarios.

1.11 Comment: The EIS should include a discussion on the need to continue military operations at Mather AFB, and the impacts of relocating these operations if a non-aviation reuse plan is adopted. (19-75)

Response: No Air For aviation units will remain at Mather AFB after closure; however, Army National Guard activities are expected to continue operations on site. Existing operations will be relocated to other installations. Impacts associated with realignment are addressed in separate environmental documentation prepared by the organization accepting the new units. The hospital, as noted in the document, will remain at Mather AFB.

1.12 Comment: The FEIS should include land loss from construction of buildings and runway reconfigurations as an irretrievable commitment of resources. (19-76)

Response: Construction of facilities does not preclude future restoration of the site; therefore, this is not considered to be an irretrievable commitment of the land.

1.13 Comment: The closure of Executive Airport and surface mining of aggregate resources, as assessed in the Proposed Action, will require policy decisions by the appropriate reviewing body and input from various agencies. Changes in these assumptions could entail major changes to the Proposed Action. (22-23)

Response: The elements of the Proposed Action are taken from the redevelopment agency plan and present the most accurate projection of the community's reuse scenario available at this time. Assumptions are necessary to allow an environmental analysis to be accomplished even though the reuse plans are still conceptual in nature. The need for reanalysis resulting from changes to the Proposed Action would be assessed if or when applicable.

2.0 PURPOSE AND NEED FOR ACTION

No comments were received for this area of concern.

3.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

3.1 Comment: The Rancho Cordova Community Planning Advisory Council opposes the use of the base as a light rail maintenance facility, as proposed by the Regional Transit Authority, and requests that other uses be looked at for that particular light rail station. (1-8)

Response: In compliance with the Federal Property and Administrative Services Act of 1949, DOD solicited proposals from other federal agencies regarding their interest in acquiring any lands or facilities that might become available. A number of agencies--federal, state, and local--have formally expressed interest in the transfer or conveyance of specific facilities and parcels of land from DOD. These requests have been incorporated into the EIS; however, their inclusion does not predispose any decision by the Air Force on property disposal.

3.2 Comment: The DEIS does not address the community plan approved by the County Board of Supervisors in September 1991. (1-14)

Response: The Air Force has worked closely with the redevelopment agency to identify their preferred alternative. The Proposed Action and the Mixed-Density Residential Alternative are based on the Sacramento County Mather Internal Study Team's Reuse Plan for Mather AFB, September, 1991. The Air Force has also made additional changes to the document based on changes/clarifications to the MIST plan received after publication of the DEIS.

3.3 Comment: The U.S. Department of Justice, Federal Bureau of Prisons is formally withdrawing its proposal to site a Federal Correctional Facility at Mather AFB. (2-1)

Response: The document has been revised and all references to siting a correctional facility at Mather AFB have been removed.

3.4 Comment: Mather AFB could be partially used as a training ground for law enforcement and other public services. (3-3)

Response: Public service training falls within the range of activities analyzed in the Proposed Action and alternatives.

3.5 Comment: Comment received stating preference for an airport with fewer flight operations than the Proposed Action and General Aviation with Aircraft Maintenance Alternative. (8-12)

Response: Comment noted.

3.6 Comment: Comment received stating preference fc · an air cargo airport. (9-1)

Response: Air cargo operations are analyzed as part of the Proposed Action.

3.7 Comment: Comment received stating order of precedence of reuse options of Mather AFB. (10-1)

Response: Comment noted.

3.8 Comment: Members of the public wish to see Mather AFB used to help the homeless. (11-1)

Response: Comment noted.

3.9 Comment: Comment received stating Mather AFB should be used as an educational complex. (11-2)

Response: Educational reuse falls within the range of activities analyzed in the Proposed Action and alternatives.

3.10 Comment: Because of the potential for significant losses of wetlands associated with the Proposed Action and alternatives, potential impacts to proposed and candidate endangered species, and the uncertainty of adequate mitigation, the USFWS supports adoption of the No-Action Alternative. (15-9)

Response: The USFWS' preference for the No-Action Alternative due to concerns of the environmental impacts associated with the Proposed Action and other alternatives will be considered by the appropriate Air Force decisional authorities.

3.11 Comment: The DEIS includes three independent proposals for partial reuse of Mather AFB. These proposals should be evaluated and presented in the FEIS as distinct alternatives to the Proposed Action. (19-35)

Response: Since implementation of any of the independent proposals does not require the entire land area of Mather AFB, and since any of the independent proposals could potentially be included as part of either the Proposed Action or any of the alternatives, each is assessed as an overlay on the Proposed Action and Alternatives. For further details on the independent proposals, please refer to Section 2.3.4 of the FEIS. Also, please note that the Federal Bureau of Prisons' proposal to site a federal correctional facility at Mather AFB has been withdrawn, and all references to this proposal have been removed from the document.

3.12 Comment: The EIS should include rationale for not considering an alternative with agricultural land uses as currently zoned in the Sacramento General Plan. (19-60)

Response: The Air Force considered reuse proposals which were raised during scoping and the federal screening process. These proposals are included in the Proposed Action, alternatives and other land use concepts. In addition to these proposals, the Air Force examined other reasonable foreseeable reuse scenarios. Agriculture was not considered as a reuse alternative because of low market demand, urban encroachment from the west, current water supply limitations, and the associated low employment levels.

3.13 Comment: Comment received stating preference to site a Veterans Hospital at Mather AFB. (20-1, 20-2)

Response: In compliance with the Federal Property and Administrative Services Act of 1949, DOD solicited proposals from other federal agencies regarding their interest in acquiring any lands or facilities that might become available. The FEIS includes those proposals received from interested federal agencies.

3.14 Comment: Comment received stating future reuse of Mather AFB should include residential, commercial, and recreational land uses. (20-3)

Response: Residential, commercial, and recreational land uses all fall within the range of activities analyzed in the Proposed Action and all alternatives in this EIS.

3.15 Comment: The EIS should state that the Proposed Action and alternatives are conceptual in nature and that the ultimate land uses within the reclaimed aggregate mining areas may be subject to change as specific plans are adopted. (22-22)

Response: The EIS text (Section 2.1) has been revised to note that the Proposed Action was conceptual in nature and that assumptions were made in order to accomplish the impact analysis.

3.16 Comment: The preferred Sacramento County aviation reuse concept includes both air cargo and aircraft maintenance/refurbishing activities in addition to general and government aviation, however, aviation maintenance/refurbishing operations are not included in Table 2.2-2, Projected Annual Flight Operations - Proposed Action. (22-30)

Response: The table has been revised in response to the comment.

3.17 Comment: If the Proposed Action is intended to parallel Sacramento County's preferred aviation reuse concept, the distinction between the Proposed Action and the General Aviation with Aircraft Maintenance Alternative needs to be clarified. (22-31)

Response: The Proposed Action includes civil transport (Air Cargo) operations, whereas the General Aviation with Aircraft Maintenance Alternative does not. The text has been revised to clarify this distinction.

3.18 Comment: Data shown in Tables S-1 to S-3 in the executive summary should include on-site data in order to provide total impact of the Proposed Action and alternatives. (22-32)

Response: The closure baseline conditions depict regional growth without reuse. Data presented in Tables S-1 through S-3 reflect changes above those closure baseline conditions, or the net effect of each of the alternatives. Thus, the summary tables do provide total impacts of the Proposed Action and alternatives for each influencing factor and resource area.

3.19 Comment: Specific uses should be discussed for description of each land use category in the Proposed Action and alternatives. (22-45)

Response: The amount of information used in the analysis of reuse alternatives is sufficient for the Air Force decision, which is disposal of the property. Parcels were delineated by a preponderance of similar land-use activities in certain areas. The level, intensity, and specific type of development will only be defined by the reuse agency after the transfer of property has taken place and the new owners refine and implement development plans. Their requirement for additional environmental analysis at that time will depend on how they eventually decide to implement specific reuse plans and the applicability of federal, state, and local laws to those reuse and development efforts.

3.20 Comment: The General Aviation with Aircraft Maintenance Alternative and the Non-Aviation with Low Density Residential Alternative do not appear to contain TODs. However, Figures 4.2-8 and 4.2-9 show level of service TOD discounts. If TODs are not contained in these two reuse alternatives, then the TOD discounts should not apply. (22-51)

Response: Figures 4.2-8 and 4.2-9 have been revised in response to the comment.

3.21 Comment: The DEIS mentions the possible construction of a third runway. If this is a plausible alternative, the EIS should address the potential impacts. (24-2)

Response: Since release of this DEIS, the document has been revised to include a preliminary airport layout plan as filed with the FAA by the County of Sacramento. This preliminary airport layout plan includes the flexibility to construct a crosswind runway in the future. Because of the conceptual nature of reuse alternatives, the construction of a crosswind runway was considered speculative and not analyzed in this EIS. The reuse proponent would be responsible for their own environmental documentation for such future construction.

3.22 Comment: Because aggregate mining adjacent to the base is currently under operations, the alternative disturbing topography the least will still allow for adequate aggregate supply. (24-8)

Response: Comment noted.

3.23 Comment: It is not appropriate to include placer gold recovery as a community benefit in base reuse. (24-9)

Response: The document states in Section 2.2.7 that aggregate deposits are likely to contain placer gold, which is recovered as an additional benefit of aggregate mining.

3.24 Comment: The EIS should include a discussion of why all major reuse alternatives include aggregate mining. (24-10)

Response: Section 3.4.1 identifies a severe shortage of aggregate supply in the region. The major reuse alternatives included pre-development aggregate mining to avoid irreversible loss of aggregate resources beneath the base property.

4.0 LAND TRANSFER/DISPOSAL

4.1 Comment: The Base Commissary should be retained to serve the active service military, their dependents and military retirees. (5-1, 6-1, 13-1)

Response: As mentioned in Section 1.1, the closure of the government-owned property at Mather AFB was mandated by the Defense Authorization Amendments and Base Closure and Realignment Act of 1988 (Public Law 100-526).

4.2 Comment: An interest in purchasing a portion of the base for R.V. storage was expressed by a private party. (14-1)

Response: Comment noted. The Air Force encourages the public to work with their redevelopment agency (MIST) regarding leases and property acquisition of small parcels within the base. The proposed land use falls within the range of activities analyzed in the EIS.

5.0 LOCAL COMMUNITY

5.1 Comment: The EIS should address the quality of jobs created as a result of reuse. (1-18)

Response: Quality of jobs is not considered an environmental impact, and is beyond the scope of this EIS.

6.0 LAND USE/AESTHETICS

6.1 Comment: The EIS should expand the discussion on reclamation plans in the reuse scenarios. (19-58)

Response: A site-specific reclamation plan is not required for the Air Force action of property disposal. In accordance with the state Surface Mining and Reclamation Act, a Mining and Reclamation Plan application would need to be submitted by the reuse proponent to the appropriate agencies for approval. An EIR may also be required by the reuse proponent to assist in the mining and reclamation plan decisions.

6.2 Comment: The EIS appears inconsistent in representing the pre-development aggregate mining areas in the graphic and text. (19-59)

Response: Comment noted. Revisions to the pre-development aggregate mining area have been incorporated to reflect the latest plans developed by MIST.

6.3 Comment: The EIS does not include an analysis of impacts to on-base zoning. (22-24)

Response: Section 3.2.3.1 states that once a reuse plan is negotiated and developed, Sacramento County would file a General Plan Amendment to properly rezone the base property.

6.4 Comment: The existing off-base land use map shows a cemetery within Parks/Recreation land use category. (22-46)

Response: For the purposes of the analysis, large parcels of landscaped open areas and park-like areas, including cemeteries, were categorized under Parks/Recreation.

7.0 TRANSPORTATION

7.1 Comment: Traffic impacts on State Routes 50 and 16 along with the pertinent interchanges and intersections should be analyzed with any subsequent changes in the use of Mather AFB. (4-1)

Response: The EIS Transportation analysis concentrates only on those roadways that had immediate or near immediate access to the base, and would realize the greatest number of vehicles generated by future base land uses. The analysis was restricted to only those roadways that would carry at least 10 percent of the base-generated traffic. The EIS analysis found that U.S. 50 and State Route would not receive at least 10 percent of the total project generated traffic, and therefore were not analyzed in the EIS. Traffic analysis for individual intersections is considered to be beyond the level of detail required for this EIS.

7.2 Comment: The FEIS should provide more substance in terms of the potential extension of the Mass Transit light rail line. (19-61)

Response: The EIS discusses the proposed extension of the light rail line to the extent possible due to the conceptual nature of the plans.

7.3 Comment: In discussing the Regional Transit District's proposal to extend the light rail line, it would be helpful to show Folsom on a regional map. (19-62)

Response: The regional map has been revised in response to the comment.

7.4 Comment: Transit Oriented Developments (TODs) should be analyzed in all reuse alternatives. (19-63)

Response: The Proposed Action and the Non-Aviation with Mixed-Density Residential Alternative, which include TODs, were analyzed as presented in the County's Reuse proposal. Because the Proposed Action and all alternatives are conceptual, implementation of TODs in all alternatives was not assumed in order not to understate impacts to both traffic and air quality.

7.5 Comment: Because the DEIS assumes that key community roads will be widened to minimize traffic congestion, impacts to businesses and residents as a result of road widening should be addressed in the FEIS. (19-64)

Response: Impacts as a result of road widening are considered to be part of the operational assumptions.

7.6 Comment: The FEIS should provide a discussion on traffic congestion mitigation for the Independent Concepts. (19-66)

Response: The text has been revised in response to the comment.

7.7 Comment: Operational mitigation measures should be included, to the extent legally feasible, as terms of property conveyance. (19-67)

Response: The general mitigation measures in the document are sufficient to support the Air Force decision regarding property disposal. The Base Closure and Realignment Act of 1988 delegated the Administrator of General Services' authority to dispose of excess and surplus property resulting from closure of military installations under the Act to the Secretary of Defense. The Secretary of Defense in turn delegated this authority to the Secretaries of the applicable military services. The delegated authority of the Secretary of the Air Force or his representative to impose restrictions on the future use of surplus property may be limited. In the absence of otherwise explicit legal authority, it is questionable whether the Air Force has legal authority to impose, as a restriction on future land use, a requirement for specific mitigation measures by the reuser of the conveyed military property as a condition of conveyance.

7.8 Comment: U.S. EPA recommends the Air Force re-examine all roadway maps for accuracy. (19-77)

Response: Roadway graphics have been revised in response to the comment.

7.9 Comment: The DEIS is inconsistent in comparing military aircraft operations between the Proposed Action and the General Aviation with Aircraft Maintenance Alternative. (19-80)

Response: The text has been revised in response to the comment.

7.10 Comment: The traffic analysis contained in the EIS analyzes impacts on roadways within the boundaries of the base. The reuse of the base will have far-reaching impacts on the community-wide and regional transportation system and should be analyzed at an appropriate scale. (22-34)

Response: See response to 7.1.

7.11 Comment: There will be significant increases in traffic volumes off-base on U.S. Highway 50, Sunrise Boulevard, Bradshaw Road, and Folsom Boulevard, along with other less primary facilities with the reuse of the base, which are not analyzed in the traffic analysis. In order to be consistent in terms of significance, these impacts should be identified. (22-35)

Response: See response to 7-1.

7.12 Comment: Transportation is one of the County's major concerns in the reuse of Mather AFB, however, it is not included as one of the scoping issues and concerns in the document. (22-36)

Response: The scoping period for the disposal and reuse of Mather AFB was from November 16, 1991 to December 31, 1991. A public meeting was held on December 5, 1991, at the County Office of Education in Sacramento, California, to solicit comments and concerns on the disposal and reuse of Mather AFB. Transportation issues were not raised at the public meeting or during the scoping process, therefore, they were excluded from the summary list of scoping issues and concerns. However, the Air Force realized transportation was an issue, and has analyzed transportation impacts and presented the results in the text.

7.13 Comment: The county states that their traffic study does not assume that the Folsom light rail line would be extended south into the area of the base, but that extension feeder bus lines were proposed into the study area. (22-37)

Response: The text has been revised in response to the comment. Light rail and bus lines are assumed as part of TOD development.

7.14 Comment: The Sacramento County reuse traffic study recommendations differ from those recommendations presented in the DEIS. (22-38)

Response: Where appropriate, the text has been revised in response to the comment.

7.15 Comment: Existing hourly traffic volumes for Zinfandel Drive and Routier Road are significantly higher than the preclosure reference shown in the document. (22-39)

Response: In the absence of current traffic reports, the Air Force conducted its own analysis. Consequently the Sacramento County Transportation Division was contacted to obtain any available AADT information. The county's data, and data obtained from the Mather AFB Comprehensive Plan Traffic Element Final Report (Omni-Means, 1988) were used to determine peak hourly traffic volume.

7.16 Comment: Contrary to the statement in the document, the transportation division was not consulted to determine the discount percentages used in trip reduction for Transit Oriented Development (TODs). (22-40)

Response: The document states that discount percentages used were determined after discussions with Sacramento County Public Works, and Planning Department staff in June-July 1991.

7.17 Comment: The ongoing task of updating the regional transportation model is being coordinated by the Sacramento Area Council of Governments (SACOG) with input from the county of Sacramento, and other local agencies. This task is not specifically directed to the reuse of Mather AFB as stated in the DEIS. (22-41)

Response: The document states that this model will be of assistance to future reuse agencies to identify future capacities/requirements in the area, but does not state, nor intend to imply that the model is specifically directed to the reuse of Mather.

7.18 Comment: Peak-hour traffic volume for the Proposed Action in 2014 is projected to decrease from the preclosure condition. This decrease is not justified. (22-44)

Response: Peak hour traffic decreases on Mather Field Drive in 2014 are due to the reuse generated traffic being dispersed on from 8 to 13 roads depending on the alternative. The reason the preclosure reference is higher is because traditionally there have been only three gates into the base that get the bulk of traffic, resulting in a higher peak hour traffic volume on Mather Field Drive.

7.19 Comment: The peak-hour traffic volumes shown in the DEIS are significantly underestimated as compared to the county's traffic analysis. (22-42)

Response: The county's transportation analysis is much larger in scope than what was analyzed in this EIS. The county's analysis included 14,600 acres of development while this EIS analyzed approximately 5,700 acres. Due to this larger scope, the county analyzed much more residential development, which is a high generator of daily traffic, therefore, resulting in more considerable impacts on the local transportation network.

7.20 Comment: Peak hour traffic volume on Mather Field Drive for the General Aviation with Aircraft Maintenance Alternative in 2014 is projected to reduce from the preclosure condition. This decrease is not justified. (22-50)

Response: Since release of this DEIS, Figure 4.2-8 has been revised to reflect a preclosure peak-hour traffic volume of 1,545 vehicles per hour on Mather Field Drive for the General Aviation with Aircraft Maintenance Alternative. With this revision, a decrease will not result.

7.21 Comment: Operational mitigations should not exclude the incorporation of an internal shuttle system or high occupancy vehicle (HOV) lanes. (22-37)

Response: This EIS includes possible mitigation measures and is not meant to preclude other specific mitigations, as determined by reuse proponents, from being implemented.

7.22 Comment: Bicycle and pedestrian networks and amenities should be incorporated into the community's design. These types of mitigation measures should apply to all of the alternatives presented in the DEIS. (22-53)

Response: Bicycle and pedestrian networks are part of the TOD development analyzed in the Proposed Action and Non-Aviation with Mixed-Density Residential Alternative. In order to provide the decision maker with a reasonable range of alternatives, TOD's were not analyzed under all alternatives. However, this does not preclude bicycle and pedestrian networks from being developed during reuse in any of the reuse alternatives.

7.23 Comment: The transportation section of the DEIS should provide more discussion on the use of light rail transit as a viable alternative to the use of the automobile. Also, a modal split analysis should be conducted for each alternative to determine what portion of trips generated by the project would be served by transit. (25-1)

Response: The text in Section 4.2.3 of the DEIS does discuss that the provision of light rail into the area can have a positive effect on traffic congestion; however, the extent of each alternative's impact on the light rail system would depend upon the success of the TOD concept, and/or other operational mitigations. Due to the conceptual nature of these plans, any further analysis, including a modal split analysis, would be speculative. The date provided, (i.e., daily trips generated) is to assist local agencies in planning for future potential growth for anticipated usage of various transportation systems.

8.0 AIRSPACE

8.1 Comment: A mixture of small private planes with large commercial aircraft would pose a health and safety hazard due to increased potential for air crashes. (8-7)

Response: The FAA is responsible for evaluating the effects of operations of a proposed airport on the safe use of navigable airspace. A flight safety review is conducted prior to approval of the Airport Master Plan.

9.0 UTILITIES

9.1 Comment: Potential impacts of expanding the Kiefer Landfill should be discussed in this EIS. (19-70)

Response: It is beyond the scope of this EIS for the Air Force to speculate on the potential impacts, if any, of expanding the Kiefer landfill to accommodate solid wastes that may result from other entities' reuse of Mather AFB. The solid waste contributions to Kiefer landfill, to the extent they are reasonably quantifiable, are estimated to account for less than 1 percent of the total contributions made by all users of the landfill.

9.2 Comment: The DEIS presentation of water use data is confusing and should be presented in one section. (22-1)

Response: Water use is analyzed in this EIS from two perspectives. The impacts on the water distribution system (infrastructure) resulting from the increased water demand as a result of implementing either the Proposed Action or any of the alternatives are discussed under Utilities. The impacts on groundwater supply resources resulting from the increased water demand are discussed under Water Resources.

9.3 Comment: Data presented in the EIS concerning water demand often appears contradictory. (22-2)

Response: Water demands for the Proposed Action and alternatives were calculated differently than the way regional demands were calculated. Reuse specific water demands were calculated with demand factors associated with land use categories. Regional water demands were calculated with per capita factors based on in-migrant population increases which included site-related population growth. Therefore, simple comparison between site specific demands and regional demands is not possible.

9.4 Comment: Table M-2 in Appendix M conflicts with the water demand calculated for the Proposed Action. (22-3, 22-5)

Response: The text of the document in Appendix M has been revised in response to the comment.

9.5 Comment: The EIS is inconsistent in discussing water demand for fire reserves. (22-4, 22-7)

Response: The text has been revised in response to the comment.

9.6 Comment: In discussing increased water demand, percentage increase should be derived by comparison to existing base use as well as to regional demands. (22-6)

Response: Existing base and regional water demand is presented in Section 3.2.5.1 of this EIS. Reuse related on site and regional water demand is compared to regional closure baseline conditions and presented in Section 4.2.4 of this EIS. Base related water demand at closure will have negligible impacts upon regional demand, and is represented as the No-Action Alternative in this EIS.

9.7 Comment: The DEIS states that "growth of the base water supply system is limited by treatment and storage capabilities. However, future development of the site would not be hampered by these limitations, as the water purveyor would assume responsibility for treatment and storage". What treatment and storage facilities will be needed, how much will they cost, and how will they be paid for? (22-8)

Response: Analysis to the level of detail suggested in the above comment, without benefit of sufficient reuse plan details, would require the Air Force to speculate how these infrastructural improvements would be negotiated. Local water purveyors are expected to work with the reuse proponent to negotiate future infrastructure improvements.

9.8 Comment: The DEIS implies that either the Arden-Cordova Water Company or the Citizens Utility Company will be the future purveyor for reuse. Sacramento County may direct that the future purveyor be the County Water Maintenance District. (22-9)

Response: The text has been revised to reflect to the reader that other purveyors may express interest in the future (Section 3.2.5.1).

9.9 Comment: The DEIS states that "both purveyors have water mains which can be easily accessed in an inter-tie". In each case: where is the proposed point of connection; is the purveyor's existing main adequate for an inter-tie; what will be the cost of an intertie and how will it be paid for. (22-10)

Response: Analysis to the level of detail suggested in the above comment, without benefit of sufficient reuse plan details, would require the Air Force to speculate how these infrastructural improvements would be negotiated. Local water purveyors are expected to work with the reuse proponent to negotiate future infrastructure improvements.

9.10 Comment: Table 3.4-2 lists "Citizen's Sunrise;" this should be "Sacramento County Water Maintenance District Sunrise". (22-12)

Response: The text has been revised in response to the comment.

9.11 Comment: Is there any correlation between the water demands shown in Table 3.2-6 and those in Table 4.2-15? (22-13)

Response: Table 3.2-6 provides regional preclosure and baseline utility demands while Table 4.2-15 shows regional post-closure demands. The two tables correlate only for 1994, which reflects closure baseline utility demands.

9.12 Comment: The EIS refers to: "Projected Drawdown Values"; this is misleading and should be changed. (22-14)

Response: Drawdown is an accepted term and is adequately explained in the text; however, a definition of drawdown has been added to the glossary.

9.13 Comment: The DEIS gives inconsistent well production capacities. (22-15)

Response: The text has been revised in response to the comment.

9.14 Comment: Table M-1 should list the demand factor for residential use. (22-16)

Response: The text has been revised in response to the comment.

9.15 Comment: A single section should be devoted to the issue of water supply in which all tables, data collections and discussions are readily available for reference and comparison. (22-20)

Response: See response to 9.2.

9.16 Comment: Sacramento County Department of Public Works disagrees with wastewater projections presented in the DEIS. (22-33)

Response: The Air Force has contacted the Sacramento County Department of Public Works and has obtained updated information that was not available prior to release of this DEIS. The document has been revised based on this new information.

10.0 HAZARDOUS MATERIALS/WASTE MANAGEMENT

10.1 Comment: The Air Force should continue to provide information regarding future cleanup decisions and planned cleanup activities at Mather AFB. (1-1)

Response: Section 3.3.3 provides the locations for public access to sources of information on the IRP and final reports regarding Mather AFB. A revision has been made to the text in this section to further describe additional sources of information, including public notices and meetings.

10.2 Comment: The EIS adequately addresses potential adverse impacts on human health and appropriate mitigation measures regarding the reuse of the base. (12-1)

Response: Comment noted.

10.3 Comment: The formation of a cooperative planning body for hazardous materials and waste management as recommended in the EIS should be supported. (12-2, 19-18)

Response: Comment noted.

10.4 Comment: The DEIS does not provide sufficient information on the extent of contamination and the risk factors associated with Mather AFB's IRP sites. (19-1)

Response: The EIS contains sufficient information on the IRP program to support the Air Force decision, which concerns property disposal. The known extent of contamination and potential conflicts with proposed future land uses are outlined in Sections 3.3.3 and 4.3 respectively. IRP investigations to date are available, however, the quantity of literature and information available is simply too extensive to include in this EIS or append to it. The locations of the sources of information on the IRP are provided in Section 3.3.3. The EIS has been revised to include an appendix with a list of IRP documents available for review which may give additional insight into the scope of the Air Force's CERCLA program.

Text changes have been incorporated in Section 4.3.1.3 to provide the reader with an understanding of the risk assessment and potential that some sites may not support certain land uses at the specific IRP sites. In such an instance, the land use at the location of the site may vary from the surrounding larger area's proposed use.

10.5 Comment: The FEIS should provide information on all PG&E/SMUD equipment located on base, specifically concerning the extent of PCB contamination of that equipment. (19-2)

Response: There are 86 transformers owned and operated by PG&E on base. The ownership of this equipment is not tied to the Air Force nor a part of the disposal of the property and is beyond the scope of this EIS.

10.6 Comment: The total segregation of the IRP from the disposal and reuse decision is unacceptable. The FEIS should provide adequate information on the impending interaction of the IRP and the disposal and reuse of Mather AFB. The FEIS should include an expanded overview of IRP efforts as they would relate to potential redevelopment activities. (19-3)

Response: The Air Force decision regarding disposal of Mather AFB does take into consideration the IRP. Discussions presented in sections 3.3.3 and 4.3 have been included to provide the decision maker as well as the public with an understanding of the relation of the IRP to the disposal process.

The status and schedule of remedial actions as pointed out may influence redevelopment and future developers of Mather AFB properties. To assist the readers in comprehending the potential for delay from IRP site activities, the FFA schedule presented in Table 3.3-4 was included. The future developers of Mather AFB must integrate their reuse plans with realities of future remedial activities. The parties to the FFA will all be sources of information for potential developers in addition to information already available at local libraries.

The Air Force, through the IRP, will assess the feasibility of land use at contaminated sites under the CERCLA process and will make that information available to the public. The DMT, charged with cleanup and transfer of properties, will make decisions regarding contaminated site access and security as required. In accordance with Sections 28 and 37 of the FFA, the parties to that agreement will also be kept informed of actions concerning reuse of property which is subject to, or which affects, remedial activities.

10.7 Comment: The FEIS should clarify the meaning of the statement that "the ROI for the known hazardous waste disposal sites on Mather AFB has extended past the boundaries of the base." (19-5)

Response: The statement is referring to the fact that TCE and PCE contamination has been detected in private wells along Happy Lane, northwest of the base boundary.as discussed in Section 3.3.3 (Site 15 description) and presented in Figure 3.3-2. The introduction to

Section 3.3 has been changed to mention this plume, clarifying the definition of the ROI. Additionally, text changes have been incorporated in Section 3.3.3 to include a description of the plume and delineation status.

10.8 Comment: The FEIS should include the rationale for stating that "hazardous waste cannot be shipped from Mather AFB for storage at DRMO at McClellan AFB".
(19-6)

Response: Text changes have been incorporated in Section 3.3.2 in response to the comment.

10.9 Comment: The reference to the potential for other responsible parties to be required to contribute to the CERCLA activity at Mather AFB should be substantiated.
(19-7)

Response: Text changes have been made to the FEIS to delete the reference.

10.10 Comment: Some of the IRP sites are identified as No Further Action (NFA). These sites are more accurately described as having no further investigation required.
(19-8)

Response: Text changes have been incorporated in Table 3.3-4 in response to the comment.

10.11 Comment: Dates subsequent to Records of Decision are tentative dates and cannot be determined until remedial actions have been selected. Additionally, the dates for the RI/FS Group 3 completion are reported in error as 1992. The correct date is April 17, 1993.
(19-9)

Response: Text changes have been incorporated in Table 3.3-4 in response to the comment.

10.12 Comment: The DEIS states that out of date pharmaceuticals are discharged to the publicly-owned treatment works (POTW), but that the permit expired in September 1991. The FEIS should provide more timely details on the status of the permit. (19-10)

Response: Text changes have been incorporated in Section 3.3.9 in response to the comment.

10.13 Comment: It is our impression that the hospital would remain operational even after base closure, and would thus continue to generate some level of infectious and biohazardous waste. If this is true, the FEIS should in its "baseline" discussion, acknowledge that all of the waste would not be removed and should identify the amounts of waste expected from the operational hospital facility. (19-11)

Response: Text changes have been incorporated in Section 3.3.9 to reflect the comment.

10.14 Comment: The DEIS states that "the extent of contamination at some sites has not been delineated". This statement should be revised in the FEIS to express that the extent of contamination has not been delineated at most sites. (19-12)

Response: Section 4.3.1.3 has been revised in response to the comment.

10.15 Comment: The discussion of IRP site remediation in Chapter 4 of the FEIS should reference the FFA schedule presented in Table 3.3-4. (19-13)

Response: The format for the EIS follows the CEQ regulations and is outlined for the reader in the introduction to Chapter 1. The reader must refer back to Chapter 3 for all resources in order to understand the comparative change over the closure baseline conditions. Individual references to chapter 3 sections are not made, as they would be numerous and cumbersome in the document.

10.16 Comment: There are no remedial designs undergoing regulatory review. (19-14)

Response: Text changes have been incorporated in Section 4.3.1.3 to reflect the comment.

10.17 Comment: Text in the FEIS should be expanded to note that other aspects of the IRP work (not just remedial design) may restrict future development. (19-15)

Response: Measurement of the degree and extent of contamination at suspected waste sites is not complete. Therefore, a detailed discussion of how specific reuse alternatives would be compatible with specific contaminated sites is not possible at this time. The EIS does provide the reader with summary information regarding suspected waste sites and points out that general limitations on land use or delays to redevelopment may be encountered in areas overlying or adjacent to contaminated sites (Section 4.3.1.3).

In regard to future, more focused planning, the Air Force's DMT at Mather AFB is charged with the conduct of the IRP and the administrative actions resulting from property transfer negotiations, and similar arrangements. The coordination and integration of waste site characterization and remediation actions with possible future land uses will be centralized. The DMT will be able to discuss land use limitations on portions of property overlying or adjacent to IRP sites as redevelopment is pursued by other entities at Mather AFB.

