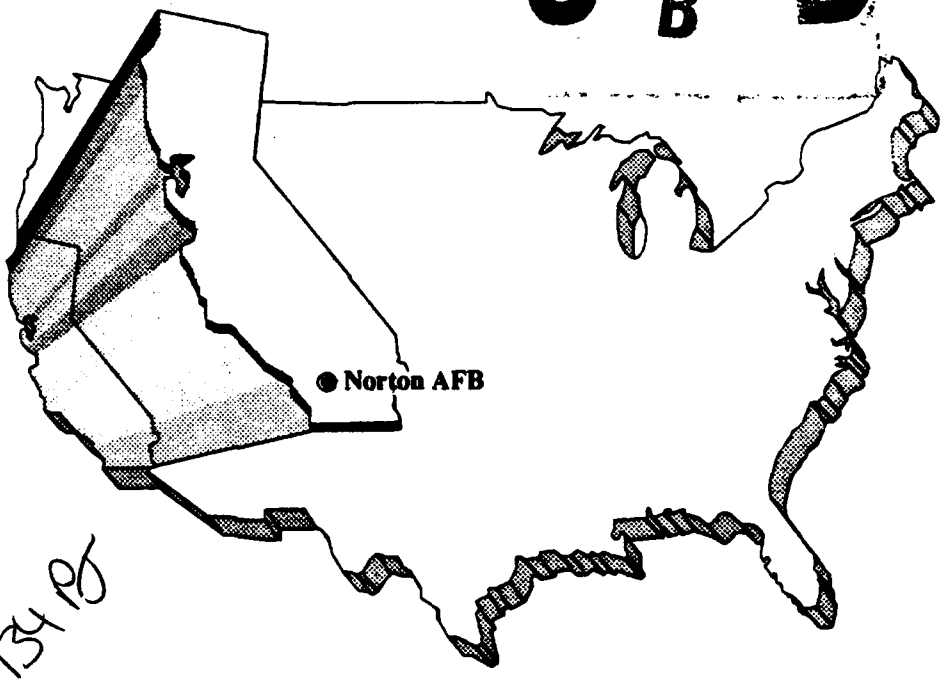
FINAL ENVIRONMENTAL IMPACT STATEMENT June 1993



DISPOSAL AND REUSE OF NORTON AIR FORCE BASE, CALIFORNIA

FINAL

ENVIRONMENTAL IMPACT STATEMENT

DISPOSAL AND REUSE OF NORTON AIR FORCE BASE, CALIFORNIA

JUNE 1993

COVER SHEET

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

a. Responsible Agency: U.S. Air Force

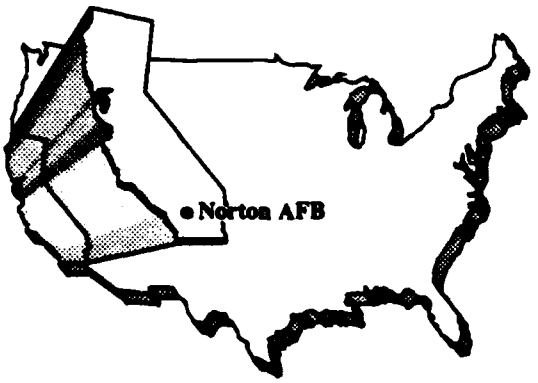
b. Cooperating Agencies: Federal Aviation Administration and U.S. Department of Agriculture, Forest Service

c. Proposed Action: Disposal and Reuse of Norton Air Force Base (AFB), San Bernardino County, California

d. Inquiries on this document may be directed to: Lt. Col. Gary Baumgartel, Chief of Environmental Planning Division, AFCEE-ESE, 8106 Chennault Road, Brooks Air Force Base, Texas, 78235-5318, (210) 536-3869.