Additionally, the Air Force expects local zoning and other appropriate regulatory authorities to inquire into the suitability of properties at Mather AFB for future use. The Air Force will assist these authorities in their determination as to what are suitable uses.

10.18 Comment: Section 4.3.1.3 should refer to the CERCLA requirement that all necessary remedial actions must be taken prior to transfer of the property. (19-16)

Response: CERCLA 120h requirements are discussed in Section 3.3.3 of the text.

10.19 Comment: Reuse activities may interfere with or complicate remediation activities at Mather AFB, if not properly coordinated with the appropriate regulatory agencies. (21-1)

Response: Cleanup goals may be affected by reuse decisions, and the converse is also true, that reuse decisions may be affected by cleanup goals. These planning issues will continue to come to the attention of the Air Force decision maker, developers, and the public during evaluation of ways to receive maximum dollar return on future property redevelopment or to best make use of public lands, negotiations on potential transfers, and the IRP process.

As the IRP progresses, proposed cleanups and their rationales will be presented to the Air Force decision maker and the public in time to accomplish costs, feasibility, and anticipated outcome under CERCLA procedures. The information provided in this EIS is a cursory summary of a process already established under CERCLA. Future knowledge about contaminated parcels will no doubt become a more integral part of the evaluation of reuse options among developers and the public. However, it is not crucial at this early stage of the planning process to have more than a basic understanding of potential delays to redevelopment and environmental effects that may result if one action is pursued over another in the future. The EIS provides the basic information for that understanding as early as possible in the affected decision-making and planning processes.

The information provided in the EIS is supplemental to a process already established under CERCLA procedures at Mather AFB, and, therefore, is not addressed beyond the summary review in this document.

10.20 Comment: The selected reuse alternative must allow for on-going access for clean-up, monitoring, operation and maintenance, and oversight activities. (21-2)

Response: As stated in Section 3.3.3 of the EIS, the Air Force's DMT at Mather AFB is charged with the conduct of the IRP and will be involved in negotiations to ensure access easements are maintained, allowing the Air Force to continue the IRP effort. Additionally, under the FFA (Section 28), prior to transfer of any portion of either an area within which any release of hazardous substance is located, or any other property which is necessary for performance of remedial action, the Air Force shall give written notice of that condition to the recipient of the property.

10.21 Comment: It is not clear as to how the Air Force will fund the cleanup of hazardous or toxic sites at Mather Air Force Base after October 1995. (22-48)

Response: As stated in Section 3.3.3 of the EIS, Congress has appropriated $100 million to the Defense Base Closure Account for fiscal year 1991 to be used exclusively for environmental restoration at military installation scheduled for closure. It is anticipated that future authorization acts will continue to fund environmental restoration activities at these installations after closure.

10.22 Comment: A comment was made concerning the Air Force's ability to dispose of clean portions of the base. (22-49)

Response: The Air Force has reserved the right to dispose of areas which have never been contaminated as well as areas where the site remediation has taken place.

10.23 Comment: The discussion on EPA recommendations for radon surveys and follow-on mitigation should be revised to reflect actions necessary to limit exposure to radon. (19-48)

Response: Text has been revised in response to the comment.

10.24 Comment: The information from the AF Radon Assessment and Mitigation Program (RAMP) study conducted in 1990-1991 should be included in the FEIS. (19-49)

Response: The text in Section 3.3.8 has been updated to include the study results.

10.25 Comment: The FEIS should contain more explicit assurances that appropriate measures would be taken to prevent releases of ACM and should identify the parties responsible for implementing those measures. (19-51)

Response: The Air Force policy letter on ACM is provided in Appendix K.

11.0 SOILS AND GEOLOGY

11.1 Comment: The EIS does not incorporate accurate, consistent assumptions for the aggregate mining yields and depletion rates in the reuse alternatives. (1-2, 1-3, 1-4, 23-1, 23-2)

Response: Yields and depletion rates were estimated using yield data provided by the U.S. Bureau of Mines, aggregate deposit thicknesses and phasing assumptions. Both phasing and the deposit thickness varied between the alternatives due to the development schedules and aggregate mining locations. Therefore, the resulting yield in tons per acre and the extraction rate (in tons per year) also varied for each alternative.

11.2 Comment: The boundary of the aggregate mining land use zone should exclude some areas of the property that would not be conducive for mining extraction activities. (1-5, 23-3)

Response: The aggregate mining land use boundary identifies the potential area for mining extraction and does not limit the analysis to specific extraction plans. This approach provides the decision-maker with the full extent of possible impacts resulting from the proposed land use, while providing the new owner flexibility in developing future mining plans.

11.3 Comment: Coordination between the EIS preparers and aggregate industry representatives should be performed to understand both the aggregate-related comments and responses. (1-7)

Response: As part of the public participation process, the Air Force encourages comments from all public sectors, including the aggregate industry, to insure the accuracy of information presented in the EIS. However, CEQ regulations require the Air Force to independently evaluate information provided to the Air Force by other parties.

11.4 Comment: The criteria used to define vernal pool terrain is not identified in the DEIS. (23-6)

Response: The text has been revised in response to the comment.

11.5 Comment: The EIS should indicate the condition of the reclaimed mining area and where mining overburden would be stored prior to reclamation efforts. (24-7, 15-14)

Response: The EIS describes the potential conditions of the reclaimed area in Sections 4.2.2, 4.4.1 and 4.4.2. A site-specific Mining and Reclamation Plan will be prepared by the reuse proponent for approval by the appropriate state and local agencies in order to obtain a mining permit.

12.0 WATER RESOURCES

12.1 Comment: The EIS does not address in the Summary the effects to local residents caused by the aquifer overdraft conditions. (19-19)

Response: As described in CEQ regulations, the Executive Summary of an EIS is written to provide an overview of the major conclusions of the study, the areas of controversy, and the issues to be resolved. Based on these criteria, an in-depth discussion of impacts to local residents caused by increased groundwater overdraft conditions is beyond the level of detail required for the Executive Summary. Details on the impacts on the increase in current overdraft conditions are discussed in Sections 4.2.4 and 4.4.2.

12.2 Comment: The EIS should identify the source for the reuse-related water demand in Chapter 2. (19-20)

Response: The text has been revised in response to this comment. The projected sources of water supply to meet the reuse-related demand are also discussed in Sections 4.2.4 and 4.4.2.

12.3 Comment: The EIS should explain what will become of the Happy Lane water line and the associated distribution costs upon base closure and reuse. (19-21, 19-23)

Response: The text has been revised (Section 3.2.5.1) in response to the comment to reflect the status of this water line at closure. The Air Force provided financial assistance in the initial installation of the water lines, but does not provide financial assistance with the subsequent supply and distribution of water to those consumers.

12.4 Comment: The EIS should clarify the projected water quality of the groundwater available for future reuse. (19-22, 19-27)

Response: Measurement of the degree and extent of groundwater contamination is ongoing and remediation activities will be implemented prior to base disposal. Therefore, a detailed discussion on projected groundwater quality in the Mather AFB vicinity is not possible at this time. Sections 3.3. and 3.4.2 provide the readers with a summary of available information regarding current groundwater quality and Sections 4.3 and 4.4.2 provide a summary of the potential effects of the groundwater quality for subsequent reuse. If and when it is determined that the potable water supply is contaminated from previous or current Air Force activities, the Air Force's IRP efforts will satisfy applicable CERCLA Section 120 requirements. Further, the EIS includes a list of IRP documents available for review which may give additional insight to water quality and the scope of the Air Force's CERCLA program.

In addition, it is assumed in the EIS that the new users and water purveyors will meet applicable regulations and standards to preclude the potential for new sources of contamination and to ensure safe drinking water.

12.5 Comment: The EIS should expand the discussion of the effects of groundwater pumpage and drawdown (i.e., effects to contaminant migration, number of groundwater wells affected, potential mitigation measures). (19-24)

Response: A discussion of the effects of the groundwater pumpage and drawdown, discussed in Section 4.4.2, includes the effects to contaminant migration to water supply wells, and potential mitigation measures. This section also includes a projection of the rate of drawdown to provide the reader with an estimate of potential impacts to local water supply wells.

12.6 Comment: The EIS should include strong water conservation measures which are subsequently adopted in the Air Force's terms and conditions of conveyance of the base property. (19-25)

Response: The Base Closure and Realignment Act of 1988 delegated the Administrator of General Services' authority to dispose of excess and surplus property resulting from closure of military installations under the Act to the Secretary of Defense. The Secretary of Defense in turn delegated this authority to the Secretaries of the applicable military services. The delegated authority of the Secretary of the Air Force or his representative to impose restrictions on the future use of surplus property may be limited. In the absence of otherwise explicit legal authority, it is questionable whether the Air Force has legal authority to impose, as a restriction on future land use, a requirement for water conservation measures by the reuser of the conveyed military property as a condition of conveyance.

12.7 Comment: The EIS fails to address the reality of surface water availability and the costs associated with its delivery, as part of potential mitigation measures for water supply impacts. (19-29)

Response: The EIS incorporates available data concerning surface water entitlement and does not attempt to speculate on issues regarding entitlements/rights, which will be regulated by state and local agencies. The costs associated with delivering surface water is beyond the scope of this EIS. This is a socioeconomic issue that must be addressed by the developer or water purveyor after Air Force conveyance of the property.

12.8 Comment: Predictions of future groundwater rate of decline indicate an increase of 2-1/2 to 3 times the existing rate, though the study says future groundwater use will increase by only 2 percent for the ROI. (22-17)

Response: Neither the "Utilities" discussion, nor the "Groundwater Resources" section present the statement that groundwater use will increase by 2 percent. It is assumed that the commentor meant to say, "20 percent" rather than 2 percent. Sections 4.4.2.1 through 4.4.2.5 state that implementing the Proposed Action, the Non-Aviation with Mixed-Density Residential Alternative, the General Aviation with Aircraft Maintenance Alternative, or the Non-Aviation with Low-Density Residential Alternative would ultimately increase the water demand in the ROI by approximately 19 percent, 33 percent, 21 percent, and 32 percent, respectively.

It is important to note that the ROI used for the Utilities Section of this DEIS is smaller than the ROI used for the Water Resources Section. The ROI for utilities is based upon the capacity of the delivery system (an infrastructure issue); the ROI for water resources is based upon the measurable changes to a physical system (an environmental impact).

12.9 Comment: The groundwater model assumption that there is no flow along the northern, southern and western boundaries is questionable. (22-18)

Response: The no-flow boundary conditions were selected based on the heavy historical groundwater use in the adjacent valleys, evidenced by existing cones of depression in San Joaquin Valley to the south, Yolo County to the west and Sutter County to the north. The intersection lines of any two cones of depression form a no-flow boundary even if no physical boundary to flow exist at that location. The exact locations of these no-flow boundaries are unknown but were assumed to be at the county boundaries based on the extent of the cones of depression within Sacramento County. This assumption is reasonable as each county will be continuing to draw groundwater from within the county only and not the adjacent counties. The no-flow boundary effect on the west side is however, made practically ineffective by the presence of the Sacramento River, assumed to be a constant-head boundary in the model.

12.10 Comment: The groundwater model methods and assumptions should be included in the EIS. (22-19)

Response: Appendix M, Estimating Groundwater Potentiometric Changes due to Reuse of Mather AFB, includes the methods and assumptions used for the groundwater model.

12.11 Comment: The EIS should include information on the County's planning activities for the Drainage Master Plan. (22-2, 24-4)

Response: The text in Section 4.2.2 has been revised to recognize the development of the County's Drainage Master Plan.

12.12 Comment: The EIS does not address the water usage associated with the aggregate mining. (24-6, 24-11)

Response: Water usage associated with aggregate mining has been adequately addressed in the impact analysis. Under the reuse scenarios, the on-base aggregate was assumed to be processed off-base by local mining companies currently engaged in off-base aggregate mining. Due to the local aggregate market demand, it was assumed that the current off-base aggregate mining company would discontinue mining operations at their current site and instead mine the aggregate from the new source at Mather AFB. However, aggregate would be processed at the same off-base location. Because the rate of total aggregate mining was not expected to change, the current aggregate water usages from aggregate mining were assumed to remain the same under the reuse scenarios. This off-site water demand was incorporated into the preclosure and post-closure regional water demand for the purpose of this analysis.

13.0 AIR QUALITY

13.1 Comment: EPA requests additional information on the EDMS modeling system. (19-45)

Response: Information on the EDMS model has been provided to EPA Region IX.

13.2 Comment: Neither summary tables nor Summary text address CO emissions within the Air Quality category. (19-46)

Response: The text and tables in the Summary have been revised to include the discussion of CO.

13.3 Comment: Air quality discussion should differentiate between state and federal non-attainment status. (19-47)

Response: The text has been revised to differentiate between state and federal nonattainment status.

13.4 Comment: The Air Force should replace all 1987 emissions data with newer data available in February 1992. (19-50)

Response: The 1989 inventory data are now available. The text has been revised in response to the comment.

13.5 Comment: Mitigation associated with aggregate mining should be expressed as commitments in the ROD and included in the property conveyance. The FEIS should also discuss mitigation measures necessary to prevent stockpiled soil from exacerbating fugitive particulate emissions and to ensure generation of dust is minimized during mining operations. (19-52)

Response: The mitigation measures listed in the FEIS are suggested mitigations to be implemented by a reuser who engages in aggregate mining. These measures would not be made a condition of property conveyance for reasons explained in the response to Comment 1.7. Mitigation measures to reduce particulate emissions from stockpiled soil and mining operations have been included in the Mitigation Measures portion of Section 4.4.3.1.

13.6 Comment: EPA disagrees with the approach that the Air Force takes in considering construction activities as being temporary activities in regards to estimating uncontrolled fugitive dust. (19-53)

Response: Mitigation measures which would minimize uncontrolled fugitive dust, as well as other construction-related emissions, are discussed in the Mitigation Measures portion of Section 4.4.3.1.

Analysis of construction emissions other than fugitive dust is not possible at this time since project-specific construction scenarios, equipment, and schedules are related to the individual reuse activities which are unknown at this time.

13.7 Comment: The FEIS should discuss cumulative impacts in terms of how project emissions (remaining after mitigation) combined with other emission sources within the region would comply with the conformity provisions of the new CAA. (19-54)

Response: To what extent the conformity provisions in Section 176(c) apply to base closure and associated property disposal actions is unclear. Regardless of whether those provisions apply to federal non-transportation related activities, the Air Force has not violated Section 176(c) of the CAA. A Section 176(c) conformity determination for non-transportation related projects, if required, could only be made if an implementation plan has been approved or promulgated under the CAA. The Sacramento Metropolitan Air Quality Management District's air quality attainment plans for CO and O_3 have not been approved by EPA. Additionally, the Air Force lacks supervisory control of reuse activities that may result in air pollutant emissions and how the reuser might mitigate air pollutant emissions. The state and the air quality management district would have the necessary regulatory authority to impose restrictions or required mitigation measures on the reuser. Any attempt by the Air Force to make a conformity determination, at this juncture, would be premature and speculative.

13.8 Comment: The DEIS does not adequately address compliance with the conformity requirements of Section 176(c) of the CAA. The DEIS incorrectly states on page 4-121 that the 1991 Sacramento Metropolitan Air Quality Management District's Air Quality Management Plan (AQMP) projects ozone attainment by the year 2010. There is, at present, no approved ozone plan for the area in which Mather AFB is located. As it stands, no conformity finding has been made for this action, and therefore the action would be in violation of a significant requirement of the CAA. It is EPA's position that, prior to Air Force's approval of, or otherwise enabling any reuse of, this facility, the Air Force must either make such a finding, consistent with the CAA, or otherwise provide a federally enforceable mechanism to ensure that any reuse of the facility will not be allowed to proceed unless and until such a finding has been made. (19-55, 19-56)

Response: See the response to Comment 13.7.

13.9 Comment: The EPA encourages the Air Force to support the development of a Memorandum of Understanding (MOU) which would reconcile the potential air quality impacts of anticipated uses of Mather with the State's obligation to submit attainment plans, and with the conformity requirements of the CAA. (19-57)

Response: The Air Force encourages reasonable efforts by U.S. EPA, the State, and the reuser of Mather AFB to enter into an agreement on how to minimize air quality impacts that may result from the reuse of the base property after disposal. The ambiguities surrounding the conformity requirements of the CAA need to be resolved before firm commitments are made by the Air Force regarding Section 176(c) of the CAA.

13.10 Comment: EPA suggests the EIS should evaluate the air quality benefits of phasing development of the base as a mitigation measure to minimize traffic congestion. (19-65)

Response: The document already incorporates phasing development of the base as an integral part of the Proposed Action and alternatives to the extent possible due to the speculative nature of these reuse plans.

13.11 Comment: The DEIS incorrectly depicts the District's 1991 Air Quality Attainment Plan for CO. The 1991 AQAP does not indicate that the CO emissions level in the county will fall below the attainment level by 1994. Therefore, the Proposed Action, as well as the other alternatives, will need to incorporate mitigation measures and offsets in order to not interfere with the process of reaching attainment levels for CO by 2010, and maintaining those levels after 2010. (22-52)

Response: Prior to the release of this DEIS, the 1991 Final AQAP was not available for analysis. Since release of this DEIS, the Air Force received the Final AQAP. The text has been revised in Sections 3.4.3 and 4.4.3 to reflect the most recent information contained within the Final AQAP, and suggests mitigation measures where appropriate.

14.0 NOISE

14.1 Comment: Current aircraft noise levels at Mather AFB have seemed to increase greatly since 1989. (1-9, 7-1, 8-2, 8-8)

Response: The baseline used for the environmental analysis was the condition projected at base closure. A reference to preclosure aircraft noise conditions is included in the document to provide a comparison of the typical noise levels generated when the installation was active. The Air Installation Compatible Use Zone Study, prepared in 1982, was used to provide the preclosure comparison of aircraft noise levels.

14.2 Comment: Appropriate mitigation measures for aircraft noise impacts should be provided and enforced to reduce noise levels in nearby residential areas. The need for mitigation should be based on the discomfort to the nearby residents and not on modelling results. The EIS should discuss the feasibility and effectiveness of the mitigation measures. (1-10, 8-11, 13-2, 24-3)

Response: Section 4.4.4 identifies several types of mitigation measures that could be implemented by the county/local regulations or airport authority. These mitigations include both operational restrictions, as well as, preventive and remedial measures. The effectiveness of these mitigations would require extensive modeling and monitoring.

14.3 Comment: The noise analysis should include aircraft noise impacts from daily average operations or single events. (8-1, 24-1)

Response: Approximate SEL for selected locations caused by the most common and noisy aircraft are shown in Section 4.4.4.

14.4 Comment: The EIS does not include analysis of noise generated by small aircraft or helicopters (including noise levels, flight tracks). Additionally, the document does not include supporting data included in the analysis. (8-3, 8-6)

Response: As shown in Appendix L, several types of small aircraft and helicopter noise were included in the analysis of the aviation alternatives. Appendix L provides the fleet mix used in the noise analysis and Appendix H shows the assumed flight tracks for commercial and general aviation aircraft.

14.5 Comment: The presentation of the noise impacts in the EIS is not written in "plain language". (8-4, 8-5)

Response: Noise analysis is a complex subject, which the Air Force attempts to present as simply as possible. Additionally, to assist the reader in understanding the meaning of noise impacts, several tables have been included in the EIS to provide a point of comparison for the noise levels that are projected for each of the alternatives. A table showing comparative sound levels is provided in Section 3.4.4, and tables within Appendix L attempt to provide a meaningful point of comparison to better understand the noise impacts.

14.6 Comment: The EIS appears to include an economic bias regarding the analysis of annoyance caused by aircraft noise. (8-9, 8-12)

Response: In Appendix L, Section 4.1, the discussion on the community response to noise attempts to demonstrate the difficulty in measuring the annoyance caused by aircraft noise due to the variability of response bias (i.e., different people are annoyed to varying degrees by the same noise levels). The discussion was not intended to predict that less affluent people were less annoyed by high noise levels.

14.7 Comment: A discrepancy in acres exposed to noise levels of DNL of 65 dB or greater was noted between the Summary and Section 4.4.4. (22-25)

Response: The summary has been revised to reflect the correct number of acres exposed to DNL of 65 dB or greater.

and noise considerations. These same factors normally apply regardless of whether the airport is used for military or civil aircraft operations. For this reason, the baseline used a preclosure reference in characterizing these factors related to airspace use for military aircraft operations at Mather AFB.

Historical data on military aircraft operations and sorties were obtained from the Mather AFB Airspace and ATC Managers. These individuals provided information on air traffic procedures, instrument approach and departure flight tracks, and other related data that helped characterize airspace use at and around the base. Airport owners/operators were also contacted to obtain information on civil airport use. Aviation forecasts were derived from other existing or ongoing planning studies the plans, and where necessary, assumptions were made based on other similar airport operational environments.

Analysis Methodology

The type and level of aircraft operations projected for the Proposed Action and alternatives was evaluated and compared to the way airspace was configured and used under the preclosure reference. The capacity of the airport to accommodate the projected aircraft fleet and operations was assessed by calculating the airport service volume, using the criteria in the FAA Advisory Circular 150/5060-5. Potential effects on airspace use were assessed, based on the extent to which projected operations could (1) require modifications to the airspace structure or to air traffic control systems and/or facilities; (2) restrict, limit, or otherwise delay other air traffic in the region; (3) encroach on other airspace areas and uses; or (4) affect the operational capacity to accommodate the demand. It was recognized throughout the analysis process that a more in-depth study would be conducted by the FAA, once a reuse plan is selected, to identify any impacts of the reuse activities and what actions would be required to support the projected aircraft operations. Therefore, this analysis was used only to consider the level of operations that could likely be accommodated under the existing airspace structure, and to identify potential impacts if operational capacity were exceeded. The FAA was consulted during this process for assistance in identifying potential impacts, based on their air traffic control capabilities and present experience with the Mather AFB airspace environment.

4.3 AIR TRANSPORTATION

Data addressing private, passenger, and cargo air service in the region were acquired directly from representatives of airports serving the area and air transportation studies of the area.

The effect of base closure on local airports was derived by subtracting current military-related emplacements from current total emplacements. For each reuse alternative, impacts on air transportation were determined by multiplying the ratio

of non-military replacements to non-military population by the projected future populations of the local airport service area.

4.4 RAILROADS

The effects of reuse alternatives on railroad transportation were based on projected populations, using current passenger to population ratios.

5.0 UTILITIES

Utility usage is determined by onsite land uses and area population increases. The utility systems addressed in this analysis include the facilities and infrastructure used for:

- Potable water pumping, treatment, storage, and distribution
- Wastewater collection and treatment
- Solid waste collection and disposal
- Energy generation and distribution, including the provision of electricity and natural gas.

For the reuse alternatives, local purveyors of potable water, wastewater treatment, and energy were anticipated to provide services within the area of the existing base, and these entities would acquire most or all related on-base utilities infrastructure, including the potable water treatment and distribution system, wastewater collectors, natural gas and electrical substation and distribution equipment. It was also assumed that reuse activities would generate solid wastes that would be disposed of in area landfills.

Long-term projections of regional demand and population were obtained from the various utility purveyors within the Sacramento region (through 2014) for each of their respective service areas. In each case, the most recent comprehensive projections made prior to the base closure announcement or that did not take into account a change in demand from the base were obtained from the utility purveyors. These projections, therefore, were adjusted to reflect the decrease in demand associated with closure of Mather AFB and its subsequent operation under caretaker status. These adjusted forecasts were then considered the future baseline for comparison with potential reuse alternatives.

The potential effects of reuse alternatives were evaluated by estimating and comparing the additional direct and indirect demand associated with each alternative to the existing and projected operating capabilities of each utility system. Estimates of direct utility demands on site were used to identify the effect the reuse activities on-site related utility systems. All changes to the utility purveyors' long-term forecasts were based on estimated project-related population changes in the Sacramento region and the future rates of per capita

demand implicitly or explicitly indicated by each purveyor's projections. It was assumed that the regional per-capita demand rates were representative of the reuse activities, based on assumed similarities between proposed land uses and existing or projected uses in the region. Projections in the utilities analysis include demand for water, wastewater treatment, solid waste disposal, electricity and natural gas, both on the site of Mather AFB from activities planned under the Proposed Action and alternatives, as well as resulting changes in domestic demand associated with direct and indirect population changes in the Sacramento region.

6.0 HAZARDOUS MATERIALS/HAZARDOUS WASTE

6.1 REGION OF INFLUENCE

The region of influence (ROI) includes the current base property and all geographical areas that have been affected by an on-base release of a hazardous material or hazardous waste. The IRP sites are located within the base boundary, but contamination associated with IRP sites along the northwest and southwest perimeters will extend the ROI beyond the base boundary.

6.2 DATA SOURCES/CONTACTS

Primary sources of data are existing published reports such as IRP documents, management plans for various toxic or hazardous substances (e.g., hazardous waste, asbestos), RCRA permits, and survey results (e.g., radon, asbestos). Pertinent federal, state, and local regulations and standards were reviewed for applicability to the Proposed Action and alternatives. Hazardous materials/waste management plans and inventories reviewed included Asbestos Management Plan (ongoing) and/or Survey Results, Spill Prevention and Countermeasure Plans, Hazardous Materials Management Plans, Hazardous Waste Management Plan, Hazardous Waste Management Survey, Hazardous Waste Minimization Guidance, PCB Inventory and/or Survey Results, Radon Survey and/or Results, and Underground Storage Tank Management Plan. These documents were obtained through the Base Environmental Management Office, Civil Engineering, Bioenvironmental Office, Consolidation and Relocation Effort (CARE) Office and Defense Reutilization and Marketing Office (DRMO).

Interviews with personnel associated with these on-base agencies provided the information necessary to fill any data gaps. The California Department of Health Services and the county of Sacramento were contacted regarding regulations which would apply to both current and post-closure activities for Mather AFB.

6.3 METHODOLOGY

Preclosure baseline conditions include current hazardous materials/waste management practices and inventories pertaining to the following areas:

hazardous materials, hazardous waste, IRP, aboveground and underground storage tanks, asbestos, pesticides and herbicides, PCBs, radon, and biomedical waste. Issues considered in impact analysis were 1) the amount and type of hazardous materials/waste currently associated with specific facilities and/or areas proposed under each reuse alternative; 2) the regulatory requirements or restrictions associated with property transfer and reuse; 3) delays to development because of IRP remediation activities; and 4) remediation schedules of specific hazardous materials/waste (i.e., PCBs, biomedical waste currently used by the Air Force).

7.0 SOILS AND GEOLOGY

7.1 DATA SOURCES

Data on the regional and site specific geology and soils are gathered from published and unpublished government documents, university theses and dissertations, and local publications. Sources include federal government agencies (Geological Survey, Bureau of Reclamation, Department of Agriculture - Soil Conservation Service, and Bureau of Mines), state agencies California Division of Mines and Geology, and California Department of Water Resources), and Mather AFB plans available through base Civil Engineering, Planning and Environmental Offices (Base Comprehensive Plans, IRP Site Investigations, Land Use Plans, water well data). The focus in data gathering is on the ROI as defined in Section 3.4.1 of this EIS.

7.2 METHODOLOGY

7.2.1 Soils

Impacts to soils (changes in texture, position, susceptibility to erosion, etc.) are determined by overlaying proposed land uses on the map of soil types. Impacts are based on acreage of soils that will be disturbed and the types of changes to soil properties that may occur.

7.2.2 Geology

Data and literature are reviewed for potential geologic hazards, and whether construction activities will use or otherwise impact known mineral deposits. Geologic formations and land forms are plotted on maps of the base area. Land use maps are overlaid on geologic maps and cross-sections; impacts to geology are based on acreages disturbed, volumes of geologic material disturbed and feet of topographic change.

8.0 WATER RESOURCES

Methods used to analyze potential impacts to water resources are discussed in Section 4.4.2 of this EIS.

9.0 AIR QUALITY

The methods used to analyze air quality impacts are discussed in Section 4.4.3 of this EIS.

10.0 NOISE

Methods used to analyze noise impacts under each reuse scenario require substantial discussion, and are presented separately in Appendix L of this EIS.

11.0 BIOLOGICAL RESOURCES

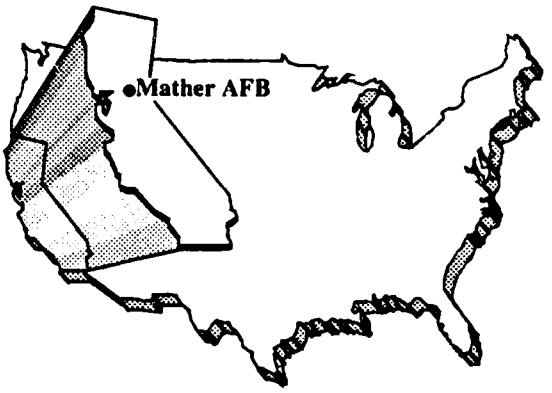
Vegetation on the base was mapped using an aerial photograph and observations from a brief tour of the base. Wetlands outside the flightline were delineated by Dr. Michael Baad at California State University, Sacramento, under separate contract to the Air Force. He also conducted surveys for rare plants in the spring of 1991. The vegetation map and wetland maps from Dr. Baad's report were entered into the computerized geographical information system (GIS).

The impact analysis was performed by overlaying project land use maps for each alternative on the resource maps using the GIS to calculate the overlap by land use. The computer output (figures and tabular data) was then combined with percent development factors within the 20-year study period and type of development proposed (e.g., new construction or reuse of existing facilities) for each land use to estimate the amount of habitat that could be affected. To do this, it was assumed that disturbance could occur anywhere within the land use polygon and that such disturbance of each habitat type present would be in direct proportion to the development factor. All other impacts were qualitatively assessed based on literature data and scientific expertise on the responses of plants and animals to project-related disturbances such as noise, landscaping, and vegetation maintenance.

12.0 CULTURAL RESOURCES

Numerous laws and regulations require federal agencies to consider the effects of a proposed project on cultural resources. These laws and regulations stipulate a process for compliance, define the responsibilities of the federal agency proposing the action, and prescribe the relationship among other involved agencies (e.g., State Office of Historic Preservation, and the Advisory Council on Historic Preservation). Compliance with requirements of these laws and regulations ideally involves four basic steps: (1) identify significant cultural resources that could be affected by the Proposed Action or its alternatives.

(2) assessment of the impacts or effects of these actions, (3) evaluate significance of potential historic properties within the ROI, and (4) development and implementation of measures to eliminate or reduce adverse impacts. The primary law governing cultural resources in terms of their treatment in an environmental analysis is the National Historic Preservation Act (NHPA), which addresses the protection of historic and cultural properties. In addition, cultural resources, including paleontological remains, are covered by requirements of NEPA.



APPENDIX G

APPENDIX G

COMMUNITY PLANS

APPENDIX G
COMMUNITY PLANS

1.0 INTRODUCTION

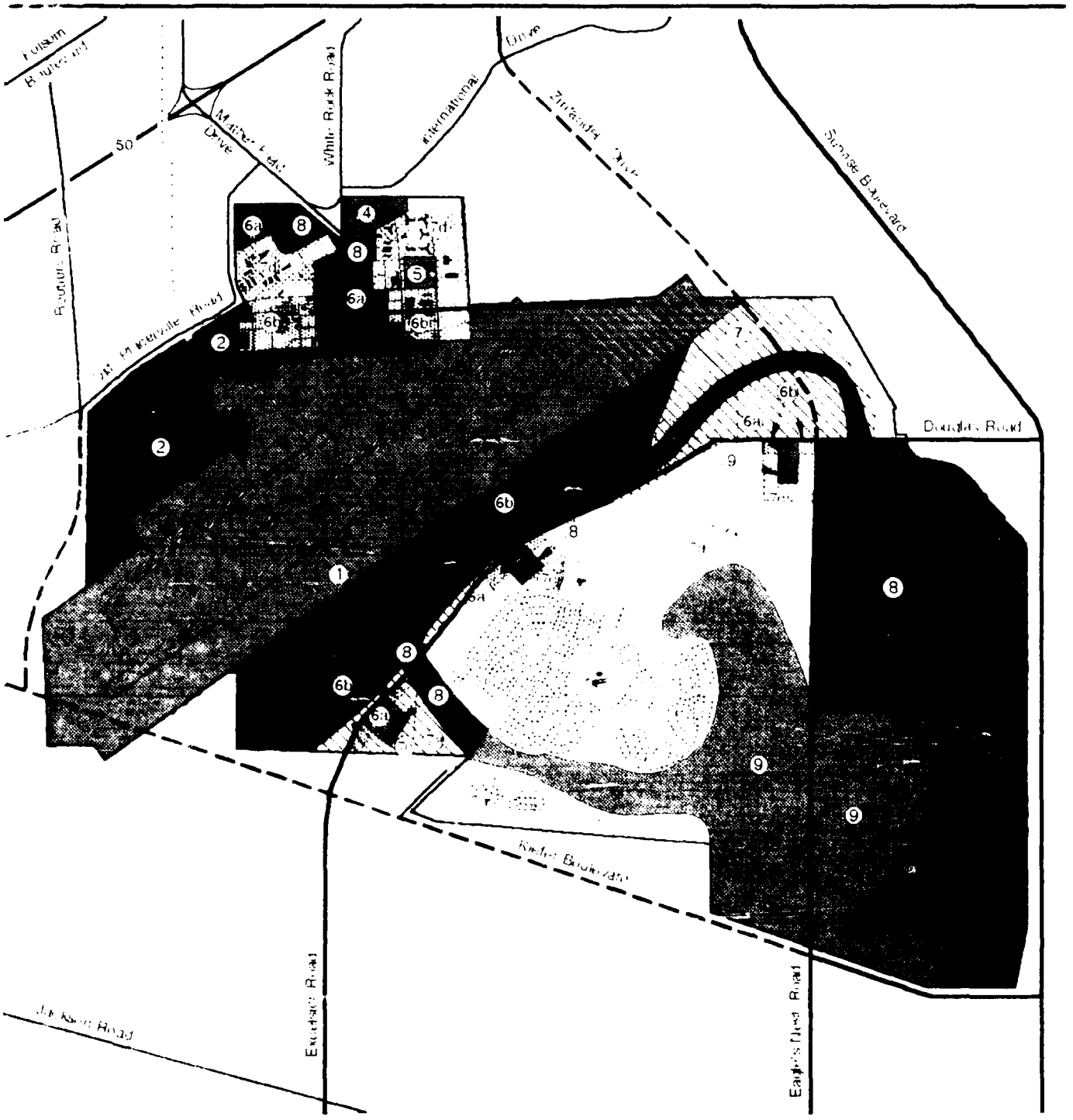
This Environmental Impact Statement (EIS) evaluates four base reuse alternatives (including the Proposed Action) of which two were prepared by the Sacramento County Mather Internal Study Team (MIST) and presented in the Reuse Plan for Mather Air Force Base (Sacramento County, 1991). The other alternatives evaluated were developed by the Air Force to provide a broad range of reuse options for impact analysis. In order to obtain the same level of detail for each alternative so that the merits of each could be equally compared, the community plans required modifications.

2.0 DEVELOPMENT OF PLANNING DATA FOR COMMUNITY PLANS

The major planning data necessary for the various analyses of each alternative include employment and population. To develop these data for the EIS, standardized land use categories were used to make data development consistent for each of the alternatives. Figures G-1 and G-2 depict locations of medium and high density residential areas in addition to office and retail sectors, as they might exist in the transit oriented developments (TODs) described in the Proposed Action and Non-Aviation with Mixed-Density Residential Alternative.

The other two alternatives presumed a uniform density of residential development and do not differentiate office from retail use.

These figures were developed from the MIST plans to facilitate assessments of impacts for this EIS.



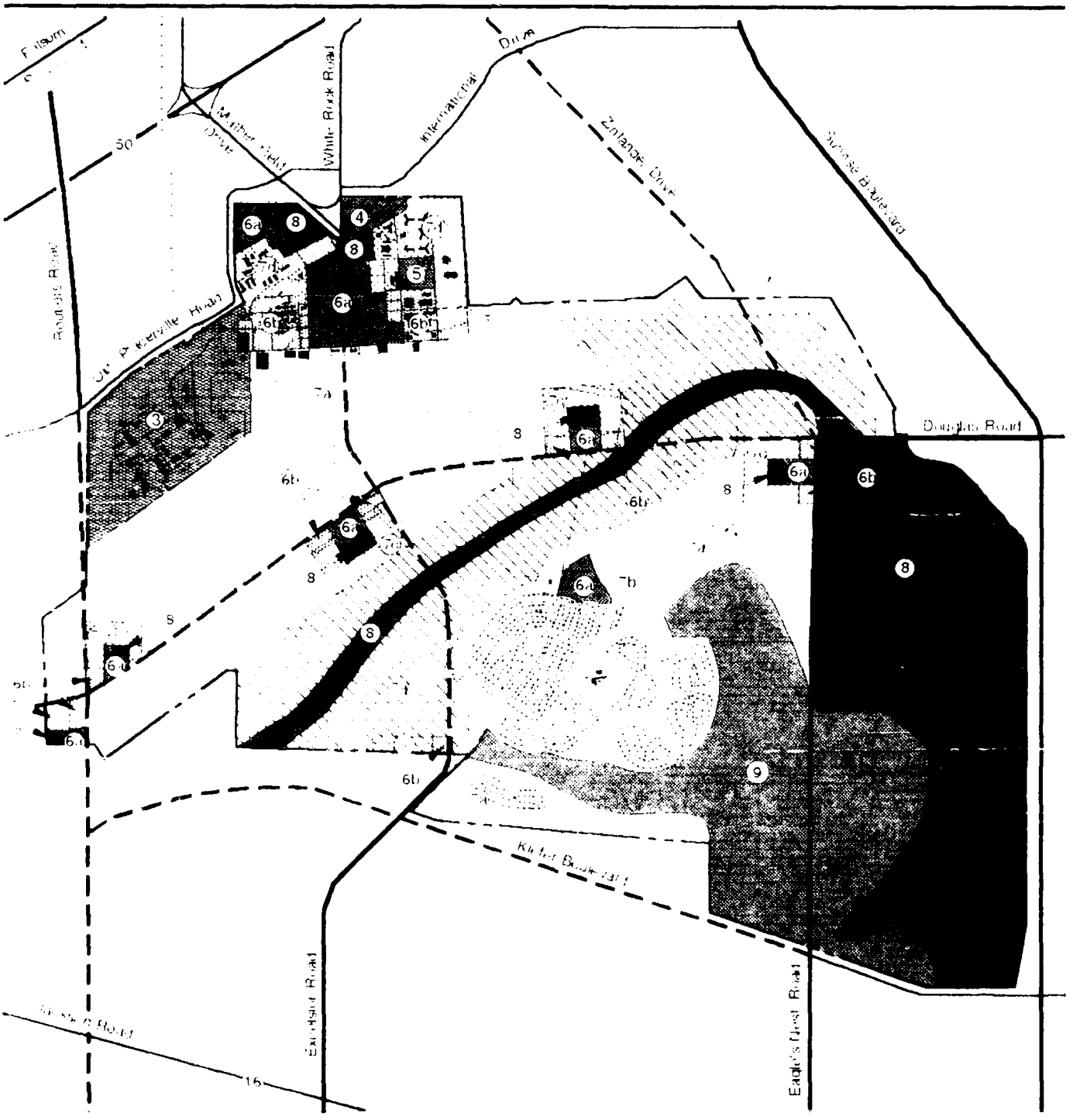
EXPLANATION

1 A
2 A
3
4
5
6a
6b
7a
7b
7c
7d A
8
9
B
B
P
Not Applicable

0 800 1600 3200 Feet

Proposed Action (General Aviation with Air Cargo)

Figure G-1



EXPLANATION

1
2
3
4
5
6a
6b
7a
7b
7c
7d
8
9

0 800 1600 3200 Feet

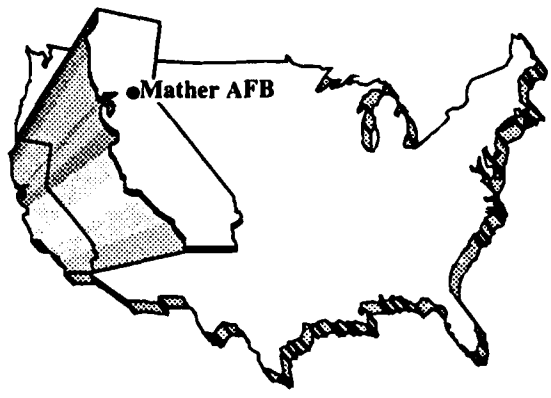
Not Applicable

Non-Aviation with Mixed-Density Residential Alternative

Figure G-2

REFERENCES

Sacramento County, 1991. Reuse Plan for Mather Air Force Base, September.



APPENDIX H

APPENDIX H

EXISTING MATHER AFB AIRCRAFT TRAFFIC PATTERNS AND INSTRUMENT APPROACH AND DEPARTURE PROCEDURES

APPENDIX H
EXISTING MATHER AFB AIRCRAFT TRAFFIC PATTERNS AND INSTRUMENT APPROACH AND DEPARTURE PROCEDURES

1.0 MATHER AFB AIRCRAFT TRAFFIC PATTERNS

Figure H-1 depicts the aircraft traffic patterns for Visual Flight Rule (VFR) operations at Mather AFB. Traffic pattern altitudes vary from the lowest altitude of 600 feet above mean sea level (MSL) for T-37s and light aircraft to the highest altitude of 2,100 feet MSL for the overhead traffic pattern. The published standard traffic pattern altitude is 1,600 feet MSL. The widths of the various VFR traffic patterns vary from approximately 0.5 nautical miles (nm) to approximately 2 nm depending upon the type of aircraft and performance requirements.

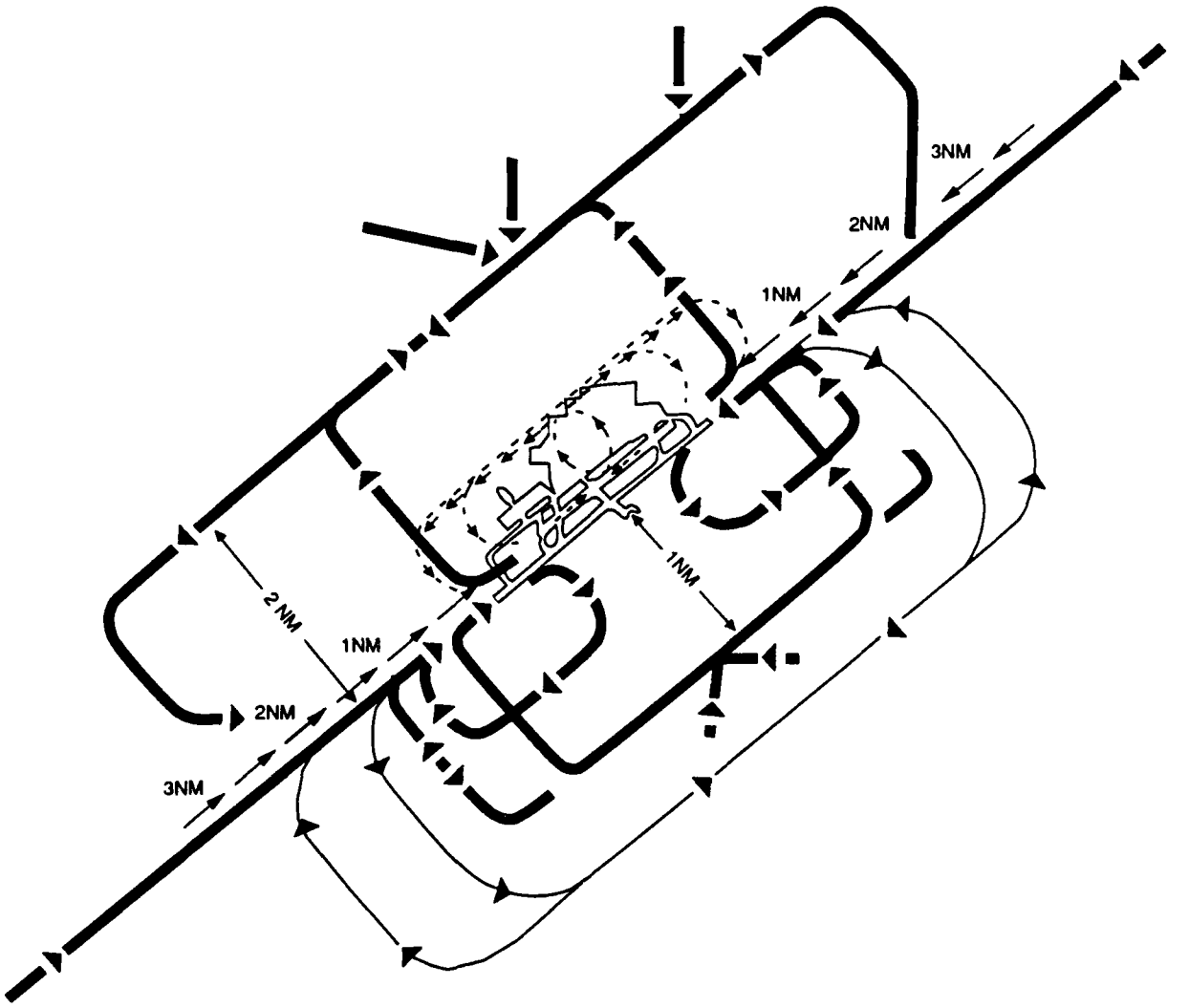
Figure H-2 delineates the existing radar traffic patterns at Mather AFB. Aircraft maintain an altitude of 3,000 feet MSL in the traffic pattern except during descent for landing or, in the case of practice takeoffs and landings, the climb to the traffic pattern altitude.

2.0 MATHER AFB INSTRUMENT APPROACH PROCEDURES

Figures H-3 and H-4 depict the low altitude instrument approaches to Runways 04R and 22L. The three published low-altitude instrument approach procedures to Runway 04R are initiated at 1,600 feet MSL. The two published low-altitude instrument procedures to Runway 22L are initiated at altitudes at or below 5,000 feet MSL. In addition to these standard low-altitude instrument approach procedures, Mather AFB has two high-altitude approach procedures to Runway 22L that are initiated at Flight Level 200 (20,000 feet MSL as related to a constant atmospheric pressure of 29.92 inches of mercury). The final approach segments of these high-altitude procedures coincide with the final approach segments of the standard low-altitude procedures coincide with the final approach segments of the standard low-altitude procedures. These high-altitude procedures are used exclusively by military aircraft. There are two other instrument approach procedures to Runway 22L which are for local training use only.

3.0 MATHER AFB INSTRUMENT DEPARTURE PROCEDURES

Figure H-5 shows the three published instrument departure procedures in use at Mather AFB. The Mather/Roseville - one departure is used for traffic north and west bound from Mather AFB, the Mather/Aukum - Three departure is used for traffic north and east bound from Mather, and the Mather/Katso - Four departure is used for traffic east and south bound from Mather. These procedures can be used for departures from either of the parallel Runways 04R/22L or 04L/22R.

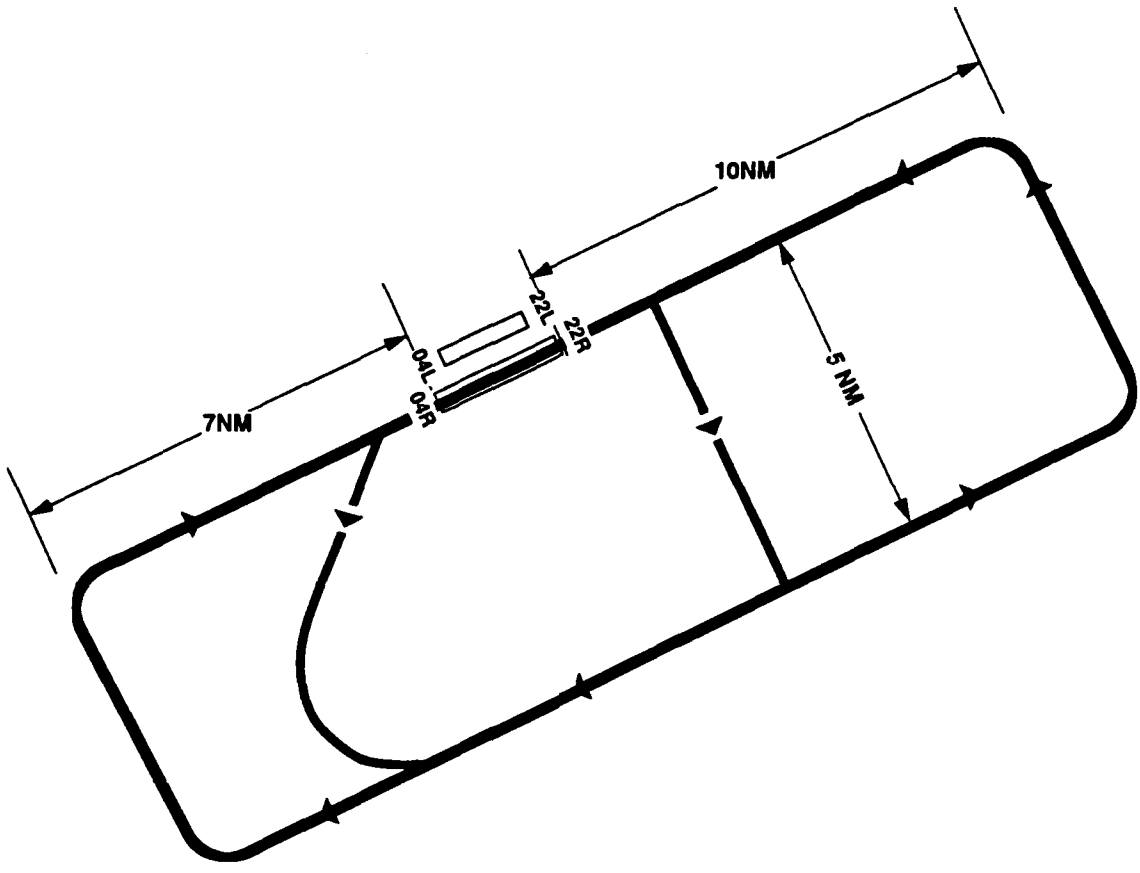


EXPLANATION

- Standard VFR Traffic Patterns
- B52/KC135 VFR Traffic Patterns
- T-37/Light Aircraft Traffic Patterns

Traffic Patterns for VFR Operations

Figure H-1

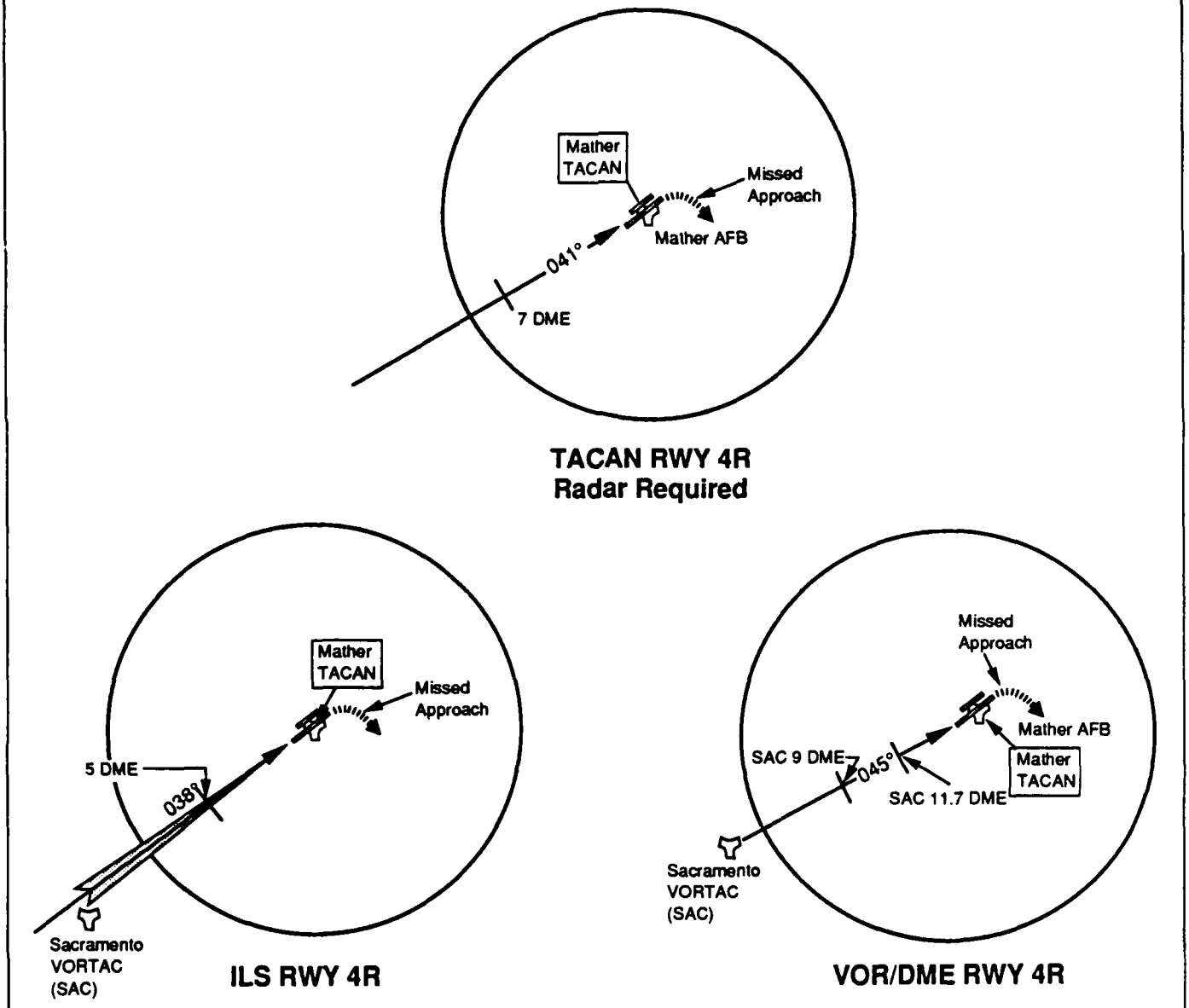


EXPLANATION

Radar Traffic Pattern Flight Paths

Radar Traffic Patterns, Runway 04R/22L

Figure H-2



EXPLANATION

DME Distance Measuring Equipment

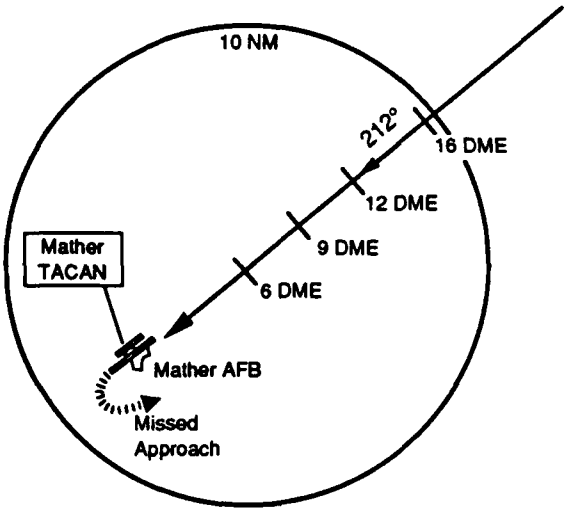
ILS Instrument Landing System

—— Final Approach

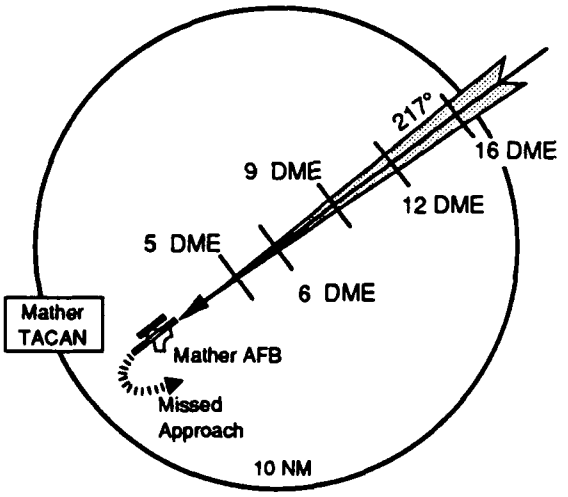
Missed Approach

Low-Altitude Instrument Approaches, Runway 04R

Figure H-3



TACAN RWY 22L



ILS RWY 22L

EXPLANATION

DME Distance Measuring Equipment

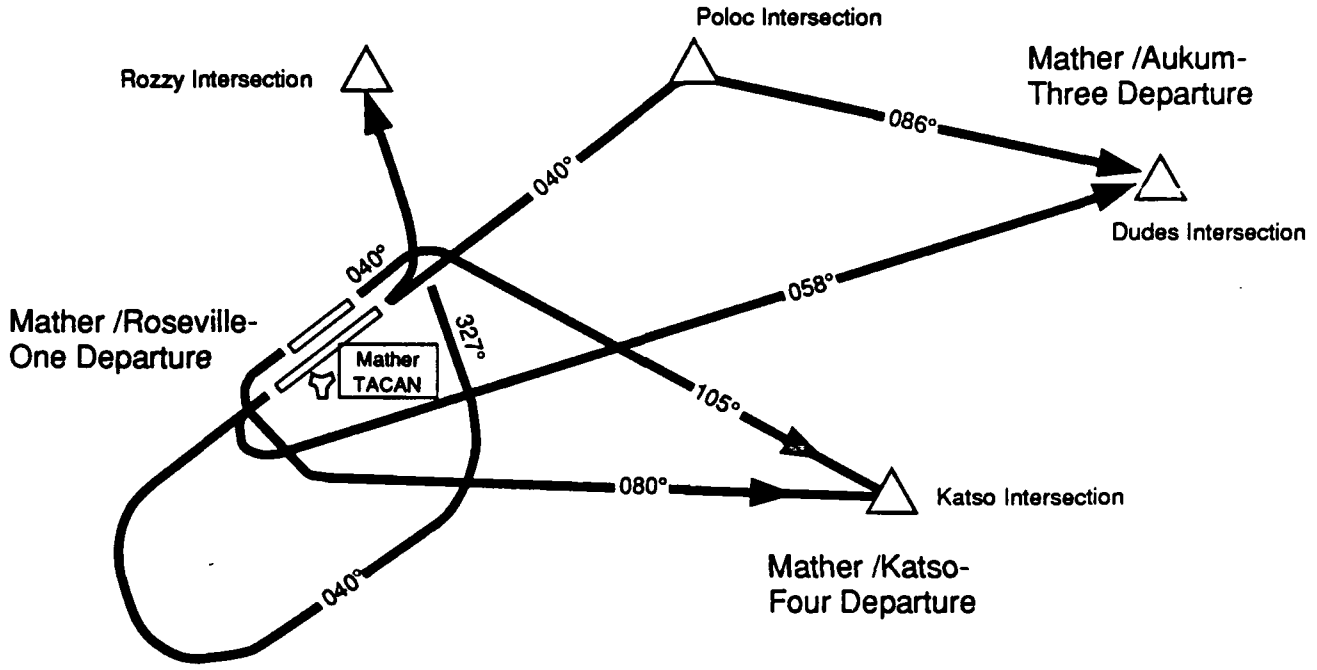
ILS Instrument Landing System

—— Final Approach

▶ Missed Approach

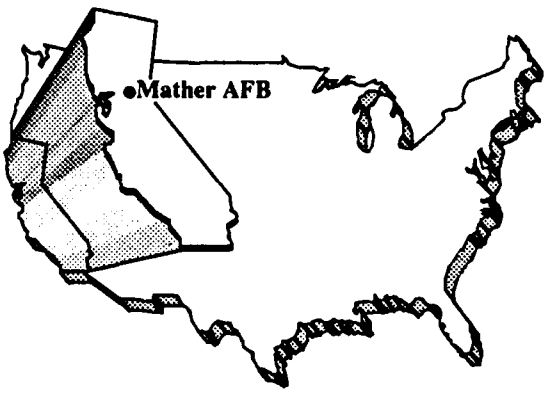
Low-Altitude Instrument Approaches, Runway 22L

Figure H-4



Standard Instrument Departures

Figure H-5



APPENDIX I

APPENDIX I

MATHER AFB PERMITS

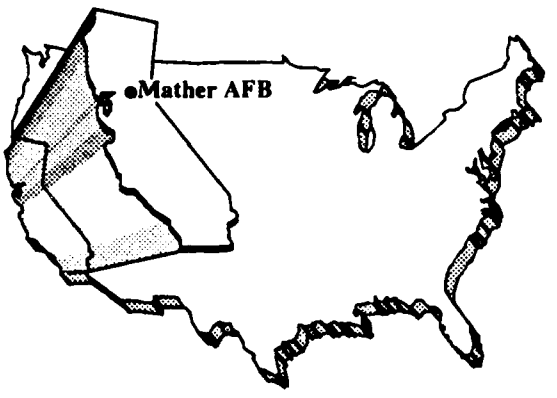
MATHER AFB PERMITS

Permit No.	Permitted Facility/Equipment	Original Date Issued	Date of Expiration
Sewage Discharge			
CA8570024143	Hazardous waste treatment, storage, and disposal (Part B)	15 December 1990	14 December 1995
RCRA			
83-093	Sewer use/Oxidation ponds	16 September 1983	30 September 1991*
Air Emissions			
SU 021	POTW	30 September 1987	Open
7372	IC engine, Bldg. 650	30 December 1981	30 December 1992
5159	Boiler, Bldg. 650	18 May 1979	30 December 1992
5160	Boiler, Bldg. 650	18 May 1979	30 December 1992
5177	Paint spray booth, Bldg. 2950	18 May 1979	30 December 1992
7371	Jet engine test cell, Bldg. 4130	30 December 1981	30 December 1992
7754	Abrasive blasting, Bldg. 4150	30 December 1981	30 December 1992
8198	Cold degreaser, Bldg. 4150	31 December 1986	30 December 1992
7974	Cold degreaser, Bldg. 4150	31 December 1983	30 December 1992
8601	Vapor degreaser, Bldg. 4150	31 December 1986	30 December 1992
5173	Cold degreaser, Bldg. 4150	14 February 1980	30 December 1992
5180	Paint spray booth, Bldg. 4150	18 May 1979	30 December 1992
5181	Paint spray booth, Bldg. 4150	18 May 1979	30 December 1992
5183	Abrasive blasting, Bldg. 4150	18 May 1979	30 December 1992
5186	Abrasive blasting, Bldg. 4150	18 May 1979	30 December 1992
5187	Abrasive blasting, Bldg. 4150	18 May 1979	30 December 1992
5189	Apc bag house, Bldg. 4150	18 May 1979	30 December 1992
5270	Apc bag house, Bldg. 4150	18 May 1979	30 December 1992
6551	Cold degreaser, Bldg. 4150	28 November 1979	30 December 1992
8235	Depaint tank, Bldg. 4150	30 December 1985	30 December 1992
8236	Depaint tank, Bldg. 4150	30 December 1985	30 December 1992
8857	Abrasive blasting booth, Bldg. 4150	31 December 1987	30 December 1992
8773	Cold degreaser, Bldg. 4260	31 December 1987	30 December 1992
7419	Boiler, Bldg. 7010	31 December 1981	30 December 1992
8192	Paint spray booth, Bldg. 7017	31 December 1986	30 December 1992
7752	Boiler, Bldg. 7033	30 December 1982	30 December 1992
8159	Aircraft solvent wash, Bldg. 7035	31 December 1987	30 December 1992
7856	Apc incinerator JP4, Bldg. 7080	30 December 1989	30 December 1992
7855	Apc incinerator JP4, Bldg. 7080	30 December 1989	30 December 1992
7424	Boiler, Bldg. 8150	31 December 1981	30 December 1992
7426	Boiler, Bldg. 8150	31 December 1981	30 December 1992
7373	IC engine stby, Bldg. 8157	31 December 1981	30 December 1992
7374	IC engine stby, Bldg. 18011	31 December 1981	30 December 1992
7429	Boiler/furnace, Bldg. 18015	31 December 1981	30 December 1992
7431	Boiler/furnace, Bldg. 18020	31 December 1981	30 December 1992
7863	Gasoline dispensing, Bldg. 3171	31 December 1989	30 December 1992

MATHER AFB PERMITS

Permit No.	Permitted Facility/Equipment	Original Date Issued	Date of Expiration
7103	Loading rack gasoline, Bldg. 3272	31 December 1980	30 December 1992
5072	Bulk storage tank, Bldg. 3272	23 March 1981	30 December 1992
5073	Bulk storage tank, Bldg. 3272	23 March 1981	30 December 1992
5074	Apc tank loading, Bldg. 3272	23 March 1981	30 December 1992
6421	Bulk storage tank, Bldg. 4005	28 November 1979	30 December 1992
6419	Bulk storage tank, Bldg. 4020	28 November 1979	30 December 1992
6420	Loading rack, Bldg. 4023	28 November 1979	30 December 1992
6422	Bulk storage JP-4, Bldg. 7080-1	28 November 1979	30 December 1992
6423	Bulk storage JP-4, Bldg. 7080-2	28 November 1979	30 December 1992
6424	Bulk storage JP-4, Bldg. 7080-3	28 November 1979	30 December 1992
6425	Bulk storage JP-4, Bldg. 7080-4	28 November 1979	30 December 1992
6426	Bulk storage JP-4, Bldg. 7080-5	28 November 1979	30 December 1992
6427	Bulk storage JP-4, Bldg. 7080-6	28 November 1979	30 December 1992
6428	Bulk storage JP-4, Bldg. 7080-7	28 November 1979	30 December 1992
6429	Bulk storage JP-4, Bldg. 7080-8	28 November 1979	30 December 1992
6430	Bulk storage JP-4, Bldg. 7080-1	28 November 1979	30 December 1992
6431	Bulk storage JP-4, Bldg. 7080-2	28 November 1979	30 December 1992
6432	Bulk storage JP-4, Bldg. 7080-3	28 November 1979	30 December 1992
6433	Bulk storage JP-4, Bldg. 7080-4	28 November 1979	30 December 1992
6434	Bulk storage JP-4, Bldg. 7080-5	28 November 1979	30 December 1992
6435	Bulk storage JP-4, Bldg. 7080-6	28 November 1979	30 December 1992
6436	Bulk storage JP-4, Bldg. 7080-7	28 November 1979	30 December 1992
6437	Bulk storage JP-4, Bldg. 7080-8	28 November 1979	30 December 1992
8509	Tank truck JP4, Veh. 72L00982	30 December 1986	30 December 1992
8512	Tank truck JP4, Veh. 72L00989	30 December 1986	30 December 1992
8514	Tank truck JP4, Veh. 72L00992	30 December 1986	30 December 1992
8516	Tank truck JP4, Veh. 72L00996	30 December 1986	30 December 1992
8517	Tank truck JP4, Veh. 72L01003	30 December 1986	30 December 1992
8518	Tank truck JP4, Veh. 73L01087	30 December 1986	30 December 1992
8519	Tank truck JP4, Veh. 73L01090	30 December 1986	30 December 1992
8508	Tank truck JP4, Veh. 82L00558	30 December 1986	30 December 1992

* Permit extended by Sacramento County, and is currently open.