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

f Abstract: On January 5, 1989, the Secretary of Defense announced the closure of Norton AFB, California, pursuant to the Base Closure and Realignment Act. Previous environmental documentation culminated in the filing of a *Final Environmental Impact Statement for the Closure of Norton AFB* in July 1990. A *Record of Decision* (ROD) for the action was signed October 3, 1990. The base is scheduled for closure in March 1994. This EIS has been prepared in accordance with the National Environmental Policy Act to analyze the potential environmental consequences of the disposal and reasonable alternatives for reuse of the base. The document includes analyses of the potential impacts each alternative may have on the local community, including land use and aesthetics, transportation, utilities, hazardous materials/wastes, soils and geology, water resources, air quality, noise, biological resources, and cultural resources. Potential environmental impacts are aircraft-related noise, increased traffic, reduced wildlife habitat, alteration of topography, alteration of water flow and drainage patterns, and increase in emissions of air pollutants. Traffic mitigations include area roadway improvements. If avoidance of impacts to biological resources is not adequate or possible, mitigation in the form of replacement, restoration, or enhancement is possible. Air pollutant emissions that may interfere with achievement of attainment goals will require maximum mitigation and offsets. Because the Air Force is disposing of the property, some of the 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.



SUMMARY

SUMMARY

PURPOSE AND NEED

In May 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. Norton 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 these actions. In July 1990, the Air Force released the Final Environmental Impact Statement for the Closure of Norton Air Force Base, California, which addresses environmental impacts associated with base closure. The Record of Decision (ROD) was signed on October 3, 1990.

The Air Force must now make a series of interrelated decisions concerning the disposition of base property. In support of these decisions, this Environmental Impact Statement (EIS) has been prepared to provide information on the potential environmental impacts resulting from reuse of the base property after disposal by the Air Force. The Federal Aviation Administration (FAA) and the U.S. Department of Agriculture, Forest Service are cooperating agencies in the preparation of this EIS, which will assist them in making related decisions concerning reuse of Norton AFB property. Several alternative reuse concepts are studied to identify the range of potential environmental consequences of disposal.

After completion and consideration of this EIS, the Air Force will prepare decision documents stating the terms and conditions under which the dispositions will be made, including the mitigation measures, if any, that may be taken by the Air Force or be required of the recipients of base property. These decisions may affect the environment by influencing the nature of the future use of the property. Since the purpose of this EIS is limited to support the decisions of the Air Force and the cooperating agencies related to disposal, further environmental analysis and

documentation may need to be done by reuse proponents to meet applicable laws and regulations governing their actions.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

The land to be disposed of by the Air Force comprises 1,981 acres, including the airfield and main administrative, industrial, and residential areas of the base and two noncontiguous parcels: a 3-acre parcel near the southwest end of the runway which contains airport navigation equipment, and a 30-acre parcel within the city of Highland, currently used for recreation. The Air Force will be retaining three parcels of the base totalling 146 acres for continued use by the Ballistic Missile Organization (BMO) and as military family housing for Air Force officers and non-commissioned officers. These three parcels would be retained under all of the alternatives evaluated.

For the purpose of evaluating possible environmental impacts resulting from the incident reuse of the land to be disposed, the Air Force has selected reuse of the primary portion of the installation as a civilian airport and office/industrial park as the Proposed Action. This plan was developed by the Inland Valley Development Agency (IVDA) and centers on the establishment of a commercial aviation, general aviation, and aviation maintenance airport in the area of the existing base airfield. Most facilities currently housing the Air Force non-aviation support functions would continue to be used and replaced with office/industrial and airport-related commercial development. The golf course and Santa Ana Wash area on base would continue to be used as recreation/open area. The noncontiguous 30-acre parcel in Highland would become a municipal park, and the 3-acre parcel would continue to be used for airfield-related equipment.

The following alternatives to the Proposed Action are being considered:

- Redevelopment of the base as an airport with mixed non-aviation land uses (Airport with Mixed Use Alternative). The primary differences from the Proposed Action are (1) more retention and reuse of existing facilities and infrastructure on base and (2) incorporation of residential, commercial, and more recreational land uses within the base property. Use of the two noncontiguous parcels would be the same as under the Proposed Action.

- Redevelopment of the base as an aircraft maintenance center (Aircraft Maintenance Center Alternative). This plan differs from the Proposed Action in (1) use of the airport for general aviation and aviation maintenance operations with no commercial passenger service, which would substantially decrease the number of annual flight operations, and (2) use of the eastern portion of the base for aggregate mining. Land uses in the main

developed area of the base west of the airfield would be similar to the Airport with Mixed Use Alternative. Use of the two noncontiguous parcels would be the same as under the Proposed Action.

- Redevelopment of the base primarily for residential use, with no aviation activity (Non-Aviation Alternative). The main developed area of the base would be used for a mixture of industrial, commercial, residential, and recreational activities, similar to the Airport with Mixed Use Alternative, but the existing airfield and surrounding area would be removed and replaced with single-family housing. The parcel in Highland would also be developed for residential use, and the 3-acre parcel would be converted to industrial use.

- Other land use concepts for discrete facilities or areas of the base. These include other government agency and independent proposals which typically involve only a portion of the property available for disposal and, therefore, could be implemented independently and/or with the Proposed Action or any of the alternatives under consideration.

- The No-Action Alternative, which entails the base remaining under federal control and being placed in caretaker status. Under this alternative, like the others, the Air Force would still continue to use 146 acres of the base for the BMO and military family housing.

SCOPE OF STUDY

The *Notice of Intent* to prepare an EIS for the disposal and reuse of Norton AFB was published in the Federal Register on February 19, 1991. Issues related to the disposal and reuse of Norton AFB were identified during a public scoping meeting held on March 20, 1991 in the San Bernardino City Council Chambers in San Bernardino, California, and the ensuing scoping period that ended on April 19, 1991. The comments and concerns expressed at the public scoping meeting and in written correspondence received by the Air Force, as well as information from other sources, 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 Proposed Action and its alternatives. In order to establish the context in which these environmental impacts may occur, potential changes in population and employment, land use and aesthetics, transportation, and community and public utility services are discussed as project-related influencing factors. Issues related to current and future management of hazardous materials and wastes are also discussed. Potential 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 to the local communities.

The baseline against which the Proposed Action and alternatives are analyzed consists of the conditions projected at base closure in 1994. This allows impacts associated with disposal and reuse to be addressed separately from those associated with base closure. General preclosure conditions, along with the impacts of closure, were addressed in the *Final Environmental Impact Statement for the Closure of Norton Air Force Base*. Although the baseline assumes a closed base, a reference to preclosure conditions is provided in several sections (e.g., air quality and noise) to allow a comparative analysis over time. This will assist the Air Force decision maker, and other agencies responsible for decisions relating to reuse of Norton AFB, in understanding potential long-term trends in comparison to historic conditions when the installation was active.

The Air Force is also preparing a separate Socioeconomic Impact Analysis Study on the economic impacts expected in the region as a result of the closure, disposal, and reuse of Norton AFB. That document, although not required by NEPA, will assist the local community in planning for the transition of the base from military to civilian use.

SUMMARY OF PUBLIC COMMENTS

The Draft EIS (DEIS) for disposal and reuse of Norton AFB was made available for public review and comment in January through March 1992. A public hearing was held in San Bernardino, California, on February 12, 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 comment period have been 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 reflect 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:

- Section 2.3.5 was added to describe the treatment of interim uses of base property.
- Appropriate sections have been updated to reflect revisions to the southwestern base boundary.
- Appropriate sections have been updated to reflect new employment data for the Proposed Action.

- Appropriate sections have been updated to reflect the withdrawal of the Federal Bureau of Prison's proposal for a Federal Correctional Complex.

- Appropriate sections have been updated to reflect the current extent of the TCE-contaminated groundwater plume.

- Hazardous Materials/Hazardous Waste Management (Sections 3.3 and 4.3) includes expanded discussions on the following:

  - FFA schedule moved from Appendix L to Section 3.3
  - Impacts of the IRP process on reuse development
  - Concept of risk associated with certain types of development and IRP sites

- Sections 3.4.2 and 4.4.2 have been revised to include existing flooding potential and the associated impacts.

- Sections 3.4.6 and 4.4.6 have been updated to include results of the cultural resource investigations and the completion of the consultation requirements.

- Section 4.2.3 has been revised to discuss the impacts to local plans caused by traffic congestion.

- Air quality impacts due to aggregate mining and construction activities have been itemized in the presentation of reuse-related air quality impacts.

- Air quality (Section 4.4.3) has been revised to include discussion of emission credits and credit transfer, as well as, the conformity provisions of the Clean Air Act.

- Additional potential mitigation measures for air quality impacts have been included in Section 4.4.3.

- Air quality analysis for nitrogen dioxide (NO_2) has been provided on a regional basis and not on a local scale due to the nitrogen oxides (NO_x) conversion variables.

- Local air quality analysis has been refined to use actual meteorological data for dispersion modeling.

- Projections for future air emissions have been limited to the year 2010 due to uncertainties of speculating conditions far in the future.

- Where applicable, the probable success of mitigation measures has been described.