APPENDIX J

APPENDIX J

ASBESTOS SURVEY SUMMARY

Priority 1 **Immediate Removal**

None

Priority 2 **ASAP Removal**

Building Number	Use	Asbestos Material
3686	Abandoned Accounting & Finance	Damaged pipe insulation and floor tile & ceiling

Priority 3 **Planned Removal Requirement**

Building Number	Use	Asbestos Material
2800	Base Exchange Office	Thermal insulation on hot & cold water supply
2802	Claims Office/Courtroom	lines (air cell)
2804	Judge Advocate Office	
2820	Flight Simulator Training	70% friable asbestos
2822	Manpower/Mgmt Engineering	
2824	NCO Leadership School	
2840	Thrift Shop	
2842	Flight Simulator Training	
2844	Security Police Training (REASSESS ALL 2800 SERIES BLDGS)	
4150	Corrosion Control Areas	Sprayed-on ceiling material 15% amosite, damaged/friable
7035	940th Hangar	Mech Room: trowelled-on wall material, 10-15% chrysotile
10410	Abandoned Power Plant	Exposed pipe & joint insulation

Priority 4 **Needs Repair**

Building Number	Use	Asbestos Material
1703	Dormitory, 1st Floor Mech Room	Hard pack pipe insul., 30-50% chrysotile, damaged and friable
3510	Base Chapel #1	Sprayed on ceiling (also Priority 5)

7001	12th USAF Contingency Hospital	Boiler room duct breeching insulation
7025	Field Training Facility (REASSESS)	Air cell above ceiling

Priority 5 Monitoring

Building Number	Use	Asbestos Material
1214	Post Office/Pkg Store	Boiler core insulation 1% chrysotile
1216	Dormitory	Pipe insulation 40% asbestos
1220	Dormitory	Pipe insulation 25-60% asbestos
1222	Dormitory	Pipe insulation 6-52% asbestos
1224	Dormitory	Pipe insulation 10-60% asbestos
1236	Civil Engineering	Pipe insulation 5-60% asbestos
1400	NCO Club	Sprayed on ceiling 2% crysotile/pipe insulation 5-60% asbestos
1425	Base Theater	Pipe insulation 2-18% chrysotile/flue pipe breeching 40% amosite 20% chrysotile
1460	Base Gymnasium	Pipe insulation 10-42% chrysotile
1705	Base Library	Pipe insulation 1% amosite 10% chrysotile
1707	BOQ	Pipe insulation 10-40% asbestos
1751	Temporary Lodging	Sprayed on textured ceiling 4% chrysotile
1752	Temporary Lodging	Sprayed on textured ceiling 0-3% chrysotile
1753	Temporary Lodging	Sprayed on textured ceiling 3% chrysotile
1754	Temporary Lodging	Sprayed on textured ceiling 2-5% chrysotile
1766	Dental Health Clinic	Pipe insulation 20-60% asbestos
1770	Hospital Dormitory	Pipe insulation 25-40% asbestos
2460	Recreational Center	Duct joint insulation 15% chrysotile
2595	Base Communications	Pipe insulation 5-45% asbestos
2750	Navigator Inn Billeting	Pipe insulation 60-70% asbestos
2785	Mech Room	Pipe insul., not sampled 1990 Survey
2800	Base Exchange Ofc	Transite wall panels & air handling units
2802	Claims Library/Courtroom	Transite wall panels 35% chrysotile & transite flue pipe air handling units
2804	Judge Advocate	Transite flue pipe air handling units & transite wall panels 35% chrysotile
2820	Flight Simulator Trng	Transite wall panels & pipes
2822	Manpower/Mgmt Eng	Transite wall panels & pipes, water heater tape 80% chrysotile
2824	NCO Leadership School	Transite pipe

2840	Thrift Shop	Transite wall panels & pipes
2842	Flight Simulator Training	Transite wall panels & pipes 35% asbestos
2844	Security Police Training	Transite wall panels & pipes, ceiling tile trace chrysotile
2898	POL Refueling Maint	Transite pipe & pipe insulation 4% asbestos
3636	Base Exchange	Pipe insulation 10-20% amosite
3860	Flight Simulator	Pipe insulation 10-30% chrysotile
3875	Academic Building	Pipe insulation 6-30% chrysotile 30% amosite
4145	Fire Pump Station	Transite pipe
4150	Weapons System Mgmt	Sprayed on ceiling/coating insulation 5-15% asbestos
4260	323 CAMS Maint	Pipe insulation 20-45% chrysotile/amosite
4445	Weapons System Mgmt	Tank & pipe insulation 3-35% chrysotile 35% amosite/transite pipe
4642		Pipe insul., not listed 1990 Survey
4750	Flight Training Classroom	Transite pipe
7005	940 CAMS Fuel Cell Hngr	Pipe insulation/duct insulation 5-15% chrysotile
7008	Red Cross Storage	Flue pipe insulation 25-40% chrysotile, 2% amosite
7009	320 MMS	Pipe insulation 5% chrysotile
7020		Tank and numerous pipe runs, Mech Room and Roof Access Room, resp. Not sampled 1990 Survey
7022		Pipe elbows not sampled 1990 Survey
7024		Pipe insul., not sampled 1990 Survey
7030	Resource Mgmt	Pipe insulation 3-10% chrysotile
7035	Nose Dock Hanger	Sprayed on wall insulation 10-15% chrysotile
7045	Aircraft Maint	Pipe insulation 10-25% chrysotile
7055	Squadron Ops	Pipe insulation 5% chrysotile
7075	Fire Station	Pipe insulation 40-45% chrysotile
13000	Base Chapel #2	Pipe insulation 10-30% chrysotile/2% amosite
14512	Youth Center	Pipe insulation 10% chrysotile
18018	Missile Assembly	Flue pipe insulation 3% chrysotile

Priority 6 Vinyl Floor Tiles Containing Asbestos or Mastic

** The majority of Capehart and Wherry housing units and the following other buildings **

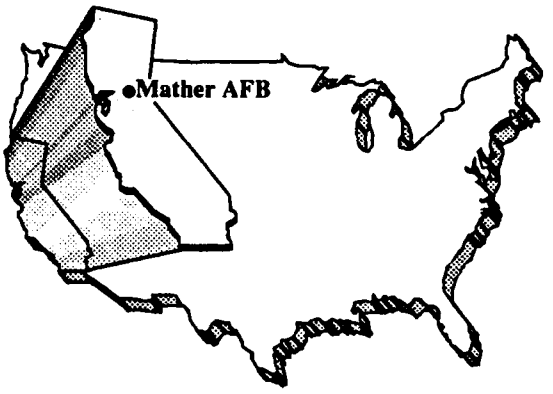
651	2785	3494	7022
728	2800	3510	7024
1200	2802	3550	7025
1210	2804	3575	7030
1214	2820	3576	7033
1216	2822	3577	7035
1224	2824	3578	7040
1226	2842	3636	7045
1228	2844	3688	7050
1230	2860	3695	7055
1234	2870	3750	7065
1236	2880	3785	7066
1425	2890	3860	7070
1701	2898	3875	7075
1703	2900	4150	8150
1705	2950	4200	8154
1706	3050	4302	8158
1708	3250	4303	8520
1751	3260	4348	8530
1752	3306	4376	8855
1753	3320	4445	8865
1754	3332	4473	10060
1766	3337	4540	10074
1770	3350	4552	10090
2389	3354	4579	10100
2410	3358	4587	13020
2460	3370	4642	10400
2470	3374	4677	10550
2500	3382	4750	13000
2527	3340	4832	14512
2566	3436	4844	17775
2568	3437	7000	18002
2570	3440	7001	18018
2595	3455	7010	18051
2655	3472	7013	21030
2675	3473	7015	21042
2774	3474	7020	

Priority 6 Other Than Floor Tile

Stucco, built up roofs, gypsum wall board or drywall in some Capehart housing, roof shingles and bypsum wall board in some Wherry housing, and the following items in other buildings:

730	Wall insulation coating 2% amosite
1214	Ceiling tile
1216	Ceiling paint 1-4% chrysotile
2460	Sheet rock trace chrysotile
2750	Sprayed on ceilings trace tremolite-actinolite
2860	Transite vent pipe
2870	Gypsum wall board trace chrysotile
2898	Roof shingles trace chrysotile
2950	Gypsum wall board
3260	Sheet rock & roof trace - 4% chrysotile
3308	Gypsum wall board & roof 30% chrysotile
3335	Roof shingles 5% chrysotile
3350	Roof shingles trace chrysotile
3358	Gypsum wall board trace chrysotile
3370	Roof shingles trace chrysotile
3374	Roof shingles 3% asbestos
3378	Roof shingles trace-4% chrysotile & boiler room duct tape 5% chrysotile
3382	Roof shingles trace chrysotile
3454	Roof pipe caulking 30% chrysotile
3636	Roof trace chrysotile
4120	Ceiling sheet rock trace chrysotile
4215	Roof shingles 20% chrysotile
4302	Roof shingles trace chrysotile
4348	Roof flue vent 70% chrysotile & roofing felt 10% chrysotile
4468	Textured ceiling trace tremolite actinolite
4579	Roof shingles trace chrysotile
4832	Roofing felt 5% chrysotile
4844	Roof shingles 1% chrysotile
7000	Women's restroom door core 30% chrysotile
7020	Roof tract chrysotile
7028	Textured sheet rock trace chrysotile
7078	Roof 10% chrysotile
8520	Ceiling tiles 10% amosite
10100	Wall board joint compound 2% chrysotile
10320	Roof shingles trace chrysotile
10400	Roof trace chrysotile
10410	Roof trace chrysotile
13000	Sheet rock trace chrysotile
18010	Roof tract chrysotile
18051	Roof tract chrysotile

THIS PAGE INTENTIONALLY LEFT BLANK



APPENDIX K

APPENDIX K

AIR FORCE POLICY
MANAGEMENT OF ASBESTOS AT CLOSING BASES

APPENDIX K

AIR FORCE POLICY
MANAGEMENT OF ASBESTOS AT CLOSING BASES

INTRODUCTION

Asbestos in building facilities is managed because of potential adverse human health effects. Asbestos must be removed or controlled if it is in a location and condition that constitutes a health hazard or a potential health hazard, or it is otherwise required by law (e.g., schools). The hazard determination must be made by a health professional (in the case of the Air Force, a Bioenvironmental Engineer) trained to make such determinations. While removal is remedy, in many cases management alternatives (such as encapsulation within the building) are acceptable and cost effective methods of dealing with asbestos. The keys to dealing with asbestos are knowing its location and condition and having a management plan to prevent asbestos containing materials that continue to serve their intended purpose from becoming a health hazard. There is no alternative to such management, because society does not have the resources to remove and dispose of all asbestos in all buildings in the United States. Most asbestos is not now nor will be become a health hazard if it is properly managed.

There are no laws applicable to the five closure bases that specifically mandate the removal or management of asbestos in buildings other than the law addressing asbestos in schools (P.L. 99-519). Statutory or regulatory requirements that result in removal or management of asbestos are based on human exposure or the potential for human exposure (i.e., National Emission Standards for Hazardous Air Pollutants (NESHAPS) = no visible emissions, OSHA = number of airborne fibers per cc). There are no statutory or other mandatory standards, criteria or procedures for deciding what to do with asbestos. Thus, health professional judgement based on exposure levels or potential exposure levels must be the primary determinant of what should be done with asbestos. Apart from this professional and scientific approach, closing bases present the additional problem of obtaining an economic return to the Government for its property. Asbestos in closing base properties must also be analyzed to determine the most prudent course in terms of removal or remediation costs and the price that can be obtained as a result.

The following specific policies will apply to bases closed or realigned (so that there are excess facilities to be sold) under the Base Closure and Realignment Act, P.L. 100-526.

1. Asbestos will be removed if:

   (a) The protection of human health as determined by the Bioenvironmental Engineer requires removal (e.g., exposed friable asbestos within a building) in accordance with applicable health laws, regulations.

   (b) If it is determined that removal prior to sale is cost-effective; that is, the removal cost is low enough compared to value that would be received for a "clean" building that removal is a good investment for the Government. Prior to decision to remove asbestos solely for economic reasons, economic analysis will be conducted to determine if demolition removal of some types of asbestos but not others, or asbestos removal and sale would be in the best interest of the Government.

(c) A building is, or is intended to be, used as a school or child care facility.

2. When asbestos is present but none of the above applies, the asbestos will be managed using commonly accepted standards, criteria and procedures to assure sufficient protection of human health and the environment, in accordance with applicable and developing health standards.

3. A thorough survey for asbestos (including review of facility records, visual inspection, and where appropriate as determined by the Bioenvironmental Engineer and the Base Civil Engineer, intrusive inspection) will be conducted by the Air Force prior to sale.

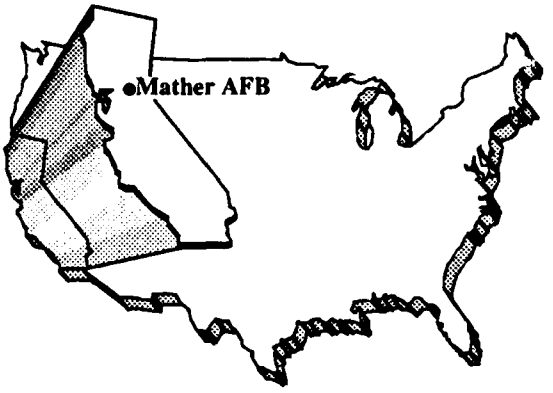
4. Appraisal instructions, advertisements for sale, and deeds will contain accurate descriptions of the types, quantities, locations, and condition of asbestos in any real property to be sold or otherwise transferred outside the Federal Government. Appraisals will indicate what discount the market would apply if the building were to be sold with the asbestos in place.

5. Encapsulated asbestos in a building structure, friable or not, is not regarded as hazardous waste by the Air Force, nor does encapsulation within the structure of a building constitute "storing" or "disposing of" hazardous waste. Asbestos incorporated into a building as part of the structure has not been "stored" or "disposed of."

6. Friable asbestos, or asbestos that will probably become friable, that has been stored or disposed of underground or elsewhere on the property to be sold will be properly disposed of, unless the location is a landfill or other disposal facility properly permitted for friable asbestos disposal.

7. The final Air Force determination regarding the disposition of asbestos will be dependent on the plan for disposal and any reuse of the building Decisions will take into account the proposed community reuse plan and the economic analysis of alternatives (see paragraph 4). The course of action to be followed with respect to asbestos at each closing installation will be analyzed in the Disposal and Reuse Environmental Impact Statement, and will be included in the record of decision (ROD). Any buildings or facilities where the proposed asbestos plan is controversial will be addressed in the ROD, either individually or as a class of closely related facilities.

8. Since other considerations must be taken in to account at bases that are continuing to operate, this policy does not apply to them, nor is it necessarily a precedent for asbestos removal policy on them.



APPENDIX L

APPENDIX L

NOISE

APPENDIX L
NOISE

1. DESCRIPTION OF PROPOSED ALTERNATIVES

1.1 PRECLOSURE

Typical noise sources in and around airfields usually include aircraft, surface traffic and other human activities.

Military aircraft operations are the primary source of noise in the vicinity of Mather AFB. The air operations and noise contours for preclosure are taken from the *Final Environmental Impact Statement for Closure of Mather Air Force Base, California* (1990). The contours for preclosure operations are shown in Figure 3.4-2.

The baseline surface traffic noise levels in the vicinity of the base were established in terms of DNL by modeling the arterial roadways on and near the base roads using current traffic and speed characteristics. In airport analyses, areas with DNL above 65 A-weighted sound level (dBA) are considered in land use compatibility planning and impact assessment; therefore, the distances to areas with DNLs greater than 65 dBA are of particular interest. The noise levels generated by surface traffic were predicted using the model published by the Federal Highway Administration (FHWA, 1978). The noise levels are estimated as a function of distance from the centerline of the nearest road.

Annual average daily traffic (AADT) data were developed from information gathered in the traffic engineering study presented in Section 3.2.4, Transportation, and were used to estimate preclosure noise levels. The traffic data used in the analysis are presented in Table L-1. The traffic mix was assumed to be 96 percent cars, 3 percent medium trucks, and 1 percent heavy trucks; 13 percent of the traffic was assumed to be nighttime traffic.

1.2 CLOSURE BASELINE

At closure, it is assumed that there would be no aircraft operations. Noise levels projected for the closure baseline for surface traffic were calculated using the traffic projections at base closure. The AADTs used for the analysis are presented in Table L-1.

1.3 PROPOSED ACTION - GENERAL AVIATION WITH AIR CARGO

The Proposed Action for the reuse of Mather AFB would result in the development of a joint use civilian/military airport, residential land uses, and mining activities. Primary components of the aviation action include general aviation operations, air cargo operations, maintenance operations, and military/government operations. The airport layout would remain unchanged.

The fleet mix and annual operations for each of the modeled years are presented in Table L-2. The DNL contours for the proposed flight operations are shown in Figures 4.4-12 through 4.4-15 for the years 1994, 1999, 2004, and 2014. Proposed flight tracks modeled are shown in Figures 4.4-6 through 4.4-8. Daily operations assigned to each flight track and time period under the Proposed Action are provided in Tables L-3 through L-6 for each of the study years. Day and evening operations are treated the same in calculating DNL. Night operations are adjusted by an additional 10 dB. Stage lengths for air operations are given in Table L-7.

Table L-1. Surface Traffic Operations for Total Traffic Volumes (Project and Non-Project)

Alternative	Annual Average Daily Traffic (AADT)					Speed Assumed	Road Width Assumed
	Preclosure	Closure	1999	2004	2014	(mph)	(lanes)
Proposed Action							
Mather Field Drive	21,180	589	5,053	7,805	12,362	45	4
Old Placerville Road	9,423	5,418	4,878	7,534	11,933	45	4
Zinfandel Drive			7,264	11,220	17,771	45	2
Excelsior Road North	1,090	1,023	5,931	9,160	14,508	45	2
Douglas Boulevard			4,527	6,992	11,074	45	2
Kiefer Boulevard West			3,965	6,125	9,707	45	2
Routiers Road North			3,579	5,529	8,757	45	2
Non Aviation w/Mixed-Density Residential							
Mather Field Drive	21,180	589	21,616	26,891	36,849	45	4
International Drive			13,450	16,732	22,928	45	4
Routiers Road South			11,720	14,581	19,981	45	4
Excelsior Road North	1,090	1,023	9,895	12,310	16,869	45	2
Kiefer Boulevard West			11,144	13,864	18,998	45	2
Routiers Road North			10,184	12,669	17,360	45	2
Zinfandel Drive			9,799	11,654	16,705	45	2
General Aviation							
Mather Field Drive	21,180	589	5,261	7,976	13,409	45	4
Old Placerville Road	9,423	5,418	5,078	7,699	12,944	45	4
Zinfandel Drive			7,563	11,466	19,276	45	2
Excelsior Road North	1,090	1,023	6,175	9,362	15,737	45	2
Douglas Boulevard			4,714	7,146	12,013	45	2
Kiefer Boulevard West			4,128	6,259	10,523	45	2
Routiers Road North			3,726	5,650	9,498	45	2
Non-Aviation with Low-Density Residential							
Mather Field Drive	21,180	589	25,811	32,152	43,660	45	4
International Drive			16,060	20,006	27,166	45	4
Routiers Road South			13,995	17,433	23,674	45	4
Excelsior Road North	1,090	1,023	11,816	14,718	19,987	45	2
Kiefer Boulevard West			13,308	16,577	22,509	45	2
Routiers Road North			12,160	15,147	20,569	45	2
Zinfandel Drive			11,701	14,576	19,793	45	2
No-Action							
Mather Field Drive	21,180	589	510	580	770	45	4
Old Placerville Road	9,423	5,418	6,470	7,430	9,740	45	4
Excelsior Road North	1,090	1,023	1,230	1,420	1,860	45	2
Sunrise Road North	11,083	10,046	11,990	13,770	18,040	45	4
Sunrise Road South	11,083	10,046	11,990	13,770	18,040	55	4

TABLE L-2a
SCENARIO: Proposed Action
MODELED YEAR: 1994

Type of Aircraft	# of operations	% for category	Total for category
Military			11,725
KC-135E	5,840	49.81	
C-5A	365	3.11	
C-17	365	3.11	
C-141	365	3.11	
C-130	730	6.22	
P-3	2,600	22.17	
T-38 (jet trainer)	1,460	12.45	
Forest Service			0
DC-6 (Forest Service aerial tanker)	0	N/A	
Air California/National Guard			9,125
UH-1N (helicopter)	3,650	40	
Cessna Conquest II (light twin)	5,475	60	
HC-130P	0	0	
MH-60 (helicopter)	0	0	
Civil Transportation			0
B-757-200	0	N/A	
B-767-200	0	N/A	
B-747-200	0	N/A	
B-727-200	0	N/A	
Aircraft Maintenance			0
B-757-200	0	N/A	
B-767-200	0	N/A	
B-747-200	0	N/A	
B-727-200	0	N/A	
General Aviation			0
COMSEP (composite single engine piston)	0	N/A	
Beech Baron 58P (twin engine piston)	0	N/A	
Cessna Citation I (turbojet)	0	N/A	
Model 500 (helicopter)	0	N/A	
TOTAL			20,850

TABLE L-2b
SCENARIO: Proposed Action
MODELED YEAR: 1999

Type of Aircraft	# of operations	% for category	Total for category
Military			11,725
KC-135E	5,840	49.81	
C-5A	365	3.11	
C-17	365	3.11	
C-141	365	3.11	
C-130	730	6.22	
P-3	2,600	22.17	
T-38 (jet trainer)	1,460	12.45	
Forest Service			3,650
DC-6 (Forest Service aerial tanker)	3,650	100.00	
Air California/National Guard			13,925
UH-1N (helicopter)	3,650	26.21	
Cessna Conquest II (light twin)	5,475	39.32	
HC-130P	2,000	14.36	
MH-60 (helicopter)	2,800	20.11	
Civil Transportation			4,400
B-757-200	3,422	77.78	
B-767-200	782	17.78	
B-747-200	98	2.22	
B-727-200	98	2.22	
Aircraft Maintenance			491
B-757-200	98	19.96	
B-767-200	98	19.96	
B-747-200	98	19.96	
B-727-200	197	40.12	
General Aviation			180,000
COMSEP (composite single engine piston)	108,055	60.03	
Beech Baron 58P (twin engine piston)	53,891	29.83	
Cessna Citation I (turbojet)	9,027	5.02	
Model 500 (helicopter)	9,027	5.0	
TOTAL			214,191

TABLE L-2c
SCENARIO: Proposed Action
MODELED YEAR: 2004

Type of Aircraft	# of operations	% for category	Total for category
Military			11,725
KC-135E	5,840	49.81	
C-5A	365	3.11	
C-17	365	3.11	
C-141	365	3.11	
C-130	730	6.22	
P-3	2,600	22.17	
T-38 (jet trainer)	1,460	12.45	
Forest Service			3,650
DC-6 (Forest Service aerial tanker)	3,650	100.00	
Air California/National Guard			13,925
UH-1N (helicopter)	3,650	26.21	
Cessna Conquest II (light twin)	5,475	39.32	
HC-130P	2,000	14.36	
MH-60 (helicopter)	2,800	20.11	
Civil Transportation			10,000
B-757-200	7,778	77.78	
B-767-200	1,778	17.78	
B-747-200	222	2.22	
B-727-200	222	2.22	
Aircraft Maintenance			547
B-757-200	164	29.98	
B-767-200	164	29.98	
B-747-200	164	29.98	
B-727-200	55	10.05	
General Aviation			208,000
COMSEP (composite single engine piston)	124,862	59.93	
Beech Baron 58P (twin engine piston)	62,274	29.94	
Cessna Citation I (turbojet)	10,432	5.02	
Model 500 (helicopter)	10,432	5.02	
TOTAL			247,847

TABLE L-2d
SCENARIO: Proposed Action
MODELED YEAR: 2014

Type of Aircraft	# of operations	% for category	Total for category
Military			11,725
KC-135E	5,840	49.81	
C-5A	365	3.11	
C-17	365	3.11	
C-141	365	3.11	
C-130	730	6.22	
P-3	2,600	22.17	
T-38 (jet trainer)	1,460	12.45	
Forest Service			3,650
DC-6 (Forest Service aerial tanker)	3,650	100.00	
Air California/National Guard			13,925
UH-1N (helicopter)	3,650	26.21	
Cessna Conquest II (light twin)	5,475	39.32	
HC-130P	2,000	14.36	
MH-60 (helicopter)	2,800	20.11	
Civil Transportation			32,850
B-757-200	25,550	78.25	
B-767-200	5,840	17.27	
B-747-200	730	2.24	
MD-83	730	2.24	
Aircraft Maintenance			547
B-757-200	164	29.98	
B-767-200	164	29.98	
B-747-200	164	29.98	
MD-83	55	10.05	
General Aviation			240,170
COMSEP (composite single engine piston)	144,175	77.78	
Beech Baron 58P (twin engine piston)	71,905	17.17	
Cessna Citation I (turbojet)	12,045	2.22	
Model 500 (helicopter)	12,045	2.22	
TOTAL			302,867

TABLE L-3

Proposed Action 1994

AIRCRAFT	4LD1 DAY	4LD1 EVE	4LD1 NIGHT	2RD1 DAY	2RD1 EVE	2RD1 NIGHT	4RD1 DAY	4RD1 EVE	4RD1 NIGHT	2LD1 DAY	2LD1 EVE	2LD1 NIGHT	4RD2 DAY	4RD2 EVE	4RD2 NIGHT	2LD2 DAY	2LD2 EVE	2LD2 NIGHT	2LD4 DAY	2LD4 EVE	2LD4 NIGHT
Military																					
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	1.60	0.20	0.20	1.80	0.10	0.10
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
National Guard																					
UH-1H (Helicopter)	0.01	0.00	0.00	1.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-EMG PROP	0.00	0.00	0.00	1.11	0.00	0.00	0.00	0.00	0.00	0.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KC-135P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Training																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Aviation																					
1-EMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-EMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HS Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	2.52	0.14	0.14	0.00	0.00	0.00	1.60	0.20	0.20	1.80	0.10	0.10

AIRCRAFT	2LD7 DAY	2LD7 EVE	2LD7 NIGHT	4LA1 DAY	4LA1 EVE	4LA1 NIGHT	2RA1 DAY	2RA1 EVE	2RA1 NIGHT	4RA1 DAY	4RA1 EVE	4RA1 NIGHT	2LA1 DAY	2LA1 EVE	2LA1 NIGHT	4LP1 DAY	4LP1 EVE	4LP1 NIGHT	2RP1 DAY	2RP1 EVE	2RP1 NIGHT
Military																					
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
National Guard																					
UH-1H (Helicopter)	0.00	0.00	0.00	0.05	0.00	0.00	1.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	5.22	0.28	0.28
2-EMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KC-135P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Training																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Aviation																					
1-EMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-EMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HS Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00

AIRCRAFT	4LP2 DAY	4LP2 EVE	4LP2 NIGHT	2RP2 DAY	2RP2 EVE	2RP2 NIGHT	4RP1 DAY	4RP1 EVE	4RP1 NIGHT	2LP1 DAY	2LP1 EVE	2LP1 NIGHT	2LP4 DAY	2LP4 EVE	2LP4 NIGHT	940A* DAY	940A* EVE	940A* NIGHT
Military																		
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.40	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	1.76	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
T-1	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.01	5.28	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	2.09	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
National Guard																		
UH-1H (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-EMG PROP	0.37	0.02	0.02	10.53	0.59	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KC-135P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport																		
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance																		
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Training																		
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Aviation																		
1-EMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-EMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HS Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.01	0.01	11.46	0.64	0.64	1.32	0.07	0.07	14.40	0.00	0.00

TABLE L-4

Proposed Action 1999

AIRCRAFT	4LD1 DAY	4LD1 EVE	4LD1 NIGHT	2RD1 DAY	2RD1 EVE	2RD1 NIGHT	4RD1 DAY	4RD1 EVE	4RD1 NIGHT	2LD1 DAY	2LD1 EVE	2LD1 NIGHT	4RD2 DAY	4RD2 EVE	4RD2 NIGHT	2LD2 DAY	2LD2 EVE	2LD2 NIGHT	3LD4 DAY	3LD4 EVE	3LD4 NIGHT
Military																					
EC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	1.60	0.20	0.20	1.00	0.10	0.10
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	1.08	0.06	0.06	0.09	0.01	0.01	1.08	0.06	0.06	1.08	0.06	0.06
National Guard																					
UH-1H (Helicopter)	0.01	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-ENG PROP	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HH-60 (Helicopter)	0.01	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.00	0.84	0.23	0.06	0.07	0.02	0.00	0.84	0.23	0.06	0.84	0.23	0.06
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.19	0.05	0.01	0.02	0.00	0.00	0.19	0.05	0.01	0.19	0.05	0.01
B-767-300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.03	0.01	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.02	0.01	0.00
Maintenance																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.02	0.01	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.02	0.01	0.00
B-767-300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.02	0.01	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.05	0.01	0.00
Training																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Aviation																					
1-ENG PROP	1.18	0.22	0.07	47.37	8.88	2.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-ENG PROP	0.59	0.11	0.04	23.69	4.43	1.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.20	0.04	0.01	9.78	1.83	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HS Model 500	0.10	0.02	0.01	3.96	0.74	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	2.07	0.39	0.13	84.66	15.87	5.29	0.20	0.03	0.01	4.68	0.49	0.27	0.18	0.03	0.01	5.76	0.55	0.33	3.96	0.45	0.23