SUMMARY OF ENVIRONMENTAL IMPACTS

This EIS describes potential impacts from the reuse of Norton AFB as a foreseeable consequence of the disposal of base property. However, the Air Force will not actually implement the reuse plans that are analyzed in this document, and, consequently, cannot precisely predict the details of redevelopment and reuse. Therefore, factors expected to substantially influence environmental impacts have been identified and evaluated for a variety of reuse conditions. These include employment, population increases, land use, traffic, utilities consumption, and hazardous materials use associated with each reuse concept under consideration.

Influencing factors and environmental impacts for the Proposed Action and alternatives are briefly described below. Project-related influencing factors are also summarized in Table S-1, and resulting population and employment trends are depicted in Figures S-1 and S-2. Impacts of the Proposed Action and alternatives over the 20-year study period are summarized in Table S-2.

PROPOSED ACTION

Local Community. Redevelopment of base property under the Proposed Action would result in increases in employment and population in the five-city Area of Concentrated Study (ACS) and the San Bernardino-Riverside county region. The ACS is the area within which the bulk of socioeconomic impacts from base reuse is anticipated to occur. It includes the cities of San Bernardino, Redlands, Highland, Loma Linda, and Colton. Approximately 30,300 direct jobs are projected by the year 2015, with an additional 23,000 secondary jobs. About 37,700 of these direct and secondary jobs would occur within the ACS. This would result in an increase in the population in the San Bernardino-Riverside county region of almost 34,300 people. It is estimated that about 20,700 of these people would settle in the ACS communities.

Land use on base would change from the current pattern of mixed use to a more uniform business park environment. This would be consistent with general redevelopment trends in the area but would contrast with historic development patterns that are still evident in areas immediately adjacent to the base. The Proposed Action would be consistent with regional policies that emphasize a better balance between jobs and housing. It would also be generally consistent with local General Plans and Development Codes. The San Bernardino Development Code, as well as development policies of Redlands and Highland, could be revised to reflect changes in noise and airfield safety requirements related to the airfield. This is expected to result in a decrease in the area constrained by Airport Overlay Districts.

The Proposed Action would require widening of segments of Mill, Fifth, and Alabama streets near the base to bring them into conformance with the criteria for major arterials. With these improvements, level of service (LOS)

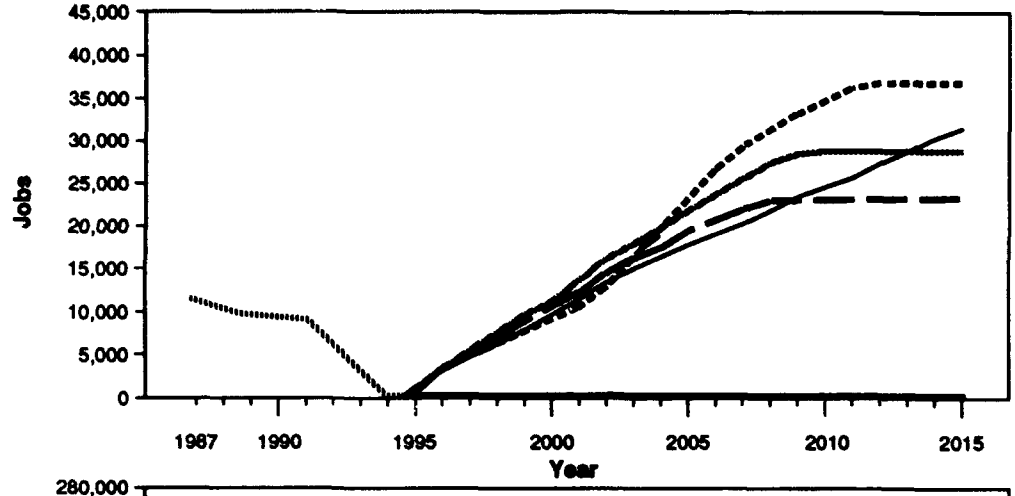
Table S-1. Summary of Project-Related Influencing Factors for Reuse of Norton AFB