AIRCRAFT	2LD7 DAY	2LD7 EVE	2LD7 NIGHT	4LA1 DAY	4LA1 EVE	4LA1 NIGHT	2RA1 DAY	2RA1 EVE	2RA1 NIGHT	4RA1 DAY	4RA1 EVE	4RA1 NIGHT	2LA1 DAY	2LA1 EVE	2LA1 NIGHT	4LP1 DAY	4LP1 EVE	4LP1 NIGHT	2RP1 DAY	2RP1 EVE	2RP1 NIGHT
Military																					
E-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
F-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	1.08	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	4.41	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00
National Guard																					
UH-1H (Helicopter)	0.00	0.00	0.00	0.01	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	5.22	0.29	0.29
2-ENG PROP	0.00	0.00	0.00	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HH-60 (Helicopter)	0.00	0.00	0.00	0.03	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	4.00	0.22	0.22
Transport																					
B-757-200	0.84	0.23	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.02	0.00	3.45	0.93	0.23	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.19	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.79	0.21	0.05	0.00	0.00	0.00	0.00	0.00	0.00
B-767-300	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance																					
B-757-200	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-767-300	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Training																					
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Aviation																					
1-ENG PROP	0.00	0.00	0.00	1.18	0.22	0.07	47.37	8.88	2.96	0.00	0.00	0.00	0.00	0.00	0.00	2.37	0.44	0.15	127.36	23.76	8.59
2-ENG PROP	0.00	0.00	0.00	0.59	0.11	0.04	23.69	4.43	1.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.20	0.04	0.01	9.78	1.83	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HS Model 500	0.00	0.00	0.00	0.10	0.02	0.01	3.96	0.74	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.46	2.15	0.72
TOTALS	2.16	0.35	0.13	2.87	0.39	0.13	84.64	15.87	5.29	0.20	0.03	0.01	9.56	1.47	0.58	2.57	0.48	0.16	148.84	27.91	9.30

AIRCRAFT	4LP2 DAY	4LP2 EVE	4LP2 NIGHT	2RP2 DAY	2RP2 EVE	2RP2 NIGHT	4RP1 DAY	4RP1 EVE	4RP1 NIGHT	2LP1 DAY	2LP1 EVE	2LP1 NIGHT	2LP4 DAY	2LP4 EVE	2LP4 NIGHT	960A* DAY	960A* EVE	960A* NIGHT
Military																		
E-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.40	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	1.76	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
F-3	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	6.20	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	2.09	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
National Guard																		
UH-1H (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-ENG PROP	0.27	0.02	0.02	10.53	0.59	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.01	4.83	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00
HH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport																		
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance																		
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-300	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Training																		
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Aviation																		
1-ENG PROP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-ENG PROP	1.18	0.22	0.07	68.51	12.85	4.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HS Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	1.18	0.22	0.07	68.51	12.85	4.28	0.25	0.01	0.01	11.46	0.64	0.64	1.32	0.07	0.07	14.40	0.00	0.00

TABLE L-5

Proposed Action 2004

AIRCRAFT	4LD1 DAY	4LD1 EVE	4LD1 NIGHT	2RD1 DAY	2RD1 EVE	2RD1 NIGHT	4RD1 DAY	4RD1 EVE	4RD1 NIGHT	2LD1 DAY	2LD1 EVE	2LD1 NIGHT	4RD2 DAY	4RD2 EVE	4RD2 NIGHT	2LD2 DAY	2LD2 EVE	2LD2 NIGHT	2LD4 DAY	2LD4 EVE	2LD4 NIGHT
Military																					
EC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.10	0.10	0.00	0.00	0.00	1.00	0.20	0.20	1.00	0.10	0.10
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1.00	0.00	0.00	0.00	0.01	0.01	1.00	0.00	0.00	1.00	0.00	0.00
National Guard																					
UH-1N (Helicopter)	0.01	0.00	0.00	1.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-NMG PROP	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EC-135F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HH-60 (Helicopter)	0.03	0.00	0.00	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport																					
B-737-200	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.04	0.01	1.92	0.51	0.13	0.16	0.04	0.01	1.92	0.51	0.13	1.92	0.51	0.13
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.44	0.13	0.03	0.04	0.01	0.00	0.44	0.13	0.03	0.44	0.13	0.03
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.00	0.00	0.00	0.00	0.08	0.01	0.00	0.08	0.01	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance																					
B-737-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.04	0.01	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.04	0.01	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Training																					
B-737-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Aviation																					
T-NMG PROP	1.27	0.26	0.09	54.73	10.26	3.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-NMG PROP	0.68	0.13	0.04	27.36	5.13	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.11	0.02	0.01	11.39	2.10	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HS Model 500	0.11	0.02	0.01	4.57	0.86	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	2.39	0.45	0.15	97.81	18.36	6.11	0.31	0.06	0.02	6.87	0.84	0.36	0.30	0.06	0.02	7.15	0.93	0.43	5.35	0.63	0.33

AIRCRAFT	2LD7 DAY	2LD7 EVE	2LD7 NIGHT	4LA1 DAY	4LA1 EVE	4LA1 NIGHT	2RA1 DAY	2RA1 EVE	2RA1 NIGHT	4RA1 DAY	4RA1 EVE	4RA1 NIGHT	2LA1 DAY	2LA1 EVE	2LA1 NIGHT	4LP1 DAY	4LP1 EVE	4LP1 NIGHT	2RP1 DAY	2RP1 EVE	2RP1 NIGHT
Military																					
EC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
KC-6 Aerial Tanker	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	4.41	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00
National Guard																					
UH-1N (Helicopter)	0.00	0.00	0.00	0.01	0.00	0.00	1.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	1.22	0.22	0.22
T-NMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EC-135F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HH-60 (Helicopter)	0.00	0.00	0.00	0.03	0.00	0.00	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00
Transport																					
B-737-200	1.92	0.51	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.04	0.01	7.83	2.00	0.52	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.44	0.13	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	1.79	0.68	0.12	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance																					
B-737-200	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Training																					
B-737-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Aviation																					
T-NMG PROP	0.00	0.00	0.00	1.37	0.26	0.09	54.73	10.26	3.42	0.00	0.00	0.00	0.00	0.00	0.00	2.74	0.51	0.17	110.73	20.76	6.92
T-NMG PROP	0.00	0.00	0.00	0.68	0.13	0.04	27.36	5.13	1.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.11	0.02	0.01	11.39	2.10	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HS Model 500	0.00	0.00	0.00	0.11	0.02	0.01	4.57	0.86	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.04	0.01	13.36	2.48	0.83
TOTALS	3.55	0.72	0.22	2.39	0.45	0.15	97.81	18.36	6.11	0.31	0.06	0.02	15.20	2.97	0.96	2.97	0.56	0.19	1171.99	32.25	10.75

AIRCRAFT	4LP2 DAY	4LP2 EVE	4LP2 NIGHT	2RP2 DAY	2RP2 EVE	2RP2 NIGHT	4RP1 DAY	4RP1 EVE	4RP1 NIGHT	2LP1 DAY	2LP1 EVE	2LP1 NIGHT	2LP4 DAY	2LP4 EVE	2LP4 NIGHT	940A* DAY	940A* EVE	940A* NIGHT
Military																		
EC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.40	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
T-1	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.01	1.38	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	2.00	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00
KC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
National Guard																		
UH-1N (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-NMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EC-135F	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transport																		
B-737-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance																		
B-737-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Training																		
B-737-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Aviation																		
T-NMG PROP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-NMG PROP	1.36	0.26	0.09	79.16	14.84	4.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HS Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	1.36	0.26	0.09	79.16	14.84	4.95	0.25	0.01	0.01	11.46	0.64	0.64	1.33	0.07	0.07	14.40	0.00	0.00

TABLE L-6

Proposed Action 2014

AIRCRAFT	DAY	4LD1 EVE	NIGHT	DAY	2RD1 EVE	NIGHT	DAY	4RD1 EVE	NIGHT	DAY	2LD1 EVE	NIGHT	DAY	4RD2 EVE	NIGHT	DAY	2LD2 EVE	NIGHT	DAY	2LD4 EVE	NIGHT
[illegible]																					
[illegible]																					
[illegible]																					

Table L-7. Stage lengths assumed for aircraft operations.

Aircraft Type	Stage Length
Military	
KC-135E	*
C-5A	*
C-17	*
C-141	*
C-130	*
T-38 (jet trainer)	*
Other Government	
DC-6 (Forest Service aerial tanker)	2
OH-6A (helicopter)	*
Cessna Conquest II (light twin)	1
Civil Transport/Aircraft Maintenance	
B-757RR	5
B-767-200	7
B-747-200	7
B-727-200	4
MD-83	4
Airline Training	
B-757RR	1
B-767-200	1
General Aviation	
COMSEP (composite single engine piston)	1
Beech Baron 58P (twin engine piston)	1
Cessna Citation I (turbojet)	1
McDonnell Douglas Model 500 (helicopter)	*

* Military aircraft and helicopters do not use stage lengths to describe take-off profiles. For these aircraft typical profiles were utilized from the NOISEMAP database and the Helicopter Noise Model (FAA, 1988), respectively. Stage lengths correspond to distance flown in increments of 500 miles. Thus, a stage length of 1 equals 1-500 miles, a stage length of 2 equals 501-1,000 miles. The maximum stage length, for modelling purposes, is stage 7 which corresponds to a distance greater than 3,500 miles.

Since there are no maintenance operations associated with this action, it was assumed that there would be no runup activity.

General aviation operations were divided into four types:

- Single-engine (COMSEP) - A composite single-engine propeller plane was modeled
- Multi-engine - Beech Baron 58P assumed to be a typical multi-engine propeller plane.
- Turbofan - Cessna Citation I assumed to a typical turbofan.
- Helicopter - McDonnell Douglas Model 500D assumed to a typical helicopter.

A standard 3° glide slope and the takeoff profiles provided by the FAA's Integrated Noise Model Database 3.9 were assumed for civil and commercial aircraft. Military aircraft used standard glide slopes and takeoff profiles provided by the U.S. Air Force (1990).

Surface traffic data used in the modeling were developed from the traffic study presented in Section 3.2.4, Transportation, and are shown in Table L-1.

For the mining operations, material is proposed to be excavated with wheeled scrapers or loaders and transported to existing processing facilities off of Mather AFB via conveyor. Typical equipment for this type of mining activity is listed in Table L-8.

Table L-8. Equipment Assumed to be Used in Mining Operations

Equipment Type
Bulldozer (D-8)
25 cubic yard scraper (model 623/631/651)
7 cubic yard front end loader (model 988B/992)
Water truck
Grader (model 12/14)
Truck

Noise levels associated with the various pieces of equipment were taken from *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (EPA, 1971) and *Power Plant Construction Noise Guide* (BBN, 1977). Typical noise levels from mining equipment are presented in Table L-9.

1.4 NON-AVIATION WITH MIXED-DENSITY RESIDENTIAL ALTERNATIVE

This alternative includes only non-aviation land uses. The area currently devoted to the airfield and aviation-related activities would be occupied by residential land use. Aggregate mining may be considered as an interim use in the airfield area.

Table L-9. Typical Mining Equipment Noise Levels

Equipment Type	Level dBA at 50' (Each Piece of Equipment)
Bulldozer (D-8)	88
25 cubic yard scraper (model 623/631/651)	88
7 cubic yard front end loader (model 988B/992)	85
Water truck	77
Grader (model 12/14)	83
Pickup	70

Surface traffic data used in the modeling were developed from the project traffic study and are presented in Table L-1.

Mining operations were assumed to be of the same magnitude as in the Proposed Action.

1.5 GENERAL AVIATION WITH AIRCRAFT MAINTENANCE ALTERNATIVE

The General Aviation with Aircraft Maintenance Alternative for the reuse of Mather AFB would result in the development of a mixed-use airport and industrial, residential park, commercial, and residential land uses, and mining activities. Primary components of the general aviation action include general aviation operations, training and maintenance operations, and military/government operations. The assumption of this study is that the airport layout would remain unchanged.

The fleet mix and annual operations for each of the modeled years are presented in Table L-10. The DNL contours for the proposed flight operations are shown in Figures 4.4-12 and 4.4-16 through 4.4-18 for the years 1994, 1999, 2004, and 2014. The proposed flight tracks modeled are the same as for the Proposed Action and are shown in Figures L-1 through L-3. Daily operations assigned to each flight track and time period under this alternative are provided in Tables L-11 through L-14 for each of the study years. Stage lengths for air operations are given in Table L-7.

Engine runup operations were assumed to occur at the ready apron at the southeast side of the runway. It is estimated that there would be 0.79 operations during each 24-hour period during the day (7 a.m.-10 p.m.) for the year 1999, increasing to 0.88 operations per day by the year 2004, after which they would remain constant. These operations would be divided between 747-200 and 757-200 aircraft models. During typical runup operations, the engines would run for 20 minutes at idle power and 5 minutes at departure power. It was assumed that no noise suppression facilities would be available. The aircraft were assumed to have a heading of 310°.

General Aviation with Aircraft Maintenance Alternative operations would be divided into the same four types as in the Proposed Action.

TABLE L-10a
SCENARIO: General Aviation with Aircraft Maintenance Alternative
MODELED YEAR: 1994

Type of Aircraft	# of operations	% for category	Total for category
Military			11,725
KC-135E	5,840	49.81	
C-5A	365	3.11	
C-17	365	3.11	
C-141	365	3.11	
C-130	730	6.22	
P-3	2,600	22.17	
T-38 (jet trainer)	1,460	12.45	
Forest Service			0
DC-6 (Forest Service aerial tanker)	0	N/A	
Air California/National Guard			9,125
UH-1N (helicopter)	3,650	40.00	
Cessna Conquest II (light twin)	5,475	60.00	
HC-130P	0	N/A	
MH-60 (helicopter)	0	N/A	
Airline Training			0
B-757-200	0	N/A	
B-767-200	0	N/A	
Maintenance			0
B-757-200	0	N/A	
B-767-200	0	N/A	
B-747-200	0	N/A	
B-727-200	0	N/A	
General Aviation			0
COMSEP (composite single engine piston)	0	N/A	
Beech Baron 58P (twin engine piston)	0	N/A	
Cessna Citation I (turbojet)	0	N/A	
Model 500 (helicopter)	0	N/A	
TOTAL			20,850

TABLE L-10b
SCENARIO: General Aviation with Aircraft Maintenance Alternative
MODELED YEAR: 1999

Type of Aircraft	# of operations	% for category	Total for category
Military			11,725
KC-135E	5,840	49.81	
C-5A	365	3.11	
C-17	365	3.11	
C-141	365	3.11	
C-130	730	6.22	
P-3	2,600	22.17	
T-38 (jet trainer)	1,460	12.45	
Forest Service			3,650
DC-6 (Forest Service aerial tanker)	3,650	100.00	
Air California/National Guard			13,925
UH-1N (helicopter)	3,650	26.21	
Cessna Conquest II (light twin)	5,475	39.32	
HC-130P	2,000	14.36	
MH-60 (helicopter)	2,800	20.11	
Airline Training			1,000
B-757-200	750	75.00	
B-767-200	250	25.00	
Maintenance			491
B-757-200	98	19.96	
B-767-200	98	19.96	
B-747-200	98	19.96	
B-727-200	197	40.12	
General Aviation			133,650
COMS (composite single engine piston)	90,750	67.90	
Beech Baron 58P (twin engine piston)	36,300	27.16	
Cessna Citation I (turbojet)	3,300	2.47	
Model 500 (helicopter)	3,300	2.47	
TOTAL			164,441

TABLE L-10c
SCENARIO: General Aviation with Aircraft Maintenance Alternative
MODELED YEAR: 2004

Type of Aircraft	# of operations	% for category	Total for category
Military			11,725
KC-135E	5,840	49.81	
C-5A	365	3.11	
C-17	365	3.11	
C-141	365	3.11	
C-130	730	6.22	
P-3	2,600	22.17	
T-38 (jet trainer)	1,460	12.45	
Forest Service			3,650
DC-6 (Forest Service aerial tanker)	3,650	100.00	
Air California/National Guard			13,925
UH-1N (helicopter)	3,650	26.21	
Cessna Conquest II (light twin)	5,475	39.32	
HC-130P	2,000	14.36	
MH-60 (helicopter)	2,800	20.11	
Airline Training			2,000
B-757-200	1,000	50.00	
B-767-200	1,000	50.00	
Maintenance			547
B-757-200	164	29.98	
B-767-200	164	29.98	
B-747-200	164	29.98	
B-727-200	55	10.05	
General Aviation			161,000
COMSEP (composite single engine piston)	101,500	63.04	
Beech Baron 58P (twin engine piston)	47,250	29.35	
Cessna Citation I (turbojet)	7,000	4.35	
Model 500 (helicopter)	5,250	3.26	
TOTAL			192,847

TABLE L-10d
SCENARIO: General Aviation with Aircraft Maintenance Alternative
MODELED YEAR: 2014

Type of Aircraft	# of operations	% for category	Total for category
Military			11,725
KC-135E	5,840	49.81	
C-5A	365	3.11	
C-17	365	3.11	
C-141	365	3.11	
C-130	730	6.22	
P-3	2,600	22.17	
T-38 (jet trainer)	1,460	12.45	
Forest Service			3,650
DC-6 (Forest Service aerial tanker)	3,650	100.00	
Air California/National Guard			13,925
UH-1N (helicopter)	3,650	26.21	
Cessna Conquest II (light twin)	5,475	39.32	
HC-130P	2,000	14.36	
MH-6C (helicopter)	2,800	20.11	
Airline Training			3,000
B-757-200	1,500	50.00	
B-767-200	1,500	50.00	
Maintenance			547
B-757-200	164	29.98	
B-767-200	164	29.98	
B-747-200	164	29.98	
MD-83	55	10.05	
General Aviation			200,000
COMSEP (composite single engine piston)	120,000	63.00	
Beech Baron 58P (twin engine piston)	60,000	30.00	
Cessna Citation I (turbojet)	14,000	7.00	
Model 500 (helicopter)	6,000	3.00	
TOTAL			232,847

TABLE L-11

Gen. Aviation Itin

AIRCRAFT	DAY	4LD1 EVE	NIGHT	DAY	2RD1 EVE	NIGHT	DAY	4RD1 EVE	NIGHT	DAY	2LD1 EVE	NIGHT	DAY	4PD2 EVE	NIGHT	DAY	2LD2 EVE	NIGHT	DAY	2LD4 EVE	NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	3.60	0.20	0.20	1.80	0.10	0.10
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UH-1N (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	1.08	0.06	0.06	0.09	0.01	0.01	1.08	0.06	0.06	1.08	0.06	0.06
Cessna Conquest II	0.05	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSEP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beech Baron 58P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	0.05	0.00	0.00	3.15	0.18	0.18	0.11	0.01	0.01	3.60	0.20	0.20	0.09	0.01	0.01	4.68	0.26	0.26	2.88	0.16	0.16

AIRCRAFT	DAY	2LD7 EVE	NIGHT	DAY	4LA1 EVE	NIGHT	DAY	2RA1 EVE	NIGHT	DAY	4RA1 EVE	NIGHT	DAY	2LA1 EVE	NIGHT	DAY	4LP1 EVE	NIGHT	DAY	2RP1 EVE	NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	1.08	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
UH-1N (Helicopter)	0.00	0.00	0.00	0.05	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Conquest II	0.00	0.00	0.00	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	5.22	0.29	0.29
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSEP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beech Baron 58P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	1.08	0.06	0.06	0.05	0.00	0.00	3.15	0.18	0.18	0.11	0.01	0.01	5.13	0.29	0.29	0.09	0.01	0.01	5.22	0.29	0.29

AIRCRAFT	DAY	4LF2 EVE	NIGHT	DAY	2RF2 EVE	NIGHT	DAY	4RP1 EVE	NIGHT	DAY	2LP1 EVE	NIGHT	DAY	2LP4 EVE	NIGHT	DAY	940A* EVE	NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.40	0.80	0.80
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	1.76	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.01	6.28	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	2.09	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UH-1N (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Conquest II	0.27	0.02	0.02	10.53	0.59	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSEP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beech Baron 58P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	0.27	0.02	0.02	10.53	0.59	0.59	0.25	0.01	0.01	11.46	0.64	0.64	1.32	0.07	0.07	14.40	0.80	0.80

TABLE L-12

Gen Aviation 1999

AIRCRAFT	4LD1 DAY	4LD1 EVE	4LD1 NIGHT	2RD1 DAY	2RD1 EVE	2RD1 NIGHT	4RD1 DAY	4RD1 EVE	4RD1 NIGHT	2LD1 DAY	2LD1 EVE	2LD1 NIGHT	4RD2 DAY	4RD2 EVE	4RD2 NIGHT	2LD2 DAY	2LD2 EVE	2LD2 NIGHT	2LD4 DAY	2LD4 EVE	2LD4 NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	3.60	0.20	0.20	1.80	0.10	0.10
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	1.08	0.06	0.06	0.09	0.01	0.01	1.08	0.06	0.06	1.08	0.06	0.06
UH-1N (Helicopter)	0.05	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Conquest II	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.03	0.00	0.00	1.38	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.02	0.01	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.02	0.01	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.02	0.01	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.05	0.01	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSEP	0.99	0.19	0.06	39.78	7.46	2.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beech Baron 58P	0.40	0.07	0.02	15.91	2.98	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.07	0.01	0.00	3.54	0.66	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.04	0.01	0.00	1.45	0.27	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	1.58	0.29	0.10	65.21	11.63	4.04	0.12	0.01	0.01	3.72	0.23	0.21	0.10	0.01	0.01	4.80	0.29	0.27	3.90	0.19	0.17

AIRCRAFT	2LD7 DAY	2LD7 EVE	2LD7 NIGHT	4LA1 DAY	4LA1 EVE	4LA1 NIGHT	2RA1 DAY	2RA1 EVE	2RA1 NIGHT	4RA1 DAY	4RA1 EVE	4RA1 NIGHT	2LA1 DAY	2LA1 EVE	2LA1 NIGHT	4LP1 DAY	4LP1 EVE	4LP1 NIGHT	2RP1 DAY	2RP1 EVE	2RP1 NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	1.08	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	4.41	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00
UH-1N (Helicopter)	0.00	0.00	0.00	0.05	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	5.22	0.29	0.29
Cessna Conquest II	0.00	0.00	0.00	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.00	0.00	0.00	0.03	0.00	0.00	1.38	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	4.00	0.22	0.22
B-757-200	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSEP	0.00	0.00	0.00	0.99	0.19	0.06	39.78	7.46	2.49	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.37	0.12	115.36	21.63	7.21
Beech Baron 58P	0.00	0.00	0.00	0.40	0.07	0.02	15.91	2.98	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.07	0.01	0.00	3.54	0.66	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.00	0.00	0.00	0.04	0.01	0.00	1.45	0.27	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.00	4.20	0.79	0.26
TOTALS	1.20	0.09	0.07	1.58	0.29	0.10	65.21	11.63	4.04	0.12	0.01	0.01	5.62	0.42	0.32	2.22	0.40	0.14	128.78	22.93	7.98

AIRCRAFT	4LP2 DAY	4LP2 EVE	4LP2 NIGHT	2RP2 DAY	2RP2 EVE	2RP2 NIGHT	4RP1 DAY	4RP1 EVE	4RP1 NIGHT	2LP1 DAY	2LP1 EVE	2LP1 NIGHT	2LP4 DAY	2LP4 EVE	2LP4 NIGHT	940A* DAY	940A* EVE	940A* NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.40	0.80	0.80
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	1.76	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.01	6.28	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	2.09	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UH-1N (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Conquest II	0.27	0.02	0.02	10.53	0.59	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.01	4.83	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.01	0.04	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.01	0.00	0.00	0.00	0.00
CONSEP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beech Baron 58P	0.80	0.15	0.05	46.15	8.65	2.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	1.07	0.16	0.06	56.68	9.24	3.47	0.35	0.02	0.02	16.29	0.91	0.91	4.01	0.13	0.07	14.40	0.80	0.80

TABLE L-13

Aviation 2004

AIRCRAFT	4LD1 DAY	4LD1 EVE	4LD1 NIGHT	2RD1 DAY	2RD1 EVE	2RD1 NIGHT	4RD1 DAY	4RD1 EVE	4RD1 NIGHT	2LD1 DAY	2LD1 EVE	2LD1 NIGHT	4RD2 DAY	4RD2 EVE	4RD2 NIGHT	2LD2 DAY	2LD2 EVE	2LD2 NIGHT	2LD4 DAY	2LD4 EVE	2LD4 NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	3.60	0.20	0.20	1.80	0.10	0.10
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	1.08	0.06	0.06	0.09	0.01	0.01	1.08	0.06	0.06	1.08	0.06	0.06
UH-1N (Helicopter)	0.05	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Conquest II	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.03	0.00	0.00	1.38	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.04	0.01	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.04	0.01	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.04	0.01	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSEP	1.11	0.21	0.07	44.49	8.34	2.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beech Baron 58P	0.52	0.10	0.03	20.71	3.88	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.15	0.03	0.01	7.52	1.41	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.06	0.01	0.00	2.30	0.43	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	1.92	0.35	0.12	79.56	14.32	4.94	0.12	0.01	0.01	3.73	0.24	0.21	0.10	0.01	0.01	4.81	0.30	0.27	3.01	0.20	0.17

AIRCRAFT	2LD7 DAY	2LD7 EVE	2LD7 NIGHT	4LA1 DAY	4LA1 EVE	4LA1 NIGHT	2RA1 DAY	2RA1 EVE	2RA1 NIGHT	4RA1 DAY	4RA1 EVE	4RA1 NIGHT	2LA1 DAY	2LA1 EVE	2LA1 NIGHT	4LP1 DAY	4LP1 EVE	4LP1 NIGHT	2RP1 DAY	2RP1 EVE	2RP1 NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	1.08	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	4.41	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00
UH-1N (Helicopter)	0.00	0.00	0.00	0.05	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	5.22	0.29	0.29
Cessna Conquest II	0.00	0.00	0.00	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.00	0.00	0.00	0.03	0.00	0.00	1.38	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	4.00	0.22	0.22
B-757-200	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSEP	0.00	0.00	0.00	1.11	0.21	0.07	44.49	8.34	2.78	0.00	0.00	0.00	0.00	0.00	0.00	2.22	0.42	0.14	129.03	24.19	8.06
Beech Baron 58P	0.00	0.00	0.00	0.52	0.10	0.03	20.71	3.88	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.15	0.03	0.01	7.52	1.41	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.00	0.00	0.00	0.06	0.01	0.00	2.30	0.43	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.02	0.01	6.67	1.25	0.42
TOTALS	1.21	0.10	0.07	1.92	0.35	0.12	79.56	14.32	4.94	0.12	0.01	0.01	5.68	0.43	0.32	2.50	0.45	0.16	144.93	25.96	8.99

AIRCRAFT	4LP2 DAY	4LP2 EVE	4LP2 NIGHT	2RP2 DAY	2RP2 EVE	2RP2 NIGHT	4RP1 DAY	4RP1 EVE	4RP1 NIGHT	2LP1 DAY	2LP1 EVE	2LP1 NIGHT	2LP4 DAY	2LP4 EVE	2LP4 NIGHT	940A* DAY	940A* EVE	940A* NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.40	0.80	0.80
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	1.76	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.01	6.28	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	2.09	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UH-1N (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Conquest II	0.27	0.02	0.02	10.53	0.59	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.01	4.83	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.68	0.05	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.68	0.05	0.00	0.00	0.00	0.00
CONSEP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beech Baron 58P	1.04	0.19	0.06	60.07	11.26	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	1.31	0.21	0.08	70.60	11.85	4.34	0.35	0.02	0.02	16.29	0.91	0.91	6.69	0.18	0.07	14.40	0.80	0.80

TABLE L-14

Gen. Aviation 2014

AIRCRAFT	DAY	[illegible] EVE	NIGHT	DAY	2RD1 EVE	NIGHT	DAY	4RD1 EVE	NIGHT	DAY	2LD1 EVE	NIGHT	DAY	4RD2 EVE	NIGHT	DAY	2LD2 EVE	NIGHT	DAY	2LD4 EVE	NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	3.60	0.20	0.20	1.80	0.10	0.10
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	1.08	0.06	0.06	0.09	0.01	0.01	1.08	0.06	0.06	1.08	0.06	0.06
UH-1N (Helicopter)	0.05	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Conquest II	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.03	0.00	0.00	1.38	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	[illegible]	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.04	0.01	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	[illegible]	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.04	0.01	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	[illegible]	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.04	0.01	0.00	0.04	0.01	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	[illegible]	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSEP	1.32	0.25	0.08	52.60	9.86	3.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beech Baron 58P	0.66	0.12	0.04	26.30	4.93	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.31	0.06	0.02	15.04	2.82	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.07	0.01	0.00	2.63	0.49	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	2.42	0.44	0.15	101.10	18.36	6.29	0.12	0.01	0.01	3.73	0.24	0.21	0.10	0.01	0.01	4.81	0.30	0.27	3.01	0.20	0.17

AIRCRAFT	DAY	2LD7 EVE	NIGHT	DAY	4LA1 EVE	NIGHT	DAY	2RA1 EVE	NIGHT	DAY	4RA1 EVE	NIGHT	DAY	2LA1 EVE	NIGHT	DAY	4LP1 EVE	NIGHT	DAY	2RP1 EVE	NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.72	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	1.08	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	4.41	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00
UH-1N (Helicopter)	0.00	0.00	0.00	0.05	0.00	0.00	1.80	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01	0.01	5.22	0.29	0.29
Cessna Conquest II	0.00	0.00	0.00	0.00	0.00	0.00	1.35	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.00	0.00	0.00	0.03	0.00	0.00	1.38	0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	4.00	0.22	0.22
B-757-200	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONSEP	0.00	0.00	0.00	1.32	0.25	0.08	52.60	9.86	3.29	0.00	0.00	0.00	0.00	0.00	0.00	2.63	0.49	0.16	152.55	28.60	9.53
Beech Baron 58P	0.00	0.00	0.00	0.66	0.12	0.04	26.30	4.93	1.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.31	0.06	0.02	15.04	2.82	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.00	0.00	0.00	0.07	0.01	0.00	2.63	0.49	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.02	0.01	7.63	1.43	0.48
TOTALS	1.21	0.10	0.07	2.42	0.44	0.15	101.10	18.36	6.29	0.12	0.01	0.01	5.68	0.43	0.32	2.92	0.53	0.18	169.40	30.55	10.52

AIRCRAFT	DAY	4LP2 EVE	NIGHT	DAY	2RP2 EVE	NIGHT	DAY	4RP1 EVE	NIGHT	DAY	2LP1 EVE	NIGHT	DAY	2LP4 EVE	NIGHT	DAY	940A* EVE	NIGHT
KC-135E	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.40	0.80	0.80
C-5A/B	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-17	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-141	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.44	0.02	0.02	0.44	0.02	0.02	0.00	0.00	0.00
C-130	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	1.76	0.16	0.10	0.00	0.00	0.00	0.00	0.00	0.00
P-3	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01	0.01	6.28	0.35	0.35	0.00	0.00	0.00	0.00	0.00	0.00
T-38 (jet trainer)	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	2.09	0.12	0.12	0.00	0.00	0.00	0.00	0.00	0.00
DC-6 Aerial Tanker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UH-1N (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Conquest II	0.27	0.02	0.02	10.53	0.59	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HC-130P	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.01	0.01	4.83	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00
MH-60 (Helicopter)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-747-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-727-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
B-757-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.03	0.08	0.08	0.00	0.00	0.00
B-767-200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.03	0.08	0.08	0.00	0.00	0.00
CONSEP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Beech Baron 58P	1.32	0.25	0.08	76.27	14.30	4.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cessna Citation I	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MD Model 500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	1.59	0.26	0.10	86.80	14.89	5.35	0.35	0.02	0.02	16.29	0.91	0.91	9.38	0.24	0.07	14.40	0.80	0.80

A standard 3° glide slope and the takeoff profiles provided by the FAA's Integrated Noise Model Database 3.9 were assumed for civil and commercial aircraft. Military aircraft used standard glide slopes and takeoff profiles provided by the U.S. Air Force (1990).