Factor	Proposed Action			Airport with Mixed Use Alternative			Aircraft Maintenance Center Alternative			Non-Aviation Alternative			No-Action* Alternative
	2000	2005	2015	2000	2005	2015	2000	2005	2015	2000	2005	2015	
Ground Disturbance (acres by phase)	231	415	183	282	265	127	306	276	223	498	504	585	No Change
Aircraft Operations (annual)	39,820	47,140	58,380	41,590	42,350	59,300	18,450	19,370	20,990	0	0	0	No Change
Direct Employment	7,269	18,607	30,264	8,979	17,204	22,780	8,600	15,363	18,122	8,045	14,283	25,467	No Change
Secondary Employment	6,783	15,199	22,962	8,378	15,239	19,944	8,323	14,119	16,198	7,097	11,823	19,769	No Change
Population Increase (regional)	7,220	19,002	34,289	8,956	18,043	26,276	8,571	16,248	20,961	7,532	14,531	28,751	No Change
Traffic (average daily trips)	32,421	78,331	97,357	38,551	69,364	83,621	34,351	59,537	63,959	61,281	88,625	118,433	No Change
Increase in Water Demand (MGD)	1.0	2.7	5.0	1.3	2.5	3.8	1.3	2.3	3.0	1.2	2.1	4.2	No Change
Increase in Wastewater Production (MGD)	0.6	1.7	3.2	0.8	1.6	2.4	0.8	1.5	1.9	0.7	1.3	2.7	No Change
Increase in Solid Waste (cubic yards/yr)	20,000	60,000	130,000	20,000	50,000	80,000	20,000	50,000	70,000	20,000	40,000	90,000	No Change
Increase in Electricity Demand (MWH/day)	91	251	456	121	237	346	116	213	276	104	191	381	No Change
Increase in Natural Gas Demand (therms/day)	6,000	16,000	29,000	8,000	15,000	22,000	8,000	13,000	18,000	6,000	12,000	24,000	No Change

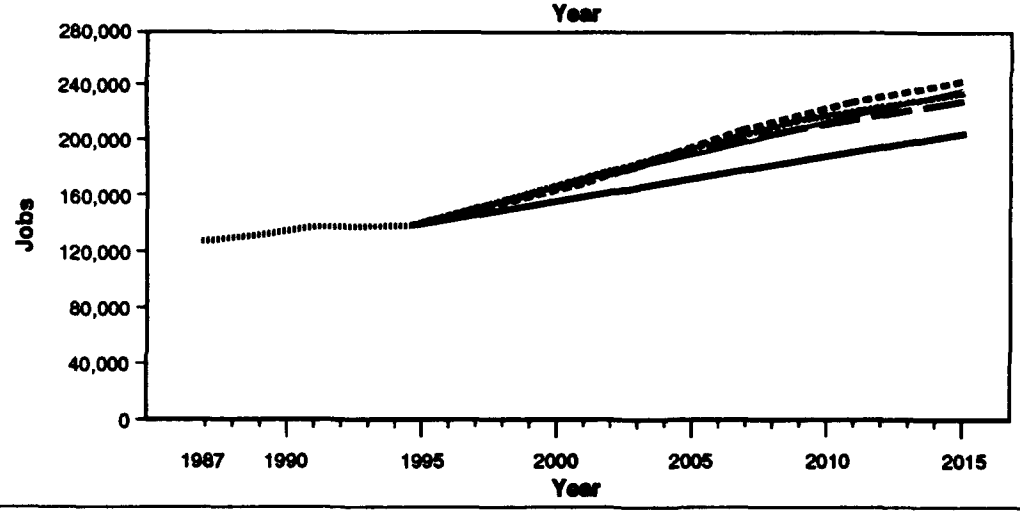
* No-Action Alternative summarizes influencing factors relative to the closure baseline conditions.

ALTERNATIVE	Closure	2000	2006	2015
No-Action	62	62	62	62
Proposed Action	62	9,459	23,465	37,700
Airport with Mixed Use	62	11,525	21,901	28,944
Aircraft Maintenance Center	62	11,132	19,720	23,108
Non-Aviation	62	10,019	17,689	31,396

ACS Employment Impacts



ACS Employment Impacts



Total ACS Employment with Employment Impacts of Alternatives

EXPLANATION

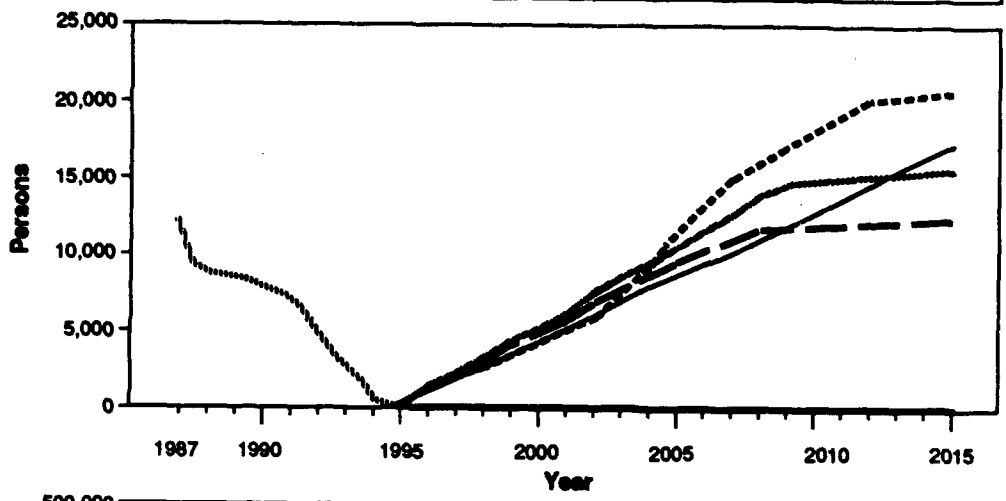
- Post-Closure/No-Action
- Proposed Action
- Airport with Mixed Use
- Aircraft Maintenance Center
- Non-Aviation
- Preclosure

Employment Effects in Area of Concentrated Study

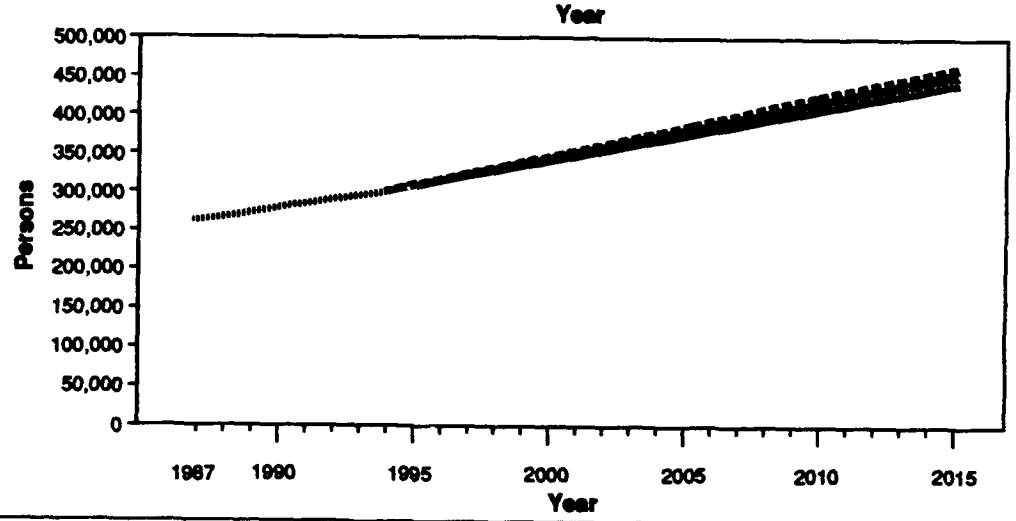
Figure S-1

ALTERNATIVE	Closure	2000	2005	2015
No-Action	0	0	0	0
Proposed Action	0	4,291	11,401	20,730
Airport with Mixed Use	0	5,313	10,763	15,709
Aircraft Maintenance Center	0	5,066	9,669	12,511
Non-Aviation	0	4,450	8,675	17,305

ACS Population Impacts



ACS Population Impacts



Total ACS Population with Population Impacts of Alternatives

EXPLANATION

- Post-Closure/No-Action
- Proposed Action
- Airport with Mixed Use
- Aircraft Maintenance Center
- Non-Aviation
- Preclosure Population