Surface traffic data used in the modeling were developed from the project traffic study presented in Section 3.2.4, Transportation, and are shown in Table L-1.

Mining operations were assumed to be of the same magnitude as in the Proposed Action.

1.6 NON-AVIATION WITH LOW-DENSITY RESIDENTIAL ALTERNATIVE

This alternative includes only non-aviation land uses. The airfield would be replaced with low-density residential use. Natural habitats of the vernal pools, riparian corridors, and other wetland areas would be kept in an undisturbed condition. Aggregate mining may be considered as an interim use in the airfield area.

Surface traffic data used in the modeling were developed from the project traffic study and are presented in Table L-1. Mining operations were assumed to be of the same magnitude as in the Proposed Action.

1.7 NO-ACTION ALTERNATIVE

The No-Action Alternative under the disposal and reuse for Mather AFB would result in the Air Force retaining ownership of the property after closure. The property would not be put to further use. The base would be preserved, i.e., placed in a condition intended to minimize deterioration. A disposal management team would be provided to ensure base security and maintain the grounds and physical assets, including the existing utilities and structures. There would be no military activities/missions performed on the property and no mining. Surface traffic data used in the modeling were developed from the project traffic study and are presented in Table L-1.

2. NOISE METRICS

Noise, as used in this context, refers to sound pressure variations audible to the ear. The audibility of a sound depends on the amplitude and frequency of the sound and the individual's capability to hear the sound. Whether the sound is judged as noise depends largely on the listener's current activity and attitude toward the sound source as well as the amplitude and frequency of the sound. The range in sound pressures which the human ear can comfortably detect encompasses a wide range of amplitudes, typically a factor larger than a million. To obtain convenient measurements and sensitivities at extremely low and high sound pressures, sound is measured in units of the decibel (dB). The dB is a dimensionless unit related to the logarithm of the ratio of the measured level to a reference level. Table 3.4-7 shows typical dB levels for various sources in urban environments.

Because of the logarithmic nature of the decibel unit, sound levels cannot be added or subtracted directly. However, the following shortcut method can be used to combine sound levels:

Difference between two dB values	Add the following to the higher level
0 to 1	3
2 to 3	2
4 to 9	1
10 or more	0

The ear is not equally sensitive at all frequencies of sound. At low frequencies, characterized as a rumble or roar, the ear is not very sensitive, whereas at higher frequencies, characterized as a screech or a whine, the ear is most sensitive. The A-weighted sound level denoted as dBA was developed to measure and report sound levels in a way which would more closely approach how we perceive the sound. All sound levels reported herein are in terms of A-weighted sound levels.

Environmental sound levels typically vary with time. This is especially true for areas near airports where noise levels will increase substantially as the aircraft passes overhead and diminish to typical community levels. Both the Department of Defense and the FAA have specified three noise metrics to describe aviation noise.

Maximum Sound Level: The highest A-weighted sound level observed during a single noise event no matter how long the sound may persist (see Figure L-1).

Sound Exposure Level (SEL): The SEL value represents the A-weighted sound level integrated over the entire duration of the event and referenced to a duration of 1-second. Hence, it normalizes the event to a 1-second event. Typically most events (aircraft flyover) last longer than 1-second and the SEL value will be higher than the maximum sound level of the event. Figure L-1 indicates the relationship between the maximum sound level and SEL.

Day-Night Average Sound Level (DNL): The DNL is the 24-hour energy average A-weighted sound level with a 10 dB weighting added to those levels occurring between 10 p.m. and 7 a.m. the following morning. The 10 dB weighting is a penalty representing the added intrusiveness of noise during normal sleeping hours. DNL is used to determine land use compatibility to noise from aircraft and surface traffic.

3. NOISE MODELS

3.1 AIR TRAFFIC

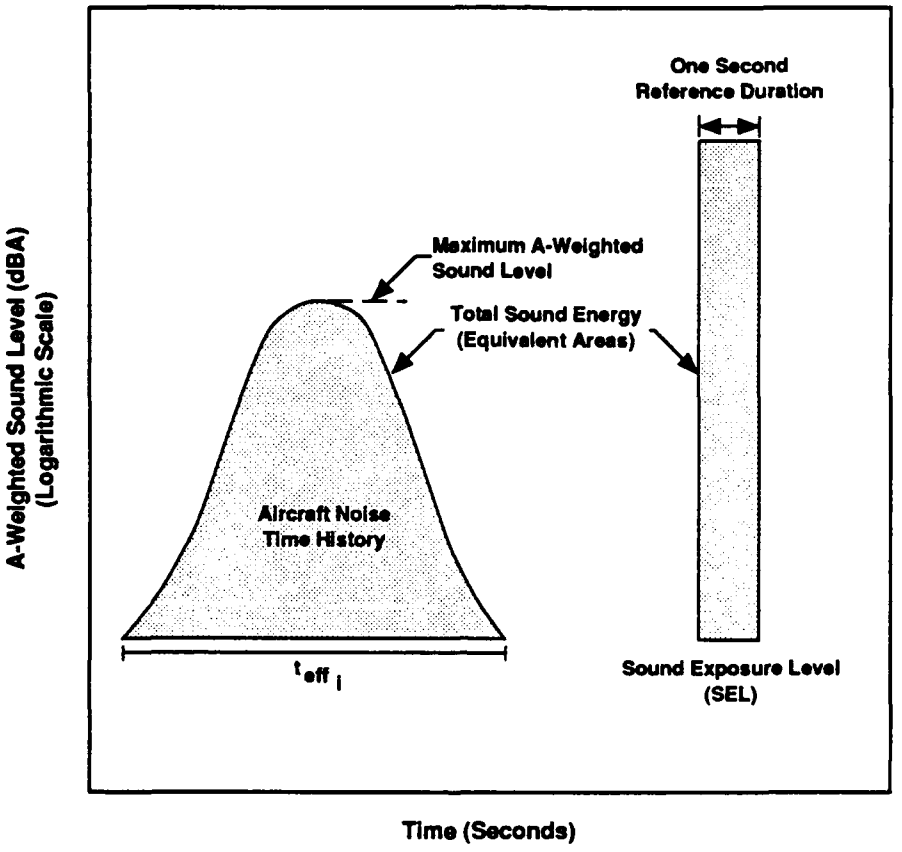
The FAA-approved Noise Exposure Model (NOISEMAP), Version 6.0, was used to predict aircraft noise levels. Since the early 1970s, the Department of Defense has been actively developing and refining the NOISEMAP program and its associated data base. The NOISEMAP computer program is a comprehensive set of computer routines for calculating noise contours from aircraft flight and ground runup operations, using aircraft unique noise data for both fixed and rotary-wing aircraft. The program requires specific input data, consisting of runway layout, aircraft types, number of operations, flight tracks, and noise performance data, to compute a grid of DNL values at uniform intervals. The grid is then processed by a contouring program which draws the contours at selected intervals.

3.2 SURFACE TRAFFIC

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Noise Model was used to predict surface traffic noise. The model uses traffic volumes, vehicular mix, traffic speed, traffic distribution and road way length to estimate traffic noise levels.

3.3 MINING OPERATIONS

Noise levels due to mining activity were estimated based on information from *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (EPA, 1971) and *Power Plant Construction Noise Guide* (BBN, 1977).



Sound Level Exposure (SEL)

Figure L-1

4. ASSESSMENT CRITERIA

Criteria for assessing the effects of noise include annoyance, speech interference, sleep disturbance, noise-induced hearing loss, possible non-auditory health effects, reaction by animals, and land use compatibility. These criteria are often developed using statistical methods. The validity of generalizing statistics devised from large populations are suspect when applied to small sample sizes as we have in the affected areas near Mather AFB. Caution should be employed when interpreting the results of the impact analysis.

4.1 ANNOYANCE DUE TO SUBSONIC AIRCRAFT NOISE

Noise-induced annoyance is an attitude, a covert mental process with both acoustic and non-acoustic determinants (Fidell et al., 1988). Noise-induced annoyance is not a behavior (such as a complaint, which may or may not be motivated by annoyance), nor is it a simple and immediate sensation like loudness, free of cognitive and emotional influences. Annoyance differs from loudness (the subjective magnitude of a sound) in several ways; most importantly, annoyance grows in direct proportion to the duration of exposure, whereas loudness is insensitive to signal duration beyond about a quarter of a second. Furthermore, while loudness is directly tied to ongoing exposure, the annoyance of multiple noise intrusions waxes and wanes over periods of weeks and months. Formal definitions of noise-induced annoyance tend to be either very broad or unhelpfully specific. Noise-induced annoyance is perhaps most often defined as a generalized adverse attitude toward noise exposure. Noise annoyance is affected by many factors including sleep and speech interference and task interruption.

"Community response" (a term often used to describe the annoyance of groups of people exposed to environmental noise sources in residential settings) also lacks precise meaning. In its common-sense meaning as the prevalence of individual annoyance within a geographic area, the term "community response" is something of a misnomer, since community-level processes are not at issue. Nonetheless, certain broad understandings of the term have been adopted for regulatory use.

The Federal Environmental Protection Agency (1973), for example, refers to "community response" as "what the community does about noise or sources." Such a definition of community response blurs the distinction between attitudes and behaviors. Since "what the community does" can range from nothing at all to complaints, protests, political debate, litigation, regulatory challenges, legislation, and even violent demonstration, this definition is unhelpfully broad.

Among the many non-acoustic factors that some researchers have suggested affect the prevalence of annoyance in communities are various attitudes toward noise sources and their operators (fear, malfeasance, distrust, etc.), socioeconomic levels of individuals, and economic dependence on operation of noise sources. The term response bias can be applied to all of these. The prevalence of annoyance in different communities may reflect differences in response bias as much as differences in exposure. Two communities in which 20 percent of the residents describe themselves as highly annoyed can have quite different noise exposures. For example, greater numbers of people in cohesive, stable and well-established communities, composed of homogeneous, older, wealthier, and well-educated populations, may describe themselves as annoyed by noise exposure than do people exposed to the same noise environments in the complementary sorts of communities.

In communities in which the prevalence of annoyance is affected primarily by noise, reductions in exposure can be expected to lead to reductions in prevalence of annoyance. In communities in which the prevalence of annoyance is controlled by non-acoustic factors such as odor, traffic congestion, etc., there may be little or no reduction in annoyance associated with reductions in exposure.

The intensity of community response to noise exposure may even in some cases be essentially independent of physical exposure. In the case of community response to actions such as airport siting or scheduling of supersonic transport aircraft, vigorous reaction has been encountered at the mere threat of exposure, or minor increases in exposure.

Although the prevalence of annoyance in a community cannot be measured without soliciting opinions from residents about covert mental states, this does not imply that measurement of annoyance cannot be accomplished in an objective manner. The standard method for determining the prevalence of annoyance in noise-exposed communities is by attitudinal survey. Surveys generally solicit self-reports of annoyance through one or more questions of the form "How bothered or annoyed have you been by the noise of (noise source) over the last (time period)?" Respondents are typically constrained in structured interviews to select one of a number of response alternatives, often named categories such as "Not At All Annoyed," "Slightly Annoyed," "Moderately Annoyed," "Very Annoyed," or "Extremely Annoyed." Other means are sometimes used to infer the prevalence of annoyance from survey data (for example, by interpretation of responses to activity interference questions or by construction of elaborate composite indices), with varying degrees of face validity and success.

Predictions of the prevalence of annoyance in a community can be made by extrapolation from an empirical dosage-effect relationship. Based on the results of a number of sound surveys, Schultz (1978) developed a relationship between percent highly annoyed and DNL:

$$\%\ \textit{Highly Annoyed} = 0.8553\ DNL - 0.0401\ DNL^2 + 0.00047\ DNL^3 \qquad (1)$$

Note that this relationship should not be evaluated outside the range of DNL = 45 to 90 dB. Figure J-5 presents this equation graphically. Less than 15 to 20 percent of the population would be predicted to be annoyed by DNL values less than 65 dBA while over 37 percent of the population would be predicted to be annoyed from DNL values greater than 75 dBA.

4.2 SPEECH INTERFERENCE AND RELATED EFFECTS DUE TO AIRCRAFT FLYOVER NOISE

One of the ways that noise affects daily life is by preventing or impairing speech communication. In a noisy environment, understanding of speech is diminished by masking of speech signals by intruding noises. Speakers generally raise their voices or move closer to listeners to compensate for masking noise in face-to-face communications, thereby increasing the level of speech at the listener's ear. As intruding noise levels rise higher and higher, speakers may cease talking altogether until conversation can be resumed at comfortable levels of vocal effort after noise intrusions end.

If the speech source is a radio or TV, the listener may increase the volume during a noise intrusion. If noise intrusions occur repeatedly, the listener may choose to set the volume at a high level such that the program material can be heard even during noise intrusions.

In addition to losing information contained in the masked speech material, the listener may lose concentration because of the interruptions and thus become annoyed. If the speech message is some type of warning, the consequences could be serious.

Current practice in quantification of the magnitude of speech interference and predicting speech intelligibility range from metrics based on A-weighted sound pressure levels of the intruding noise alone to more complex metrics requiring detailed spectral information about both speech and noise intrusions. There are other effects of the reduced intelligibility of speech caused by noise intrusions. For example, if the understanding of speech is interrupted, performance may be reduced, annoyance may increase,

and learning may be impaired. As the noise level of an environment increases, people automatically raise their voices. The effect does not take place, however, if the noise event were to rise to a high level very suddenly.

4.2.1 Speech Interference Effects From Time-Varying Noise

Most research on speech interference due to noise has studied the case of steady state noise. As a result, reviews and summaries of noise effects on speech communications concentrate on continuous or a least long duration noises (Miller, 1974). However, noise intrusions are not always continuous or long duration, but are frequently transient in nature. Transportation noise generates many such noise intrusions, consisting primarily of individual vehicle passbys, such as aircraft flyovers. Noise emitted by other vehicles (motorboats, snowmobiles, and off-highway vehicles) is also transient in nature.

It has been shown at least for aircraft flyover noise that accuracy of predictors of speech intelligibility are ranked in a similar fashion for both steady-state and time-varying or transient sounds (Williams et al., 1971; Kryter and Williams, 1966). Of course, if one measures the noise of a flyover by the maximum A-level then intelligibility associated with this level would be higher than for a steady noise of the same value, simply because the level is less than the maximum for much of the duration of the flyover.

4.2.2 Other Effects of Noise Which Relate to Speech Intelligibility

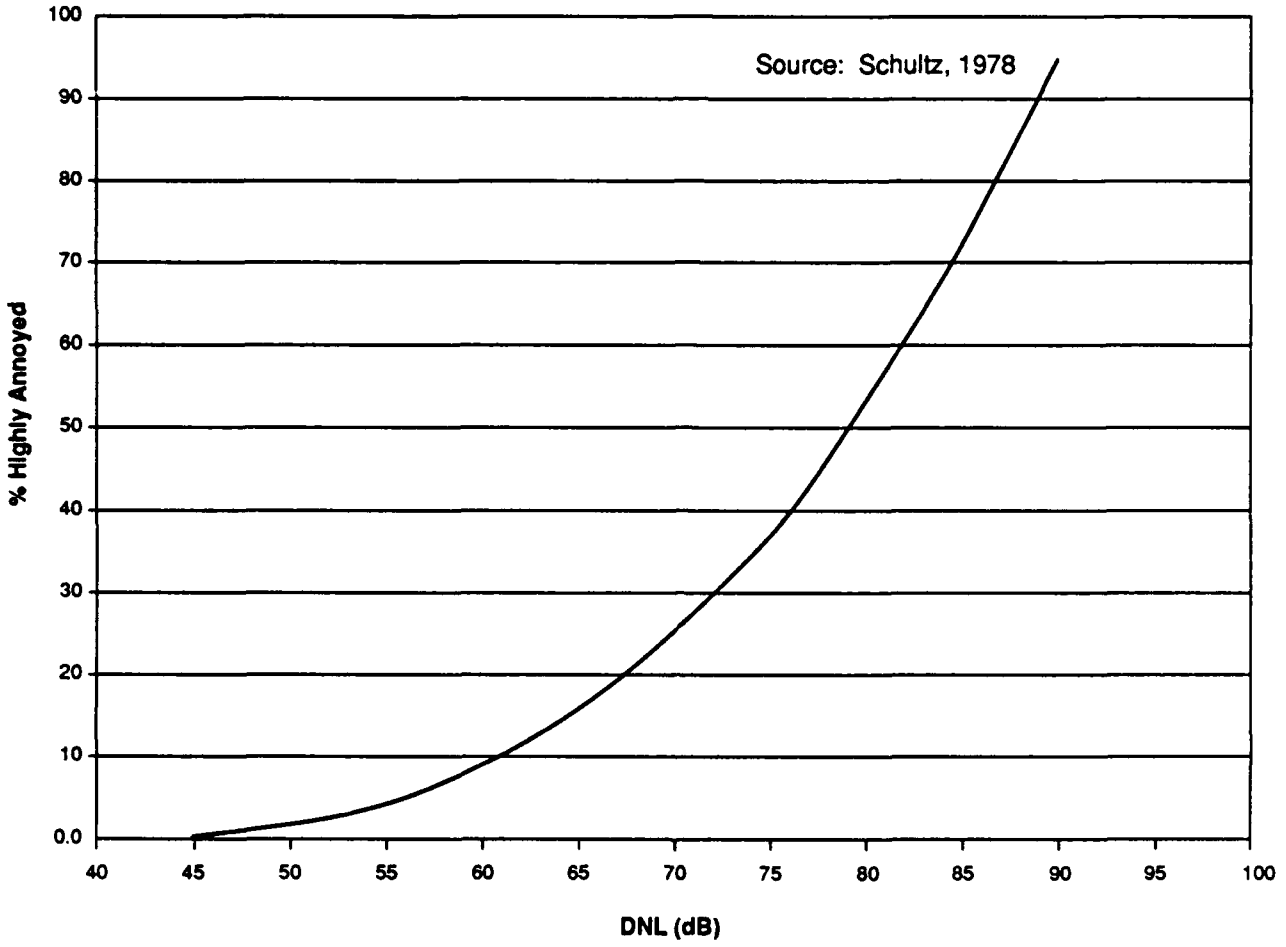
Aside from the direct effects of reduction in speech intelligibility, related effects may occur that tend to compound the loss of speech intelligibility itself.

Learning

One of the environments in which speech intelligibility plays a critical role is the classroom. In classrooms of schools exposed to aircraft flyover noise, speech becomes masked or the teacher stops talking altogether during an aircraft flyover (Crook and Langdon, 1974). Pauses begin to occur at flyover levels as low as 60 dBA. Masking of the speech of teachers who do not pause starts at about the same level.

At levels of 75 dB some masking occurs for 15 percent of the flyovers and increases to nearly 100 percent at 82 dB. Pauses occur for about 80 percent of the flyovers at this level. Since a marked increase in pauses and masking occurs at levels above 75 dB, this level is sometimes considered as one above which teaching is impaired due to disruption of speech communication. The effect that this may have on learning is unclear at this time. However, one study (Arnoult, 1986) could find no effect of noise on cognitive tasks from jet or helicopter noise over a range from 60 to 80 dB (A-level), even though intelligibility scores indicated a continuous decline starting at the 60 dB level. In a Japanese study (Ando et al., 1975) researchers failed to find differences in mental task performance among children from communities with different aircraft noise exposure.

Although there seems to be no proof that noise from aircraft flyovers affects learning, it is reported by Mills (1975) that children are not as able to understand speech in the presence of noise as are adults. It is hypothesized that part of the reason is due to the increased vocabulary which the adult can draw on as compared to the more limited vocabulary available to the young student. Also, when one is learning a language it is more critical that all words be heard rather than only enough to attain 95 percent sentence intelligibility, which may be sufficient for general conversations. It was mentioned above that when the maximum A-level for aircraft flyovers heard in a classroom exceeds 75 dB,



Community Noise Annoyance Curves

Figure L-2

masking of speech increases rapidly. However, it was also noted that pausing while flyovers occur and masking of speech for those teachers that continue to lecture during a flyover start at levelsaround 60 dB. This is comparable to measured speech levels in the rear of classrooms which suggests 95 percent sentence intelligibility during the maximum level of the flyover (Pearsons and Bennett, 1974).

Annoyance

Klatt et al. (1969) studied the annoyance of speech interference by asking people to judge the annoyance of aircraft noise in the presence and absence of speech material. The speech material was composed of passages from newspaper and magazine articles. In addition to rating aircraft noise on an acceptability scale (unacceptable, barely acceptable, acceptable, and of no concern), the subjects were required to answer questions about the speech material. The voice level was considered to represent a raised voice level (assumed to be 68 dB). In general, for the raised voice talker, the rating of barely acceptable was given to flyover noise levels of 73-76 dB. However, if the speech level was reduced, the rating of the aircraft tended more toward unacceptable. The results suggested that if the speech level were such that 95 percent or better sentence intelligibility was maintained then a barely acceptable rating or better acceptability rating could be expected. This result is in general agreement with the finding in schools that teachers pause or have their speech masked at levels above 75 dB (Crook and Langdon, 1974).

Hall et al. (1985) recently tried to relate various types of activity interference, related to speech and sleeping, to annoyance. The study found that there is a 50 percent chance that people's speech would be interfered with at a maximum A-level of 58 dB. This result appears to contradict the other results until one considers that the speech levels in the Klatt study and in the school environment of the Crook study are higher than the levels typically used in the home. Also, in a classroom situation the teacher raises his or her voice for awhile to an even higher level as the flyover noise increases in intensity.

4.2.3 Predicting Speech Intelligibility and Related Effects Due to Aircraft Flyover Noise

It appears, from the above discussions, that when aircraft flyover noises exceed approximately 60 dB, speech communication may be interfered with either by masking or by pausing on the part of the talker. Increasing the level of the flyover noise maximum to 80 dB would reduce the intelligibility to zero even if a loud voice is used for those who attempt to communicate.

The levels mentioned above refer to indoor levels. The same noises measured outdoors would be 15 to 25 dB higher than these indoor levels for summer (windows open) and winter months (windows closed), respectively. These estimates are taken from EPA reviews of available data (EPA, 1974).

Levels of the aircraft noise measured inside dwellings and schools near the ends of runways at airports would in many cases exceed the levels of 60 dB inside (75 dB outside) homes and schools. The high speed and low altitude of the aircraft involved are unlikely to produce noise intrusions at these levels for durations greater than a few seconds during each occurrence. During this time speech intelligibility would be close to zero. However, since the total duration is so short, it is anticipated that only a few syllables would be lost. People may be annoyed, but the annoyance would not be due to loss in speech communication, but rather due to startle or sleep disturbance.

4.3 SLEEP DISTURBANCE DUE TO NOISE

The effects of noise on sleep have long been a concern of parties interested in assuring suitable residential noise environments. Early studies noted background levels in people's bedrooms in which sleep was apparently undisturbed by noise. Various levels between 25 to 50 dB (A-weighted) were observed to be associated with an absence of sleep disturbance. The bulk of the research on noise

effects on which the current relationship is based was conducted in the 1970s. The tests were conducted in a laboratory environment in which awakening was measured either by a verbal response or by a button push, or by brain wave recordings (EEG) indicating stages of sleep (and awakening). Various types of noise were presented to the sleeping subjects throughout the night. These noises consisted primarily of transportation noises including those produced by aircraft, trucks, cars and trains. The aircraft noises included both flyover noises as well as sonic booms. Synthetic noises, including laboratory-generated sounds consisting of shaped noises and tones, were also studied.

Lukas (1975) and Goldstein and Lukas (1980) both reviewed data available in the 1970s on sleep-stage changes and waking effects of different levels of noise. Since no known health effects were associated with either waking or sleep-stage changes, either measure was potentially useful as a metric of sleep disturbance. However, since waking, unlike sleep-stage changes, is simple to quantify, it is often selected as the metric for estimating the effects of noise on sleep. These two reviews showed great variability in the percentage of people awakened by exposure to noise. The variability is not merely random error, but reflects individual differences in adaptation or habituation, and also interpretation of the meaning of the sounds. Such factors cannot be estimated from the purely acoustic measures in noise exposure. Another major review, by Griefahn and Muzet (1978), provided similar information for effects of noise on waking. However, Griefahn and Muzet's results suggested less waking for a given level of noise than predicted by Lukas.

A recent review (Pearsons et al., 1990) of the literature related to sleep disturbance demonstrated that the relationship, based exclusively on laboratory studies, predicts greater sleep disturbance than that likely to occur in a real-life situation in which some adaptation has occurred. The prediction relationships developed in this review should not be considered to yield precise estimates of sleep disturbance because of the great variability in the data sets from which they were developed. The relationships include only the duration and level components of "noise exposure." Increasing the precision of prediction would depend on quantification of some of the non-acoustic factors. Further, a recent review of field as well as laboratory studies suggests that habituation may reduce the effect of noise on sleep (Pearsons et al., 1990).

Noise must penetrate the home to disturb sleep. Interior noise levels are lower than exterior levels due to the attenuation of the sound energy by the structure. The amount of attenuation provided by the building is dependent on the type of construction and whether the windows are open or closed. The Environmental Protection Agency (1974) provides the approximate national average attenuation factors of 15 dB for open windows and 25 dB for closed windows.

In conclusion, the scientific literature does not provide a consensus on sleep disturbance. There is no recognized criterion or standard which provides guidance to assess sleep disturbance due to noise.

4.4 NOISE-INDUCED HEARING LOSS

Hearing loss is measured in decibels and refers to the permanent auditory threshold shift of an individuals hearing in a ear. Auditory threshold refers to the minimum acoustic signal that evokes an auditory sensation, i.e., the quietest sound a person can hear. When a threshold shift occurs a person's hearing is not as sensitive as before and the minimum sound that a person can hear must be louder. Threshold shift which naturally occurs with age is called presbycusis. Exposure to high levels of sound can cause temporary and permanent threshold shifts usually referred to as noise induced hearing loss. Permanent hearing loss is generally associated with destruction of the hair cells of the inner ear.

The Environmental Protection Agency (1974) and the Committee on Hearing, Bioacoustics, and Biomechanics (National Academy of Sciences, 1981) have addressed the risk of outdoor hearing loss.

They have concluded that hearing loss would not be expected for people living outside the noise contour of 75 DNL. Several studies of populations near existing airports in the U.S. and the U.K. have shown that the possibility for permanent hearing loss in communities near intense commercial take-off and landing patterns is remote. A FAA-funded study compared the hearing of the population near the Los Angeles International Airport to that of the population in a quiet area away from aircraft noise (Parnel et al., 1972). A similar study was performed in the vicinity of London Heathrow Airport (Ward et al., 1972). Both studies concluded that there was no significant difference between the hearing loss of the two populations, and no correlation between the hearing level with the length of time people lived in the airport neighborhood.

4.5 NON-AUDITORY HEALTH EFFECTS OF RESIDENTIAL AIRCRAFT NOISE

Based on summaries of previous research in the field (Thompson, 1981; Thompson and Fidell, 1989), predictions of non-auditory health effects of aircraft noise cannot be made. A valid predictive procedure requires: 1) evidence for causality between aircraft noise exposure and adverse non-auditory health consequences, and 2) knowledge of a quantitative relationship between amounts of noise exposure (dose) and specific health effects. Because results of studies of aircraft noise on health are equivocal, there is no sound scientific basis for making adequate risk assessments.

Alleged non-auditory health consequences of aircraft noise exposure which have been studied include birth defects, low birth weight, psychological illness, cancer, stroke, hypertension, sudden cardiac death, myocardial infarction and cardiac arrhythmias. Of these, hypertension is the most biologically plausible effect of noise exposure. Noise appears to cause many of the same biochemical and physiological reactions, including temporary elevation of blood pressure, as do many other environmental stressors. These temporary increases in blood pressure are believed to lead to a gradual resetting of the body's blood pressure control system. Over a period of years, permanent hypertension may develop (Peterson et al., 1984).

Studies of residential aircraft noise have produced contradictory results. Early investigations indicated that hypertension was from 2 to 4 times higher in areas near airports than in areas located away from airports (Karagodina et al., 1969). Although Meecham and Shaw (1988) continue to report excessive cardiovascular mortality among individuals 75 years or older living near the Los Angeles Airport, their findings cannot be replicated (Frerichs et al., 1980). In fact, noise exposure increased over the years while there was a decline in all cause, age-adjusted death rates and inconsistent changes in age-adjusted cardiovascular, hypertension and cerebrovascular disease rates.

Studies which have controlled for multiple factors have shown no, or a very weak, association between noise exposure and non-auditory health effects. This observation holds for studies of occupational and traffic noise as well as for aircraft noise exposure. In contrast to the early reports of 2- to 6-fold increases in hypertension due to high industrial noise (Thompson et al., 1989), the more rigorously controlled studies of Talbott et al. (1985) and van Dijk et al. (1987) show no association between hypertension and prolonged exposure to high levels of occupational noise.

Studies of occupational noise exposure effects have consistently shown that the effect of noise, if any, is so modest that it is difficult to demonstrate in epidemiologic studies. The reported mean differences in blood pressure between high and low noise exposed groups range from 0 to 10 millimeters of mercury (mm Hg).

In the aggregate, studies indicate no association between street traffic noise and blood pressure or other cardiovascular changes. Two large prospective collaborative studies of heart disease are of particular interest. To date, cross-sectional data from these cohorts offer contradictory results. Data from one cohort show a slight increase in mean systolic blood pressure (2.4 mm Hg) in the noisiest

compared to the quietest area, while data from the second cohort show the lowest mean systolic blood pressure and highest high density lipoprotein (HDL) cholesterol (lipoprotein protective of heart disease) for men in the noisiest area (Babisch and Gallacher, 1990). These effects of traffic noise on blood pressure and blood lipids were more pronounced in men who were also exposed to high levels of noise at work.

It is clear from the foregoing that the current state of technical knowledge cannot support inference of a causal or consistent relationship, nor a quantitative dose-response, between residential aircraft noise exposure and health consequences. Thus, no technical means are available for predicting extra-auditory health effects of noise exposure. This conclusion cannot be construed as evidence of no effect of residential aircraft noise exposure on non-auditory health. Current findings, taken in sum, indicate only that further rigorous studies are needed.

4.6 DOMESTIC ANIMALS AND WILDLIFE

A recent study was published on the effects of aircraft noise on domestic animals which provided a review of the literature and a review of 209 claims pertinent to aircraft noise over a period spanning 32 years (Bowles et al., 1990). Studies since the late 1950s were motivated both by public concerns about what was at that time a relatively novel technology, supersonic flight, and by claims leveled against the U. S. Air Force for damage done to farm animals by very low-level subsonic overflights. Since that time over 40 studies of aircraft noise and sonic booms, both in the U.S. and overseas, have addressed acute effects, including effects of startle responses (sheep, horses, cattle, fowl), and effects on reproduction and growth (sheep, cattle, fowl, swine), parental behaviors (fowl, mink), milk letdown (dairy cattle, dairy goats, swine), and egg production.

The literature on the effects of noise on domestic animals is not large, and most of the studies have focused on the relation between dosages of continuous noise and effects. Chronic noises are not a good model for aircraft noise, which lasts only a few seconds, but which is often very startling. The review of claims suggest that a major source of loss was panics induced in naive animals.

Aircraft noise may have effects because it might trigger a startle response, a sequence of physiological and behavioral events that once helped animals avoid predators. There are good dose-response relations describing the tendency to startle to various levels of noise, and the effect of habituation on the startle response.

The link between startles and serious effects, i.e., effects on productivity, is less certain. Here, we will define an effect as any change in a domestic animal that alters its economic value, including changes in body weight or weight gain, numbers of young produced, weight of young produced, fertility, milk production, general health, longevity, or tractability. At this point, changes in productivity are usually considered an adequate indirect measure of changes in well-being, at least until objective legal guidelines are provided.

Recent focus on the effects on production runs counter to a trend in the literature towards measuring the relation between noise and physiological effects, such as changes in corticosteroid levels, and in measures of immune system function. As a result, it is difficult to determine the relation between dosages of noise and serious effects using only physiological measures. The experimental literature is inadequate to document long-term or subtle effects resulting from exposure to aircraft noise.