Population Effects in Area of Concentrated Study

Figure S-2

Table S-2. Summary of Impacts from Reuse of Norton AFB
Page 1 of 4

Resource Category	Proposed Action	Airport with Mixed Use Alternative	Aircraft Maintenance Center Alternative	Non-Aviation Alternative	No-Action Alternative*
Local Community					
• Land Use and Aesthetics	Replacement of most facilities and infrastructure. New transportation corridor through base. Potential impacts from industrial development and new passenger terminal on adjacent residents. Warehouse development could affect future recreation along the Santa Ana River Corridor. Change in general appearance of the base.	Retention and reuse of existing facilities. New transportation corridor through base and new passenger terminal. Potential impacts from industrial uses on adjacent residents and development along the Santa Ana River. Little change in general appearance of base.	Similar impacts as Airport with Mixed Use Alternative. No passenger terminal. Potential impacts from aggregate mining and industrial uses on nearby residents and recreational uses.	Major change in base land use from predominantly aviation-related to residential. Potential impacts from aggregate mining across Alabama Street. Change in general appearance of base. Warehouse development could affect future recreation along the Santa Ana River Corridor.	No change in on-base land use. Potential effects on redevelopment of area. No change in base appearance.
• Transportation	Improvements to Mill, Fifth, and Alabama streets to maintain LOS E or above. Cumulative airspace congestion with expansion of Ontario airport.	Improvements to Mill and Fifth streets to maintain LOS E or above. Airspace conflicts same as Proposed Action.	Improvements same as Airport with Mixed Use Alternative. Little airspace conflict.	Improvements to Mill, Fifth, and Alabama streets to maintain LOS E or above. No airspace conflicts.	No impacts on roadways or airspace.
• Utilities	Increase in utilities demand. Minimal impact on local suppliers.	Similar to Proposed Action. Demand slightly lower.	Similar to Proposed Action. Demand slightly lower.	Similar to Proposed Action. Demand slightly lower.	No increase in utilities demand.
Hazardous Materials and Hazardous Waste Management					
• Hazardous Materials Management	Increase in types and quantities of materials. Need for adequate emergency response capability.	Same as Proposed Action.	Same as Proposed Action.	Smaller quantities of fuel and hazardous materials than under the Proposed Action. Dependent on off-site emergency response support.	Small quantities of hazardous materials, managed by Air Force.

* No-Action Alternative summarizes impacts relative to the closure baseline conditions

Table S-2. Summary of Impacts from Reuse of Norton AFB
Page 2 of 4

Resource Category	Proposed Action	Airport with Mixed Use Alternative	Aircraft Maintenance Center Alternative	Non-Aviation Alternative	No-Action Alternative*
Hazardous Materials and Hazardous Waste Management (continued)					
• Hazardous Waste Management	Increase in types and quantities of wastes.	Same as Proposed Action.	Same as Proposed Action.	Quantities of waste likely to be smaller than Proposed Action and other reuse alternatives.	Small quantities of waste generated.
• Installation Restoration Program	Remediation activities may delay conveyance of some parcels.	Same as Proposed Action.	Same as Proposed Action. Landfill in northeast part of base may constrain aggregate mining.	Same as Proposed Action. Landfill may affect residential development.	Remediation activities would be ongoing.
• Storage Tanks	All underground tanks not meeting current regulations to be removed prior to disposal.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action. Caretaker maintenance of aboveground tanks.
• Asbestos	Extensive demolition will require removal and disposal. Remaining asbestos will require management in place.	Some demolition and renovation will require removal and disposal. Remaining asbestos will require management in place.	Same as Airport with Mixed Use Alternative.	Same as Airport with Mixed Use Alternative.	Continued management of facilities with asbestos.
• Pesticides	Increase in use associated with extensive landscaping in office industrial park and golf course.	Slight increase in use; similar to preclosure use.	Same as Airport with Mixed Use Alternative.	Increase in use of household pesticides in housing area.	Minimal use as part of caretaker activities.
• Polychlorinated Biphenyls (PCBs)	All equipment with PCBs greater than 50 ppm removed or retrofilled prior to disposal.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.
• Radon	Below level of concern.	Below level of concern.	Below level of concern.	Below level of concern.	Below level of concern.

*No-Action Alternative summarizes impacts relative to the closure baseline conditions