4.7 LAND USE COMPATIBILITY GUIDELINES

Widespread concern about the noise impacts of aircraft noise essentially began with the decade beginning in 1950 which saw the major introduction of high power jet aircraft into military service.

The concern about noise impacts in the communities around airbases, and also within the airbases themselves, led the Air Force to conduct major investigations into the noise properties of jets, methods of noise control for test operations, and the effects of noise from aircraft operations in communities surrounding airbases. These studies established an operational framework of investigation and identified the basic parameters affecting community response to noise. These studies also resulted in the first detailed procedures for estimating community response to aircraft noise (Stevens and Pietrasanta, 1957).

Although most attention was given to establishing methods of estimating residential community response to noise (and establishing the conditions of noise "acceptability" for residential use), community development involves a variety of land uses with varying sensitivity to noise. Thus, land planning with respect to noise requires the establishment of noise criteria for different land uses. This need was met with the initial development of aircraft noise compatibility guidelines for varied land uses in the mid-1960s (Bishop, 1964).

In residential areas, noise intrusions generate feelings of annoyance on the part of individuals. Increasing degrees of annoyance lead to the increasing potential for complaints and community actions (most typically, threats of legal actions, drafting of noise ordinances, etc.). Annoyance is based largely upon noise interference with speech communication, listening to radio and TV, and sleep. Annoyance in the home may also be based upon dislike of "outside" intrusions of noise even though no specific task is interrupted.

Residential land use guidelines have developed from consideration of two related factors:

- Accumulated case history experience of noise complaints and community actions near civil and military airports

- Relationships between environmental noise levels and degrees of annoyance (largely derived from social surveys in a number of communities).

In the establishment of land use guidelines for other land uses, the prime consideration is task interference. For many land uses, this translates into the degree of speech interference, after taking into consideration the importance of speech communication and the presence of non-aircraft noise sources related directly to the specific land use considered. For some noise-sensitive land uses where any detectable noise signals which rise above the ambient noise are unwanted (such as music halls), detectability may be the criterion rather than speech interference.

A final factor to be considered in all land uses involving indoor activities is the degree of noise insulation provided by the building structures. The land use guideline limits for unrestricted development within a specific land use assume noise insulation properties provided by typical commercial building construction. The detailed land use guidelines may also define a range of higher noise exposure where construction or development can be undertaken, provided a specified amount of noise insulation is included in the buildings. Special noise studies, undertaken by architectural or engineering specialists, may be needed to define the special noise insulation requirements for construction in these guideline ranges.

Estimates of total noise exposure resulting from aircraft operations, as expressed in DNL values, can be interpreted in terms of the probable effect on land uses. Suggested compatibility guidelines for evaluating land uses in aircraft noise exposure areas were originally developed by the FAA as presented in Section 3.4.4, Noise. Part 150 of the FAA regulations prescribe the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs. It prescribes the use of yearly DNL in the evaluation of airport

noise environments. It also identifies those land use types which are normally compatible with various levels of noise exposure. Compatible or incompatible land use is determined by comparing the predicted or measured DNL level at a site with the values given in the table. The guidelines reflect the statistical variability of the responses of large groups of people to noise. Therefore, any particular level might not accurately assess an individual's perception of an actual noise environment.

While the FAA guidelines specifically apply to aircraft noise, it should be noted that DNL is also used to describe the noise environment due to other community noise sources, including motor vehicles and railroads. The use of DNL is endorsed by the scientific community to assess land use compatibility as it pertains to noise (ANSI, 1980). Hence, the land use guidelines presented by the FAA can also be used to assess the noise impact from community noise sources other than aircraft.

4.7.1 The Sacramento County Noise Element

The Sacramento County Noise Element (Sacramento County, 1975) recommends that the land use compatibility guidelines given in Section 4.4.4, Noise, be used to help evaluate noise impacts of proposed projects on the surroundings. In general, these land use compatibility guidelines are 5 to 10 dB more restrictive than those adopted by the FAA in 1985.

4.7.2 Zoning Code of Sacramento County

The Zoning Code of Sacramento County, Chapter 35, Article 4, Section 235-60, places limits on the noise produced by mining activities. The code states:

> The sound level along the property line of the authorized mining area shall not exceed 70 dBA except along a boundary contiguous to another area authorized to mine for sand or aggregates. A violation of the noise standard will occur if the noise level at the property line exceeds:
>
> (a) The noise limit for a cumulative period of more than thirty minutes in any hour, or:
>
> (b) The noise limit plus 5 dBA for a cumulative period of more than one minute in any hour, or the noise limit plus 20 dBA for any period of time.

REFERENCES

American National Standards Institute, 1980. Sound Level Descriptors for Determination of Compatible Land Use, ANSI S3.23-1980.

Ando, Y., Y. Nakane, and J. Egawa, 1975. Effects of Aircraft Noise on the Mental Work of Pupils, Journal of Sound and Vibration, 43(4), 683-691.

ANSI, see American National Standards Institute.

Anton-Guirgis, H., B. Culver, S. Wang, and T. Taylor, 1986. Exploratory Study of the Potential Effects of Exposure to Sonic Boom on Human Health, Vol 2: Epidemiological Study, Report No. AAMRL-TR-86-020.

Arnoult, M., L. Gillfillan, and J. Voorhees, 1986. Annoyingness of Aircraft Noise in Relation to Cognitive Activity, Perceptual and Motor Skills, 63, 599-616.

Babisch, W. and J. Gallacher, 1990. Traffic Noise, Blood Pressure and Other Risk Factors - The Caerphilly and Speedwell Collaborative Heart Disease Studies, in B. Berglund, U. Berglund, J. Karlsson and T. Linvall (eds.), Noise '88: New Advances in Noise Research, pp. 315-326, Stockholm, Sweden: Swedish Council for Building Research.

BBN, see Bolt, Beranek and Newman

Bishop, D., 1964. Development of Aircraft Noise Compatibility for Varied Land Uses, FAA SRDS Report RD-64-148, II.

Bolt, Beranek, and Newman Inc., 1977. Power Plant Construction Noise Guide Report No. 3321, May.

Bowles, A., P. Yochem, and F. Awbrey, 1990. The Effects of Aircraft Overflights and Sonic Booms on Domestic Animals, NSBIT Technical Operating Report No. 13, BBN Laboratories Inc.

Brown, J., R. Thompson, and E. Folk, 1975. Certain Non-Auditory Physiological Responses to Noises, Journal of the American Industrial Hygiene Association, 36, 285-291.

Cohen, S., G. Evans, D. Krantz, and D. Stokols, 1980. Psychological, Motivational, and Cognitive Effects of Aircraft Noise on Children: Moving from the Laboratory to the Field, American Psychology, 35, 231-243.

Crook, M. and F. Langdon, 1974. The Effects of Aircraft Noise on Schools Around London Airport, Journal of Sound and Vibration, 34(2), 221-232.

Department of Transportation, 1980. Guidelines for Considering Noise in Land Use Planning and Control. Federal Interagency Committee on Urban Noise. June.

Departments of the Air Force, the Army, and the Navy, 1978. Environmental Protection. Planning in the Noise Environment, AFM 19-10, TM 5-803-2, NAVPAC P-970, June.

EPA, see, U.S. Environmental Protection Agency.

Federal Aviation Administration, 1982. Integrated Noise Model, Version 3.9 User's Guide, Report No. FAA-EE-81-17.

Federal Highway Administration, 1978. FHWA Highway Traffic Noise Prediction Model, Report No. FHWA-RD-77-118.

FHWA, see Federal Highway Administration.

Fidell, S., T. Schultz and D. Green, 1988. A Theoretical Interpretation of the Prevalence Rate of Noise-induced Annoyance in Residential Populations, Journal of the Acoustical Society of America, 84(6).

Frerichs, R., B. Beeman and A. Coulson, 1980. Los Angeles Airport Noise and Mortality - Faulty Analysis and Public Policy, American Journal of Public Health, 70, 357-362.

Goldstein, J. and J. Lukas, 1980. Noise and Sleep: Information Needs for Noise Control, Proceedings of the Third International Congress on Noise as a Public Health Problem, ASHA Report No. 10, 442-448.

Griefahn, B. and A. Muzet, 1978. Noise-induced Sleep Disturbances and Their Effect on Health, Journal of Sound and Vibration, 59(1), 99-106.

Hall, F., S. Taylor, and S. Birnie, 1985. Activity Interference and Noise Annoyance, Journal of Sound and Vibration, 103(2).

Hatano, M., 1982. Noise Impact of Rail Passenger Service, Internoise '82 Proceedings, pp. 201-224.

Ising, H. and R. Michalak, 1990. Effects of Noise From Military Low-level Flights on Humans, in B. Berglund, U. Berglund, J. Karlsson and T. Linvall (eds.), Noise '88: New advances in noise research, pp. 305-314, Stockholm, Sweden: Swedish Council for Building Research.

Karagodina, I., S. Soldatkina, I. Vinokur, and A. Klimukhin, 1969. Effect of Aircraft Noise on the Population Near Airports, Hygiene and Sanitation, 34, 182-187.

Kent, S., H. Von Gierke, and G. Tolan, 1986. Analysis of the Potential Association Between Noise-induced Hearing Loss and Cardiovascular Disease in USAF Aircrew Members, Aviation, Space, and Environmental Medicine, 57(4), pp. 348-361.

Klatt, M., K. Stevens, and C. Williams, 1969. Judgments of the Acceptability of Aircraft Noise in the Presence of Speech, Journal of Sound and Vibration, 9(2), 263-275.

Knipschild, P., 1977. Medical Effects of Aircraft Noise: Community Cardiovascular Survey; General Practice Survey, International Archives of Occupational and Environmental Health, 40, 185-196.

Knipschild, P. and N. Oudshoorn, 1977. Medical Effects of Aircraft Noise: Drug Survey, International Archives of Occupational and Environmental Health, 40, 197-200.

Kryter, K. and C. Williams, 1966. Masking of Speech by Aircraft Noise, Journal of the Acoustical Society of America, 39, 138-150.

Lee, Robert A., and Mohlman, Henry T. (1990). Air Force Procedure for Predicting Noise Around Airbases: Airbase Operations Program (BASEOPS) Description. Report AAMRL-TR-90-012.

Lukas, J., 1975. Noise and Sleep: A Literature Review and a Proposed Criterion for Assessing Effect, Journal of the Acoustical Society of America, 58(6).

Meecham, W. and N. Shaw, 1988. Increase in Disease Mortality Rates Due to Aircraft Noise, Proceedings of the International Congress of Noise as a Public Health Problem, Stockholm, Sweden: Swedish Council for Building Research, August 21-25.

Miller, J., 1974. Effects of Noise on People, Journal of the Acoustical Society of America, 56(3), 729-764.

Mills, J., 1975. Noise and Children: A Review of Literature, Journal of the Acoustical Society of America, 58(4), 767-779.

Moulton, Carey L., 1990. Air Force Procedure for Predicting Aircraft Noise Around Airbases: Noise Exposure Model (NOISEMAP) User's Manual. Report AAMRL-TR-90-011. February.

NAS, See National Academy Sciences.

National Academy of Sciences, 1981. The Effects on Human Health from Long-term Exposure to Noise, Report of Working Group 81, Committee on Hearing, Bioacoustics and Biomechanics, The National Research Council, Washington, DC.

Parnel, Nagel, and Cohen, 1972. Evaluation of Hearing Levels of Residents Living Near a Major Airport, Report FAA-RD-72-72.

Pearsons, K. and R. Bennett, 1974. Handbook of Noise Ratings, Report No. NASA CR-2376, Washington, DC, National Aeronautics and Space Administration.

Pearsons, K., D. Barber, and B. Tabachnick, 1990. Analyses of the Predictability of Noise-induced Sleep Disturbance, Report No. HSD-TR-89-029, Canoga Park, CA: BBN Systems and Technologies Corporation.

Peterson, E., J. Augenstein, and C. Hazelton, 1984. Some cardiovascular effects of noise, Journal of Auditory Research, 24, 35-62.

Sacramento County, 1975. General Plan Noise Element, September 17.

Saurenman, H., J. Nelsen, and G. Wilson, 1982. Handbook of Urban Rail Noise and Vibration Control, U.S. Department of Transportation.

Schultz, T., 1978. Synthesis of social surveys on noise annoyance, Journal of the Acoustical Society of America, 64(2), 377-405.

Stevens, K. and A. Pietrasanta, 1957. Procedures for Estimating Noise Exposure and Resulting Community Reactions from Air Base Operations, WADC TN-57-10, Wright-Patterson Air Force Base, Ohio, Wright Air Development Center.

Swing, J. and D. Pies, 1973. Assessment of Noise Environments Around Railroad Operation, The Association of American Railroads.

Talbott, E., J. Helmkamp, K. Matthews, L. Kuller, C. Cottington, and G. Redmond, 1985. Occupational Noise Exposure, Noise-induced Hearing Loss, and the Epidemiology of High Blood Pressure, American Journal of Epidemiology, 121, 501-515.

Thompson, S., 1981. Epidemiology Feasibility Study: Effects of Noise on the Cardiovascular System, Report No. EPA 550/9-81-103.

Thompson, S., and S. Fidell, 1989. Feasibility of Epidemiologic Research on Nonauditory Health Effects of Residential Aircraft Noise Exposure, BBN Report No. 6738, Canoga Park, CA: BBN Systems and Technologies.

U.S. Air Force, 1990. U.S. Air Force Airbase Operations Program (BASEOPS)

U.S. Environmental Protection Agency, 1971. Noise From Construction Equipment and Operations, Building Equipment, and Home Appliances (EPA Publication No. NTID300.1), Washington D.C., December.

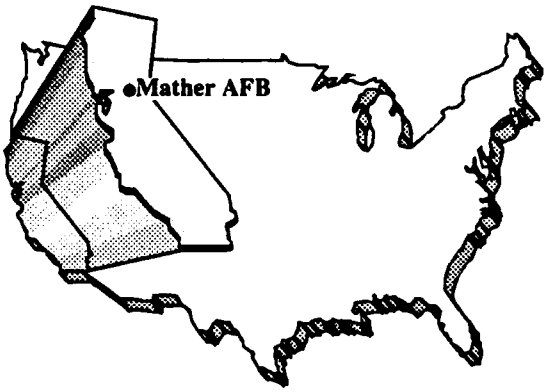
U.S. Environmental Protection Agency, 1973. Public Health and Welfare Criteria for Noise, Report No. NCD 73.1, Washington, D.C., July.

U.S. Environmental Protection Agency, 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, (EPA Publication No. 550/9-74-004), Washington, DC.

Van Dijk, F., A. Souman, and F. de Fries, 1987. Nonauditory Effects of Noise in Industry, Vol. I: A Final Field Study in Industry, International Archives of Occupational and Environmental Health, 59, 133-145.

Ward, Cushing, and Burns, 1972. TTS from Neighborhood Aircraft Noise, Journal of the Acoustical Society of America, 55(1).

Williams, C., K. Pearsons, and M. Hecker, 1971. Speech Intelligibility in the Presence of Time-varying Aircraft Noise, Journal of the Acoustical Society of America, 56(3).



APPENDIX M

APPENDIX M

AGENCY LETTERS AND CERTIFICATIONS

United States Department of the Interior



FISH AND WILDLIFE SERVICE
Fish and Wildlife Enhancement
Sacramento Field Office
2800 Cottage Way, Room E-1803
Sacramento, California 95825-1846

In Reply Refer To:
1-1-91-SP-522

May 27, 1991

Lt Col Thomas J. Bartol, USAF
Director, Environmental Division
Department of the Air Force
Norton Air Force Base, California 92409-6448

Subject: Species List for the Proposed Reuse of Mather Air Force Base for Non-military Aviation Facilities and Non-aviation Uses Such as Housing, Industrial or Commercial Facilities and Aggregate Mining, Sacramento County, California

Dear Col. Bartol:

As requested by letter from your agency dated April 30, 1991, you will find attached a list of the listed endangered and threatened species that may be present in the subject project area. (See Attachment A.) To the best of our knowledge, no proposed species occur within the area. This list fulfills the requirement of the Fish and Wildlife Service to provide a species list pursuant to Section 7(c) of the Endangered Species Act, as amended.

Some pertinent information concerning the distribution, life history, habitat requirements, and published references for the listed species is also attached. This information may be helpful in preparing the biological assessment for this project, if one is required. Please see Attachment B for a discussion of the responsibilities Federal agencies have under Section 7(c) of the Act and the conditions under which a biological assessment must be prepared by the lead Federal agency or its designated non-Federal representative.

Formal consultation, pursuant to 50 CFR § 402.14, should be initiated if you determine that a listed species may be affected by the proposed project. Informal consultation may be utilized prior to a written request for formal consultation to exchange information and resolve conflicts with respect to a listed species. If a biological assessment is required, and it is not initiated within 90 days of your receipt of this letter, you should informally verify the accuracy of this list with our office.

Also, for your consideration, we have included a list of the candidate species that may be present in the project area. (See Attachment A.) These species are currently being reviewed by our Service and are under consideration for possible listing as endangered or threatened. Candidate species have no protection under the Endangered Species Act, but are included for your consideration as it is possible that one or more of these candidates could be proposed and listed before the subject project is completed. Should the

biological assessment reveal that candidate species may be adversely affected, you may wish to contact our office for technical assistance. One of the potential benefits from such technical assistance is that by exploring alternatives early in the planning process, it may be possible to avoid conflicts that could otherwise develop, should a candidate species become listed before the project is completed.

Please contact Peggie Kohl at 916/978-4866 (FTS 460-4866) if you have any questions regarding the attached list or your responsibilities under the Endangered Species Act.

Sincerely,

Wayne S. White
Field Supervisor

Attachments

ATTACHMENT A

LISTED AND PROPOSED ENDANGERED AND THREATENED SPECIES AND CANDIDATE SPECIES THAT MAY OCCUR IN THE AREA OF THE PROPOSED REUSE OF MATHER AIR FORCE BASE FOR NON-MILITARY AVIATION FACILITIES AND NON-AVIATION USES SUCH AS HOUSING, INDUSTRIAL OR COMMERCIAL FACILITIES AND AGGREGATE MINING, SACRAMENTO, CALIFORNIA
(1-1-91-SP-522, MAY 27, 1991)

Listed Species

Invertebrates
valley elderberry longhorn beetle, *Desmocerus californicus dimorphus* (T)

Candidate Species

Fish
Sacramento splittail, *Pogonichthys macrolepidotus* (2)

Amphibian
California tiger salamander, *Ambystoma tigrinum californiense* (2)
Western spadefoot toad, *Scaphiopus hammondi* (2R)

Reptiles
giant garter snake, *Thamnophis gigas* (1R)

Birds
tricolored blackbird, *Agelaius tricolor* (2)

Invertebrates
vernal pool fairy shrimp, *Branchinecta lynchi* (1R)
Conservancy fairy shrimp, *Branchinecta conservatio* (1R)
California linderiella, *Linderiella occidentalis* (1R)
vernal pool tadpole shrimp, *Lepidurus packardi* (2R)

Plants
Boggs Lake hedge-hyssop, *Gratiola heterosepala* (2)
legenere, *Legenere limosa* (2)
Sacramento orcutt grass, *Orcuttia viscida* (1)

(E)--Endangered (T)--Threatened (CH)--Critical Habitat
(1)--Category 1: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.
(2)--Category 2: Taxa for which existing information indicated may warrant listing, but for which substantial biological information to support a proposed rule is lacking.
(1R)-Recommended for Category 1.
(2R)-Recommended for Category 2.
(*)--Possibly extinct.

ATTACHMENT B

FEDERAL AGENCIES' RESPONSIBILITIES UNDER
SECTIONS 7(a) and (c) OF THE ENDANGERED SPECIES ACT

SECTION 7(a) Consultation/Conference

Requires: 1) Federal agencies to utilize their authorities to carry out programs to conserve endangered and threatened species; 2) Consultation with FWS when a Federal action may affect a listed endangered or threatened species to insure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the Federal agency after determining the action may affect a listed species; and 3) Conference with FWS when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or adverse modification of proposed critical habitat.

SECTION 7(c) Biological Assessment--Major Construction Activity[1]

Requires Federal agencies or their designees to prepare a Biological Assessment (BA) for major construction activities. The BA analyzes the effects of the action[2] on listed and proposed species. The process begins with a Federal agency requesting from FWS a list of proposed and listed threatened and endangered species. The BA should be completed within 180 days after its initiation (or within such a time period as is mutually agreeable). If the BA is not initiated within 90 days of receipt of the list, the accuracy of the species list should be informally verified with our Service. No irreversible commitment of resources is to be made during the BA process which would foreclose reasonable and prudent alternatives to protect endangered species. Planning, design, and administrative actions may proceed; however, no construction may begin.

We recommend the following for inclusion in the BA: an on-site inspection of the area affected by the proposal which may include a detailed survey of the area to determine if the species or suitable habitat are present; a review of literature and scientific data to determine species' distribution, habitat needs, and other biological requirements; interviews with experts, including those within FWS, State conservation departments, universities and others who may have data not yet published in scientific literature; an analysis of the effects of the proposal on the species in terms of individuals and populations, including consideration of indirect effects of the proposal on the species and its habitat; an analysis of alternative actions considered. The BA should document the results, including a discussion of study methods used, any problems encountered, and other relevant information. The BA should conclude whether or not a listed or proposed species will be affected. Upon completion, the BA should be forwarded to our office.

---

[1] A construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment as referred to in NEPA (42 U.S.C. 4332(2)C).

[2] "Effects of the action" refers to the direct and indirect effects on an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action.

VALLEY ELDERBERRY LONGHORN BEETLE

(*Desmocerus californicus dimorphus*)

CLASSIFICATION: Threatened - Federal Register 45:FR52803 August 8, 1980.

CRITICAL HABITAT: Federal Register 17.95(c), May 7, 1980.

California. Sacramento County.

(1) Sacramento Zone. An area in the city of Sacramento enclosed on the north by the Route 160 Freeway, on the west and southwest by the Western Pacific railroad tracks, and on the east by Commerce Circle and its extension southward to the railroad tracks.

(2) American River Parkway Zone. An area of the American River Parkway on the south bank of the American River, bounded on the north by latitude 38 37'30" N, and on the South and east by Ambassador Drive and its extension north to latitude 38 37'30" N, Goethe Park, and that portion of the American River Parkway northeast of Goethe Park, west of the Jedediah Smith Memorial Bicycle Trail, and north to a line extended eastward from Palm Drive.

(3) Putah Creek Zone. California. Solano County. R 2 W T. 8 N. Solano County portion of Section 26.

DESCRIPTION:

Horn described the valley elderberry longhorn beetle in 1881 and it was redescribed in 1921 by Fisher. Morphological description: In general, longhorn beetles are characterized by somewhat elongate and cylindrical bodies with long antennae, often in excess of 2/3 of the body length. In contrast, males of VELB are stout-bodied and their elytra (thickened, hardened forewings) are coarsely punctured, with a metallic-green pattern of 4 oblong maculations, surrounded by a bright red- orange border. The border eventually fades to yellow on museum specimens. The maculations are fused on some males, more closely resembling the nominate subspecies. Antennae are about as long as the body or slightly shorter. Body length is about 13-21 mm.

Females are more robust, elytra are subparallel, and the dark pattern is not reduced. Antennae reach to about the middle of the elytra and body length is about 18-25 mm. Both sexes of VELB are readily identified due to their distinctive appearance. As noted earlier, males with fused maculations resemble the nominate subspecies, *Desmocerus californicus dimorphus*, Fisher, 1921.

DISTRIBUTION:

VELB is endemic to moist valley oak woodlands along the margins of rivers and streams in the lower Sacramento and upper San Joaquin Valley of California, where elderberry (*Sambucus* spp.), its foodplant, grows. During the past 150 years over 90

percent of the riparian habitat in California has been destroyed by agricultural and urban development. Although the entire historical distribution of VELB is unknown, the extensive destruction or riparian forests of the Central Valley of California strongly suggests that the beetle's range may have shrunk and become greatly fragmented.

Due to the limited knowledge about the VELB's life history, and its ecological requirements, precise threats to its survival are difficult to enumerate. Clearly the primary threat to survival of the VELB has been and continues to be loss and alteration of habitat by agricultural conversion, grazing, levee construction, stream and river channelization, removal of riparian vegetation, rip-rapping of shoreline, plus recreational, industrial and urban development. Insecticide and herbicide use in agricultural areas may be factors limiting the beetle's distribution. The age and quality of individual elderberry shrubs/trees and stands as a foodplant for VELB may also be a factor in the beetle's limited distribution.

There is little information on former abundance of VELB for comparison with current population levels. A. T. McClay collected 51 adults during May 1947. Dr. John A. Chemsak, a cerambycid specialist from the University of California, Berkeley, believes that VELB has probably always been rather rare and of limited abundance.

SPECIAL CONSIDERATION:

The riparian habitat of the beetle is still being degraded by urban development and levee repair work along the rivers. There has been some successful elderberry transplantings in specific areas along the rivers. This has increased the viable habitat for the beetle.

Special recovery efforts needed: Protect the only known VELB colonies; conduct further research on life history and habitat requirements of VELB; survey areas in Central Valley of California to locate additional colonies; formulate management plans as appropriate information on VELB's biology becomes available; establish VELB at rehabilitated habitat sites within present-day range; monitor VELB colonies to determine population status and success of management actions as implemented; increase public awareness of VELB through educational and information programs. Studies on the physiological requirements of the beetle and of the elderberry plants are needed.

REFERENCES FOR ADDITIONAL INFORMATION:

Arnold, R. A. 1984. Interim report for contract C-816 with the California Department of Fish and Game. 14 pp.

Burke, H.E. 1921. Biological notes on *Desmocerus*, a genus of roundhead borers, the species of which infests various elders. J. Econ. Ent. 14:450-452.

Craighead, F.C. 1923. North American cerambycid larvae. A clarification and the biology of North American cerambycid larvae. Can. Dept. Ag., Ottawa. Bull. 27. 239 pp.

STATE OF CALIFORNIA — THE RESOURCES AGENCY
PETE WILSON, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO 94296-0001
(916) 445-8006
FAX: (916) 322-6377

July 2, 1991

USAF890420A

Thomas J. Bartol, Lt. Col., USAF
Regional Civil Engineer
Ballistic Missile Support (AFESC)
Norton Air Force Base, CA 92409-6448

Re: Mather Air Force Base

Dear Col. Bartol:

Thank you for requesting our concurrence in your finding of no effect for the disposal of Mather Air Force Base in Sacramento.

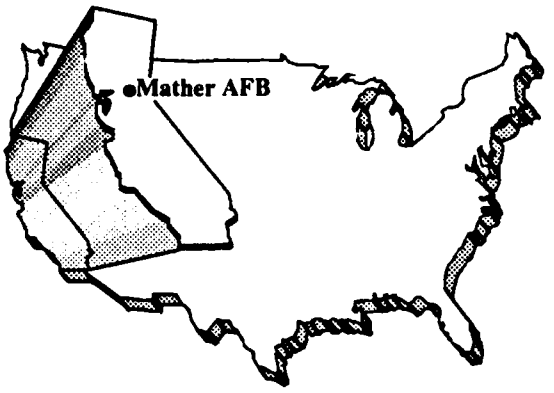
As we had previously agreed with your determination that the closure of Mather did not involve any historic properties, it is not necessary to consult further regarding the subsequent disposal action. You have already fully satisfied the requirements for consultation under Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR Part 800.

Thank you for your concern for historic properties. If you have any questions, please call staff historian Dorene Clement at (916) 322-9600.

Sincerely,

Kathryn Gualtieri
State Historic Preservation Officer

THIS PAGE INTENTIONALLY LEFT BLANK



APPENDIX N

APPENDIX N

THREATENED, ENDANGERED, AND OTHER SPECIES OF CONCERN

OCCURRING ON OR NEAR MATHER AFB

APPENDIX N
THREATENED, ENDANGERED, AND OTHER SPECIES OF CONCERN OCCURRING ON OR NEAR MATHER AFB

Table N-1 summarizes information on listed and candidate species, and additional information for many of these species is presented herein:

VALLEY ELDERBERRY LONGHORN BEETLE. The valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) has been listed as threatened by the federal government. The beetle is dependent upon the region's dwindling elderberry groves, as its larvae bore into elderberry stems and roots and adults feed on the foliage and berries. This habitat is found along rivers and streams in the lower Sacramento and upper San Joaquin Valleys. Critical habitat has been designated along the southern bank of the American river about 1.5 miles north of Mather AFB. Most observations in the vicinity of Mather AFB have been along the American River. Since no elderberry trees have been found at Mather, the beetle is not expected to occur on base.

GIANT GARTER SNAKE. A subspecies of the western aquatic garter snake, the giant garter snake (*Thamnophis couchii gigas*) is listed by the state of California as threatened, is a C1 candidate for federal listing. It is generally found in streams and sloughs with mud bottoms, from Colusa County to the San Joaquin Valley. It may inhabit Morrison Creek or some of the other drainages at Mather.

SWAINSON'S HAWK. Swainson's Hawk (*Buteo swainsonii*) is listed as threatened by the state of California. Its favored habitat includes plains, range, and low hills. The hawk has been sighted less than five miles east of the base and is very likely to occasionally hunt at Mather.

TRICOLORED BLACKBIRD. The tricolored blackbird (*Agelaius tricolor*) is a C2 candidate for federal listing. Its primary habitat consists of cattail and tule marshes, though it often forages in grasslands and agricultural areas. Several colonies have been observed within three miles of the base boundary, and large flocks have been observed in the airfield area.

SHRIMP. The USFWS has been petitioned to list four species of shrimp that inhabit vernal pools in the project area: vernal pool fairy shrimp (*Branchinecta lynchi*), conservancy fairy shrimp (*B. conservatio*), California linderiella (*Linderiella occidentalis*), and vernal pool tadpole shrimp (*Lepidurus packardi*).

The first three are C1 candidates for federal lists and the tadpole shrimp is recommended for C2 status. These shrimp complete their life cycle in the winter to spring when water is present in vernal pools. The eggs remain dormant in the top layer of soil over the summer until the next rainy season. The conservancy fairy shrimp inhabits large lake-like vernal pools; the other species can be found in a variety of pools ranging from small to large and shallow to deep. Field surveys were conducted in October for eggs in order to determine if any of these species inhabit the vernal pools at Mather AFB. The results of the analyses of the soil samples are forthcoming. Additional surveys may be conducted in late winter or early spring for adults.

SACRAMENTO SPLITTAIL. The Sacramento splittail (*Pogonichthys macrolepidotus*) is a fish that was once widely distributed in the lakes and rivers of the Central Valley, including the American River as far upstream as Folsom (Moyle et al., 1989). It is a C2 candidate for federal listing and a state of California Species of Special Concern. Their current distribution is limited primarily to the Sacramento-San Joaquin estuary where they inhabit slow-moving waters of rivers and sloughs. Spawning takes place in dead end sloughs

with beds of submerged vegetation (Moyle, 1976). No suitable habitat for this species is present on the base, and no recent records of occurrence in the project area were found (California Department of Fish and Game, 1991).

CALIFORNIA TIGER SALAMANDER. Historically the California tiger salamander (*Ambystoma tigrinum californiense*), a C2 candidate for federal Listing and a state of California Species of Special Concern, was widely distributed in grassland areas of the Central Valley with vernal pools or slow-flowing steams. This species requires quiet pools for breeding (December through March). The adults and young (after metamorphosing from the larval stage) spend the summer in underground burrows in the surrounding uplands (Shaffer et al., 1989). Although grassland areas containing vernal pools are present, the California tiger salamander is not expected to occur on the base (Brode, 1991).

WESTERN SPADEFOOT TOAD. The western spadefoot toad (*Scaphiopus hammondi*) is currently recommended for C2 status by the USFWS. Its habitat is lowland areas with intermittent to ephemeral waters. The adults breed in these waters and spend the dry season in burrows, generally within the aquatic habitat after it dries. The western spadefoot toad has been reported on the base (Crowl, 1985).

PLANTS. None of the following plant species were located at Mather AFB during a spring 1991 survey of the base's vernal pools. However, because all of these species are annuals and may not have germinated in 1991 due to unfavorable environmental conditions, these results do not provide definitive evidence that the species do not occur at Mather.

BOGGS LAKE HEDGE-HYSSOP. Boggs Lake hedge-hyssop (*Gratiola heterosepala*) is an herbaceous plant listed as endangered by the state of California and a C2 candidate for federal listing. It occurs in vernal pools. A large population of the species has been observed less than three miles east of the base boundary near the intersection of Grant Line Road and Kiefer Boulevard.

GREEN'S LEGENERE. Green's legenere (*Legenere limosa*) is a vernal pool species that is a C2 candidate for federal listing. It has been observed within one mile of the base boundary in a pool northeast of the intersection of Douglas Road and Sunrise Boulevard.

HAIRY ORCUTT GRASS. Hairy orcutt grass (*Orcuttia pilosa*) is an annual grass species that occurs in vernal pools. It is listed as endangered by the state of California and is a C1 candidate for federal listing. Though the species has not yet been observed in the immediate vicinity of Mather AFB or Sacramento, it may occur in the base's vernal pools.

SACRAMENTO ORCUTT GRASS. Sacramento orcutt grass (*Orcuttia viscida*) is listed as endangered by the state of California and is a C1 candidate for federal listing. A population of the annual vernal pool species has been observed just east of the base boundary near the intersection of Sunrise and Kiefer boulevards.

SLENDER ORCUTT GRASS. Slender orcutt grass (*Orcuttia tenuis*) is a vernal pool species that is also listed as endangered by the state of California and a C1 candidate for federal listing. It has been observed within the boundaries of the Elk Grove USGS quadrangle, which is adjacent to the quadrangle that contains most of Mather AFB.

Table N-1. Threatened, Endangered, and Candidate Species Potentially Occurring in the Vicinity of Mather AFB

Page 1 of 3

Name	Status[1] Federal	State	CNPS	Habitat and Distribution
Invertebrates				
Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*)	T	-	-	Larvae are stem and root borers of elderberry. Adults feed on its foilage and flowers. Critical habitat is present along south bank of American River 1.5 miles north of Mather AFB. Not expected to occur at Mather due to absence of elderberry trees.
Vernal pool fairy shrimp (*Branchinecta lynchi*)	C1	-	-	Inhabits vernal pools
Conservancy fairy shrimp (*Branchinecta conservatio*)	C1	-	-	Inhabits large lake-like vernal pools
California linderiella (*Linderiella occidentalis*)	C1	-	-	Inhabits vernal pools
Vernal pool tadpole shrimp (*Lepidurus packard*)	R2	-	-	Inhabits vernal pools
Amphibians				
California tiger salamander (*Ambystoma tigrinum californiense*)	C2	CSC	-	Breeds in temporary pools and permanent waters of grassland and open woodland of low hills and valleys; eliminated from much of its former Central Valley range by agriculture and urban developments. Suitable habitat occurs on Mather AFB.
Western spadefoot toad (*Scaphiopus hammondi*)	R2	-	-	Habitat similar to tiger salamander; known to occur on Mather AFB
Reptiles				
Giant garter snake (*Thamnophis couchii gigas*)	C2	T	-	Occurs in streams and sloughs, usually with mud bottoms, floor of Central Valley from Delevan National Wildlife Refuge in Colusa County to Los Banos Creek and Mud Slough in San Joaquin Valley. Suitable habitat occurs on Mather AFB.
Birds				
Swainson's hawk (*Buteo swainsonii*)		T	-	Habitat includes plains, range, and open hills; known to breed in the Central Valley; sighted within 5 miles of Mather AFB boundary; Strongly expected as an occasional transient.

Table N-1. Threatened, Endangered, and Candidate Species Potentially Occurring in the Vicinity of Mather AFB
Page 2 of 3

Name	Status[1] Federal	State	CNPS	Habitat and Distribution
Tricolored blackbird *(Agelaius tricolor)*	C2	-	-	Habitat includes cattail and tule marshes; forages in grasslands and agricultural areas; several adult colonies have been observed within 3 miles of the base boundary; known to occur at Mather AFB
Long-billed curlew *(Numenius americanus)*	C2	-	-	Forages in grasslands
Fish				
Sacramento splittail *(Pogonichthys macrolepidotus)*	C2	CSC	-	Occurs in slow-flowing waters in the lower Sacramento River drainage and the Delta. No suitable habitat on Mather AFB
Plants				
Ahart's rush *(Juncus leiospermus var. ahartii)*	C1	-	1B	Occurs in vernal pools. Known only from Ahart's Ranch in Butte County and one location in Calaveras County. Occurrence at Mather AFB is doubtful
Boggs Lake hedge-hyssop *(Gratiola heterosepala)*	C2	E	1B	Occurs in vernal pools in several Central Valley counties. Known from within 3 miles of the base boundary.
California hibiscus *(Hibiscus californicus)*	C2	-	1B	Occurs in freshwater marshes and swamps, commonly along the Sacramento and lower San Joaquin rivers and their tributaries. Occurrence at Mather AFB is unlikely due to lack of well-developed marshland. Not known to occur along the length of Morrison Creek
Green's legenere *(Legenere limosa)*	C2	-	1B	Occurs in vernal pools in lower Sacramento and San Joaquin valleys. Has been reported within 1 mile of base's northeastern boundary.
Green's tuctoria *(Tuctoria greenei)*	C1	R	1B	Occurs in vernal pools. Has not yet been observed in the vicinity
Hairy orcutt grass *(Orcuttia pilosa)*	C1	E	1B	Occurs in vernal pools. May occur at Mather, though it has not yet been observed in the Sacramento area

Table N-1. Threatened, Endangered, and Candidate Species Potentially Occurring in the Vicinity of Mather AFB
Page 3 of 3

Name	Status[1] Federal	State	CNPS	Habitat and Distribution
Hoover's spurge *(Chamaesyce hooveri)*	C1	-	1B	Occurs in vernal pools and dried mud flats. Has not been observed in the Sacramento area.
Red Bluff dwarf rush *(Juncus leiospermus var. leiospermus)*	C2	-	1B	Occurs in vernal pools and vernally mesic areas in chaparral and cismontane wood-land. Has not been observed in the vicinity of Sacramento
Sacramento orcutt grass *(Orcuttia viscida)*	C1	CE	1B	Occurs in vernal pools. Has been reported just outside of the base boundary near the intersection of Sunrise and Kiefer boulevards.
Sanford's arrowhead *(Sagittaria sanfordii)*	C2	-	3	Occurs in freshwater marshes, sloughs, and sluggish streams. May occur at Mather. Known from Sacramento East USGS quadrangle (adjacent to Carmichael quadrangle, which contains most of Mather AFB)
Slender orcutt grass *(Orcuttia tenuis)*	C1	CE	1B	Occurs in vernal pools. Known from Elk Grove quadrangle which is adjacent to the Carmichael quadrangle.

Notes: 1. Federal Status (determined by U.S. Fish and Wildlife Service):
- T — Threatened; likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- C1 — Substantial on-file information on biological vulnerability and threat indicates that proposing to list these species as endangered or threatened is appropriate.
- C2 — Information indicates that proposing to list these species is possibly appropriate, though more data on vulnerability and threat is necessary.
- R1 — Recommended for C1 status.
- R2 — Recommended for C2 status.

State Status:
- E — Listed as endangered by the state of California.
- T — Listed as threatened by the state of California.
- R — Listed as rare by the state of California.
- CE — Candidate for listing as endangered by the State of California.
- CSC — California Department of Fish and Game "Species of Special Concern."

California Native Plant Society Status:
- 1b — Rare, threatened, or endangered in California and elsewhere.
- 3 — Plants about which more information is needed -- a review list.

REFERENCES

Beauchamp, R.M., 1992. Personal communication with R.M. Beauchamp, Pacific Southwest Biological Services, National City, California.

Brode, J. 1991. Personal communication with J. Brode, California Department of Fish and Game, Rancho Cordova, California.

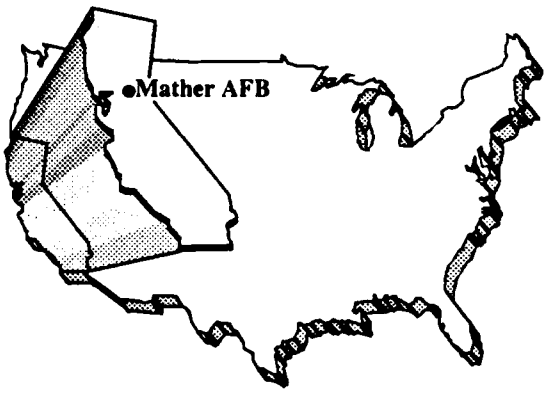
California Department of Fish and Game, 1991. Natural Diversity Database, Natural Heritage Division, Sacramento.

Crowl, D.H., 1985. Fish and Wildlife Management Plan for Mather Air Force Base, California, Initial Plan for Plan Period January 1985 to January 1990, Department of the Air Force, Mather AFB, California.

Moyle, P.B., 1976. Inland Fishes of California, University of California Press, Berkeley, California.

Moyle, P.B., J.E. Williams, and E.D. Wikramanayake, 1987. Fish Species of Special Concern of California, prepared for California Department of Fish and Game, Rancho Cordova, California.

Shaffer, H.B., C. Austin, and R. Fisher, 1989. The status of the California Tiger Salamander at the Lawrence Livermore National Laboratory, Environmental Protection Guidance and Monitoring Series, UCAR, LLNL, University of California.



APPENDIX O

APPENDIX O

ESTIMATING GROUNDWATER POTENTIOMETRIC CHANGES DUE TO REUSE OF MATHER AFB

APPENDIX O
ESTIMATING GROUNDWATER POTENTIOMETRIC CHANGES DUE TO REUSE OF MATHER AFB

This Appendix provides brief descriptions of the site's history of groundwater use and aquifer system; the groundwater flow model used for this Environmental Impact Statement (EIS) and criteria; and assumptions underlying the model used to predict the drawdowns caused by the Proposed Action and alternatives for Mather Air Force Base (AFB). Demand calculations are also presented.

SITE HISTORY OF GROUNDWATER USE

The site's groundwater use was reconstructed from Bulletin 118-6 (California Department of Water Resources [DWR], 1978), the Draft EIS for the American River Service Area (U.S Bureau of Reclamation, 1988), and information from the local water districts. Specifically, the history of changes in the water levels and well pumping rates in Sacramento County, including Mather AFB, was reconstructed.

A study of the water table for 1912, 1961, 1971 and 1985 (California DWR, 1978; U.S. Bureau of Reclamation, 1988) reveals that the water levels of the aquifer underlying Mather AFB have been declining at significant rates since 1912 (when the aquifer system was undeveloped and still in natural steady-state conditions). The groundwater level declines in Sacramento County are caused by several important pumping centers throughout the county. The groundwater declines at Mather AFB are partially due to the pumping wells located on-base.

The overall average rate of decline of the water table in the vicinity of the base between 1912 and 1985 was 0.7 foot per year. However, the rate of decline varied significantly through time. In the early years of development, between 1912 and 1961, the water table rate of decline averaged 0.6 foot per year. Between 1961 and 1971, the rate of decline was negligible, and the water table remained at a rather constant level. However, the rate of decline increased significantly to 1.4 foot per year between 1971 and 1985 (California DWR, 1978; U.S. Bureau of Reclamation, 1988).

A complete history of well pumping activities in Sacramento County is not available. Estimated pumping rates are available by township for Sacramento County from a study by the California DWR (1978). Pumping rates were estimated based on land use data for 1961 and 1971 (California DWR, 1978). Limited current well pumping data are available for selected areas of Sacramento County for some of the water agencies in the vicinity of Mather AFB.

THE AQUIFER SYSTEM MODEL

A conceptual groundwater flow model of the aquifer system underlying Sacramento County was developed based on hydrogeologic data for the region as described in Bulletin 118-6. Major features of the conceptual model are as follows:

- The Mehrten and Laguna layer formations are assumed to form a single aquifer.
- The modeled area extends over most of Sacramento County.
- The Sacramento River, a perennial stream, crosses Sacramento County and constitutes the western boundary of the modeled area.
- To the east, the aquifer is bounded by an area where the natural hydraulic head has been stable due to higher recharge rates from precipitation and relatively little development.
- The aquifer is bounded by two major pumping centers to the south and north of the modeled area.
- The aquifer was under natural steady-state flow conditions until 1912.

- Regionally, the aquifer was subjected to a increasing pumping stress between 1912 and 1961.
- The aquifer was subjected to a relatively constant amount of stress between 1961 and 1971.

SELECTED GROUNDWATER FLOW MODEL

MODFLOW, a USGS flow model (McDonald and Harbaugh, 1988) was used to predict the effects of the Proposed Action and alternatives for the reuse of Mather Air Force Base. MODFLOW was selected for the following reasons:

- The aquifer within the study area has complex hydrogeology and boundary conditions that are readily accommodated by MODFLOW.
- The aquifer is in a transient state because of a complex pumping history within the base and in Sacramento County in general.
- MODFLOW is a well-verified and widely used groundwater model.
- MODFLOW is a versatile groundwater flow model and can be used to simulate an array of problems ranging from simple 2-dimensional to complex fully 3-dimensional.

MODEL ASSUMPTIONS

Initially, it was intended to set up the model to predict the cumulative drawdowns, i.e., those caused by the Mather AFB wells and the wells in Sacramento County that influence the aquifer conditions at the base. However, due to a lack of pumping history data, it was decided that drawdown modeling was to be used to predict the effects of the reuse actions only. Water level declines caused by the existing wells outside of the base were assumed to continue to occur at the average rate of 1.4 feet per year. This rate of decline was superposed to the simulated rates of declines to estimate the cumulative rate of decline.

The following assumptions were used in the drawdown model:

- The modeled area extends from township T5N to T10N and from range R4E to R8E.
- The aquifer is simulated as a single-layer model.

The boundary conditions are assumed to be as follows:

- Constant head along the eastern boundary of the site because the available water level contour maps show little change in this area.
- No flow along the northern, southern and western boundaries because of the existing large cone of depression across from those three boundaries.
- Model cells coinciding with the American River were assigned constant head values; this assumption may be weak along the American River as the groundwater levels may have significantly dropped along some stretches of this stream.
- The hydrologic properties of the aquifer were assumed to be the same as those presented by the California Department of Water Resources (Bulletin 118-6) within the modeled area; the prevailing transmissivity value is 8,700 sq. ft./day; the transmissivity values coinciding with alluvial deposits were higher and range from 10,700 to 26,000 sq.ft./day; an average storage coefficient of 0.075 was used for the modeled area.
- Recharge rates and historical pumpages were not needed in the drawdown model.

CALCULATIONS OF DEMAND

Water consumption factors for different land uses are given in Table O-1. Demand calculations for the Proposed Action and alternatives are illustrated in Tables O-2 through O-7.

Table O-1. Demand Factors

Type of Use	Demand Factor
Golf Course	5.5 af/ac/yr
Parks	
Recreation	1.0 af/ac/yr
Parks	5.5 af/ac/yr
Sensitive Habitat	0.0 af/ac/yr
Schools	
Students/Employees	0.024 af/student/yr
Aviation	0.13 af/employee/yr
Commercial	0.05 af/employee/yr
Industrial	0.05 af/employee/yr
Hospitals	1.0 af/person/yr
Caretakers	0.16 af/employee/yr

Source: Sacramento County Water Agency, 1989.

Table O-2. Proposed Action Water Demand

I. Residential Demand

[(12,990 people) x (0.25 af/person/yr)] + [(7,898 people) x (0.20 af/person/yr)] = 4,827 af/yr

II. Aviation Support

(3,136 people) x (0.130 af/person/yr) = 408 af/yr

III. Industrial and Commercial

(8,027 people) x (0.05 af/person/yr) = 401 af/yr

IV. Hospital Demand

(247 employees + 105 patients) x (1.0 af/person/yr) = 352 af/yr

V. School Demand

(3,775 people) x (0.024 af/person/yr) = 91 af/yr

VI. Parks Demand

[(226 acres) x (5.50 af/acre/yr) + (1,034 acres) x (1.0 af/acre/yr)] = 2,277 af/yr

VII. Total Demand = 8,356 af/yr

Table O-3. Non-Aviation with Mixed-Density Residential Alternative Water Demand

I.	**Residential Demand**
	[(37,787 people) x (0.250 af/person/yr)] + [(10,611 people) x (0.20 af/person/yr)] = 11,569 af/yr
II.	**Aviation Support**
	None
III.	**Industrial/Commercial**
	[(3,754 people) x (0.13 af/person/yr)] + [(13,061 people) x (0.05 af/person/yr)] = 1,141 af/yr
IV.	**Hospital Demand**
	(425 people) x (1.0 af/people/yr) = 425 af/yr
V.	**School Demand**
	(10,525 people) x (0.024 af/person/yr) = 252 af/yr
VI.	**Parks Demand**
	[(203 acres) x (5.5 af/acre/yr)] + [(996 acres) x (1.0 af/acre/yr)] = 2,113 af/yr
VII.	**Military Aviation Demand**
	None
VIII.	**Total Demand = 15,500 af/yr**

Table O-4. General Aviation with Aircraft Maintenance Alternative Water Demand

I.	**Residential Demand**
	(30,051 people) x (0.25 af/person/yr) = 7,513 af/yr
II.	**Aviation Support**
	(1,082 people) x (0.13 af/person/yr) = 141 af/yr
III.	**Industrial/Commercial**
	[(4,462 people) x (0.013 af/person/yr)] + [(3,379 people) x (0.05 af/person/yr)] = 749 af/yr
IV.	**Hospital Demand**
	(425 people) x (1.0 af/people/yr) = 425 af/yr
V.	**School Demand**
	(11,351 people) x (0.024 af/person/yr) = 272 af/yr
VI.	**Parks Demand**
	[(33 acres) x (5.5 af/acre/yr)] + [(295 acres) x (1.0 af/acre/yr)] = 476 af/yr
VII.	**Military Aviation Demand**
	(327 people) x (0.13 af/person/yr) = 43 af/yr
VIII.	**Total Demand = 9,619 af/yr**

Table O-5. Non-Aviation with Low-Density Residential Alternative Water Demand

I.	**Residential Demand**
	(49,391 people) x (0.25 af/person/yr) = 12,348 af/yr
II.	**Aviation Support**
	None
III.	**Industrial/Commercial**
	[(12,898 people) x (0.13 af/person/yr)] + [(4,285 people) x (0.05 af/person/yr)] = 1,891 af/yr
IV.	**Hospital Demand**
	(352 people) x (1.0 af/person/yr) = 352 af/yr
V.	**School Demand**
	(16,646 people) x (0.024 af/people/yr) = 399 af/yr
VI.	**Parks Demand**
	(295 acres) x (1.0 af/acre/yr) = 295 af/yr
VII.	**Military Aviation Demand**
	None
VIII.	**Total Demand = 15,285 af/yr**

Table O-6. No-Action Alternative Water Demand

I.	**Residential Demand**
	None (no one will live on the base)
II.	**Aviation Support**
	None
III.	**Industrial/Commercial**
	(50 employees) x (0.16 af/employee/yr) = 8 af/yr
IV.	**Hospital Demand**
	None
V.	**School Demand**
	None
VI.	**Golf Course Demand**
	(130 acres) x (5.5 af/ac/yr) = 715 af/yr
VII.	**Parks Demand**
	300 af/yr (into Mather Lake)
VIII.	**Airport Demand**
	None
IX.	**Military Aviation Demand**
	None
X.	**Total Water Demand**
	8 af/yr = 715 af/yr + 300 af/yr = 1,023 af/yr

Table O-7. Other Land Use Concepts Water Demand

I. Numbers Used

The following demand values were used in connection with overlays:

Caltrans:	1.0 af/employee/yr
Theme Park:	5.5 af/acre/yr x (50% of acreage)

II. Caltrans Overlays

Demand of 1 af/employee/yr was used. Assume 500 employees, using 500 af/yr total since inner part of ring (approximately 1,500 acres) is still available for original use, the 500 af/yr will be added on.

III. Theme Park

From overlaying the map, the park eliminates 80 percent education demand, and the old recreation demands from the Non-Aviation with Low-Density Residential Alternative.

A. Proposed Action/Theme Park
Take the Proposed Action demand, and subtract about 30 percent of aviation industrial, 50 percent of commercial and 50 percent of straight industrial demands; then add (2,000 acres) x (5.5 af/yr/ac) = 11,000 af/yr.

Assume that the theme park is about 4,500 to 5,000 acres total, but not all of it will require the full park demand. (8,356 - 122 - 201) af/yr + (11,000 af/yr) = 19,033 af/yr.

B. Non-Aviation/Theme Park
Take the Non-Aviation with Mixed-Density Residential Alternative demand, and subtract the residential demand, 50 percent of the commercial, and 20 percent of parks demands; then add the 11,000 af/yr that the theme park requires. (15,500 af/yr) - (11,569 af/yr) - (327 af/yr) - (423 af/yr) + 11,000 af/yr = 14,181 af/yr.

C. Aviation/Theme Park
Take the General Aviation with Aircraft Maintenance Alternative demand, and subtract about half the Industrial/Commercial demand, then add theme park demand. The Non-Aviation with Mixed-Density Residential Alternative was chosen in order to be conservative. (9,619 - 375) + [(5.5) x (1,000)] = 14,744 af/yr.

D. Non-Aviation/Theme Park
15,285 af/yr - 295 af/yr - 320 af/yr + 5,500 af/yr = 20,170.

REFERENCES

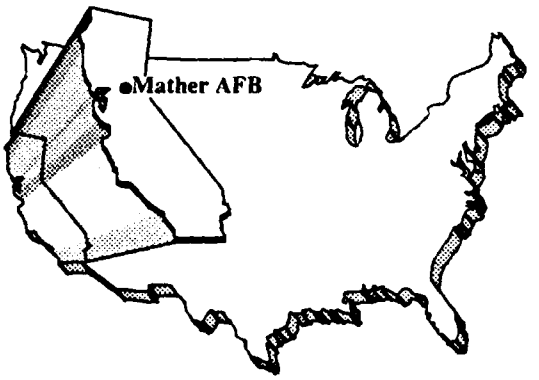
California Department of Water Resources, 1978. Evaluation of Ground Water Resources: Sacramento Valley, Bulletin 118-6.

McDonald, M.G. and A.W. Harbaugh, 1988. Techniques of Water-Resources Investigations of the United States Geological Survey, Chapter A1: A Modular Three-Dimensional Finite-Difference Ground-water Flow Model, United States Government Printing Office, Washington, DC.

Sacramento County Water Agency, 1989. Water Plan Supplement-1989, prepared by Boyle Engineering Corporation, Sacramento, CA, December.

U.S. Bureau of Reclamation, 1988. American River Service Area Water Contracting Program, Draft Environmental Impact Statement.

THIS PAGE INTENTIONALLY LEFT BLANK



APPENDIX P

APPENDIX P

AIR QUALITY MODEL POLLUTANT SOURCES

APPENDIX P

AIR QUALITY MODEL POLLUTANT SOURCES

The following notes apply to Tables P-1 through P-5

(a) Emissions are predicted by the Emissions and Dispersion Modeling System (EDMS) model based on projected types of aircraft and estimated frequency of flight operations for each aircraft type.

(b) Emissions are based on the ratio of projected source emissions to projected population for the study years as defined in the Base Year 1985 Trends Report, Scenario - TND85CS985, October 1989. Population projections are derived from data received from the Sacramento Area Council of Governments. Emissions of reactive organic gases (ROG), nitrogen oxides (NO_x), and carbon monoxide (CO) are adjusted for the effect of future control measures as outlined in the Sacramento 1991 Air Quality Attainment Plan (SMAQMD 1991). The basic equation used to develop reuse inventory data is: Reuse Emissions = (Study Year County Emissions/Study Year County Population) x Incremental Reuse Population Increase.

(c) Emissions are calculated in a similar manner to that as described in footnote (b) above. In addition, a factor equal to the study year EMFAC7PC emissions rate divided by the year 1985 EMFAC7PC emission rate is applied for to account for future changes in tailpipe emissions exhaust standards.

(d) Emissions are calculated in a similar manner to that as described in footnote (b) above. In addition, adjustments are made for new aggregate mining operations using the methods as described in Section 4.4-3, Table 4.4-8.

TABLE P-1. MATHER AFB -- EMISSIONS INVENTORY FOR OXIDES OF NITROGEN, (Tons/Day)

SOURCE	PROPOSED ACTION			NON-AVIATION WITH MIXED-DENSITY RESIDENTIAL			GENERAL AVIATION			NON-AVIATION WITH LOW-DENSITY RESIDENTIAL		
	1999	2004	2014	1999	2004	2014	1999	2004	2014	1999	2004	2014
Aircraft Flying Operations (a)	0.508	0.833	2.116	0.000	0.000	0.000	0.264	0.335	0.400	0.000	0.000	0.000
Fuel Combustion (b)	0.013	0.015	0.020	0.014	0.020	0.038	0.022	0.029	0.042	0.017	0.025	0.040
Waste Burning (b)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Solvent Use (b)	---	---	---	---	---	---	---	---	---	---	---	---
Petroleum Storage and Transfer (b)	0.003	0.003	0.003	0.003	0.004	0.006	0.005	0.006	0.007	0.004	0.005	0.007
Industrial Processes (d)	0.251	0.274	0.000	0.251	0.274	0.000	0.251	0.274	0.000	0.251	0.274	0.000
Miscellaneous Processes (b)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
On-Road Vehicles (c)	0.039	0.047	0.066	0.041	0.061	0.122	0.067	0.089	0.137	0.052	0.075	0.130
Off-Road Vehicles (c)	0.002	0.002	0.003	0.002	0.003	0.005	0.004	0.005	0.006	0.003	0.004	0.005
TOTAL	0.816	1.174	2.208	0.311	0.362	0.171	0.613	0.738	0.592	0.327	0.383	0.497

TABLE P-2. MATHER AFB -- EMISSIONS INVENTORY FOR REACTIVE ORGANIC GASES, (Tons/Day)

SOURCE	PROPOSED ACTION			NON-AVIATION WITH MIXED-DENSITY RESIDENTIAL			GENERAL AVIATION			NON-AVIATION WITH LOW-DENSITY RESIDENTIAL		
	1999	2004	2014	1999	2004	2014	1999	2004	2014	1999	2004	2014
Aircraft Flying Operations (a)	0.629	0.722	1.008	0.000	0.000	0.000	0.495	0.552	0.625	0.000	0.000	0.000
Fuel Combustion (b)	0.000	0.000	0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Waste Burning (b)	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.003	0.001	0.002	0.003
Solvent Use (b)	0.036	0.040	0.049	0.037	0.052	0.090	0.061	0.076	0.101	0.048	0.064	0.097
Petroleum Storage and Transfer (b)	0.004	0.004	0.005	0.004	0.006	0.009	0.007	0.008	0.010	0.006	0.007	0.010
Industrial Processes (d)	0.021	0.024	0.002	0.021	0.024	0.003	0.022	0.025	0.004	0.022	0.024	0.029
Miscellaneous Processes (b)	0.008	0.009	0.009	0.008	0.011	0.016	0.013	0.016	0.018	0.010	0.014	0.017
On-Road Vehicles (c)	0.012	0.011	0.014	0.013	0.015	0.025	0.021	0.022	0.028	0.016	0.018	0.027
Off-Road Vehicles (c)	0.008	0.009	0.011	0.002	0.012	0.021	0.014	0.018	0.024	0.011	0.015	0.023
TOTAL	0.719	0.820	1.100	0.093	0.122	0.167	0.636	0.720	0.814	0.115	0.145	0.207

P-4

TABLE P-3. MATHER AFB -- EMISSIONS INVENTORY FOR PM10, (Tons/Day)

SOURCE	PROPOSED ACTION			NON-AVIATION WITH MIXED-DENSITY RESIDENTIAL			GENERAL AVIATION			NON-AVIATION WITH LOW-DENSITY RESIDENTIAL		
	1999	2004	2014	1999	2004	2014	1999	2004	2014	1999	2004	2014
Aircraft Flying Operations (a)	0.064	0.060	0.076	0.000	0.000	0.000	0.036	0.040	0.043	0.000	0.000	0.000
Fuel Combustion (b)	0.001	0.001	0.002	0.001	0.002	0.004	0.002	0.003	0.004	0.001	0.002	0.004
Waste Burning (b)	0.003	0.004	0.007	0.004	0.006	0.013	0.006	0.009	0.014	0.005	0.007	0.014
Solvent Use (b)	---	---	---	---	---	---	---	---	---	---	---	---
Petroleum Storage and Transfer (b)	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Industrial Processes (d)	0.307	0.335	0.006	0.313	0.336	0.012	0.310	0.339	0.013	0.308	0.338	0.395
Miscellaneous Processes (b)	0.224	0.298	0.476	0.236	0.389	0.880	0.387	0.569	0.989	0.301	0.481	0.942
On-Road Vehicles (c)	0.006	0.007	0.011	0.006	0.010	0.21	0.010	0.014	0.024	0.008	0.012	0.023
Off-Road Vehicles (c)	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.001	0.001
TOTAL	0.595	0.705	0.578	0.560	0.743	0.931	0.752	0.975	1.088	0.623	0.841	1.379

TABLE P-4. MATHER AFB -- EMISSIONS INVENTORY FOR OXIDES OF SULFUR, (Tons/Day)

SOURCE	PROPOSED ACTION			NON-AVIATION WITH MIXED-DENSITY RESIDENTIAL			GENERAL AVIATION			NON-AVIATION WITH LOW-DENSITY RESIDENTIAL		
	1999	2004	2014	1999	2004	2014	1999	2004	2014	1999	2004	2014
Aircraft Flying Operations (a)	0.047	0.066	0.141	0.000	0.000	0.000	0.027	0.032	0.037	0.000	0.000	0.000
Fuel Combustion (b)	0.001	0.001	0.002	0.001	0.001	0.003	0.002	0.002	0.003	0.001	0.002	0.003
Waste Burning (b)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Solvent Use (b)	---	---	---	---	---	---	---	---	---	---	---	---
Petroleum Storage and Transfer (b)	---	---	---	---	---	---	---	---	---	---	---	---
Industrial Processes (d)	0.026	0.029	---	0.026	0.029	---	0.026	0.029	---	0.026	0.029	0.033
Miscellaneous Processes (b)	---	---	---	---	---	---	---	---	---	---	---	---
On-Road Vehicles (c)	0.007	0.009	0.014	0.008	0.012	0.026	0.013	0.017	0.030	0.010	0.015	0.028
Off-Road Vehicles (c)	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.000	0.000	0.001
TOTAL	0.081	0.105	0.157	0.035	0.042	0.030	0.068	0.081	0.071	0.037	0.046	0.065

TABLE P-5. MATHER AFB -- EMISSIONS INVENTORY FOR CARBON MONOXIDE, (Tons/Day)

SOURCE	PROPOSED ACTION			NON-AVIATION WITH MIXED-DENSITY RESIDENTIAL			GENERAL AVIATION			NON-AVIATION WITH LOW-DENSITY RESIDENTIAL		
	1999	2004	2014	1999	2004	2014	1999	2004	2014	1999	2004	2014
Aircraft Flying Operations (a)	9.906	11.475	14.025	0.000	0.000	0.000	7.127	8.711	10.696	0.000	0.000	0.000
Fuel Combustion (b)	0.005	0.005	0.007	0.005	0.007	0.012	0.008	0.010	0.014	0.007	0.009	0.013
Waste Burning (b)	0.016	0.017	0.021	0.016	0.023	0.039	0.027	0.033	0.044	0.021	0.028	0.042
Solvent Use (b)	---	---	---	---	---	---	---	---	---	---	---	---
Petroleum Storage and Transfer (b)	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.000	0.001
Industrial Processes (d)	0.079	0.086	0.000	0.079	0.086	0.000	0.079	0.086	0.000	0.079	0.086	0.100
Miscellaneous Processes (b)	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.001	0.002	0.002
On-Road Vehicles (c)	0.209	0.204	0.241	0.220	0.266	0.445	0.361	0.390	0.500	0.281	0.330	0.476
Off-Road Vehicles (c)	0.031	0.034	0.042	0.032	0.045	0.078	0.053	0.065	0.088	0.041	0.055	0.084
TOTAL	10.247	11.822	14.337	0.353	0.428	0.577	7.658	9.298	11.345	0.430	0.510	0.718