Table S-2. Summary of Impacts from Reuse of Norton AFB
Page 3 of 4

Resource Category	Proposed Action	Airport with Mixed Use Alternative	Aircraft Maintenance Center Alternative	Non-Aviation Alternative	No-Action Alternative*
Hazardous Materials and Hazardous Waste Management (continued)					
• Medical/Biohazardous Waste	None generated.	Small quantities generated from clinic.	Same as Airport with Mixed Use Alternative.	Same as Airport with Mixed Use Alternative.	None generated.
Natural Environment					
• Soils and Geology	Consumption of aggregate for construction. Alteration of natural surface and soils disturbance. New construction required to meet standards for Seismic Zone IV.	Same as Proposed Action.	Same as Proposed Action. Aggregate mining would increase supply of construction material but also increase disturbance.	Same as Proposed Action.	No impact.
• Water Resources	Increased runoff could overburden existing drainage and flood control facilities. Increase in water demand requiring additional supplemental supply.	Same as Proposed Action.	Same as Proposed Action. Potential increase in erosion and sedimentation due to diversion of Santa Ana River channel to enable aggregate mining in Wash.	Same as Proposed Action.	No impact.
• Air Quality	Increase in air pollutant emissions. Potential interference with reaching attainment of federal and state PM_{10} standards, as well as state ozone and CO standards. No interference with meeting attainment goals for NO_2. No jeopardy of SO_2 attainment status.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	No measurable increase in air pollutant emissions.

*No-Action Alternative summarizes impacts relative to the closure baseline conditions

Table S-2. Summary of Impacts from Reuse of Norton AFB
Page 4 of 4

Resource Category	Proposed Action	Airport with Mixed Use Alternative	Aircraft Maintenance Center Alternative	Non-Aviation Alternative	No-Action Alternative*
Natural Environment (continued)					
• Noise	Maximum of about 780 acres exposed to DNL 65 dB or greater. Area currently includes 9 residents. Increased traffic noise along some roads.	Similar to Proposed Action. Maximum of about 750 acres exposed to DNL 65 dB or greater from aircraft noise. Area currently includes 9 residents. Increased traffic noise along some roads.	Less than 100 acres and no area outside of airport exposed to DNL 65 dB or greater from aircraft noise. Increased traffic noise along some roads.	No aircraft noise. Increased traffic noise along some roads.	No impact.
• Biological Resources	Loss of 12 acres of native vegetation, including 1 acre of wetlands. Impact on endangered Santa Ana River woolly-star and 5 other sensitive species. Loss of wildlife habitat and foraging area for several species.	Same as Proposed Action.	Loss of 47 acres of native vegetation, including 7 acres of wetlands. Also includes 21 acres of native vegetation in the Santa Ana Wash lost due to aggregate mining. Impact on Santa Ana River woolly-star and 5 other sensitive species. Loss of wildlife habitat and foraging area.	Loss of 21 acres of native vegetation, including 1 acre of wetlands. Loss of wildlife habitat and foraging area. Replacement with more landscaped areas. Impact on Santa Ana River woolly-star and 5 other sensitive species.	No impact. Potential increase in habitat value.
• Cultural Resources	No significant resources on base; therefore, redevelopment will have no impact. Off-base road improvements may affect resources.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	No impact.

* No-Action Alternative summarizes impacts relative to the closure baseline conditions.

on key road segments serving the base would be maintained at LOS E or above. The Proposed Action also incorporates plans to realign and connect Tippecanoe Avenue and Del Rosa Drive on base to provide improved access and traffic flow. These improvements would ensure an adequate local transportation network but would not alleviate expected degradation in LOS of segments of Interstate Highways 10 and 215, even if there is no reuse of Norton AFB. These problems with regional transportation would occur with or without base reuse.

Airspace conflicts are also a concern with the Proposed Action. Approach and departure routes for Norton AFB overlap and directly interact with routes in and out of Ontario International Airport. Although no problems are anticipated as a direct result of the Proposed Action, future plans to expand the Ontario airport could result in a cumulative capacity problem.

Utility consumption associated with the Proposed Action would represent a relatively small increase in the total demand within the service areas of various utility providers. The Proposed Action involves replacement of virtually all on-base distribution systems, but off-base services would not require substantial alterations.

Hazardous Materials/Hazardous Waste. The types of hazardous materials and wastes used and generated by the Proposed Action are expected to be similar to those present during preclosure use. The quantities are expected to be somewhat greater. The responsibility for managing hazardous materials and waste would shift from a single user to multiple, independent users. This may result in a reduction of service if there is no single on-site organization capable of responding to hazardous materials and hazardous waste spills. The incorporation of extensive landscaping and amenities in the office/industrial park is expected to result in an increase in use of pesticides, herbicides, and fungicides. It is assumed that adequate management procedures would be imposed, as required by applicable laws and regulations, to ensure proper use and handling of these materials.

Reuse activities are not expected to affect the remediation of Installation Restoration Program (IRP) sites, which is proceeding according to a Federal Facilities Agreement (FFA) involving the Air Force, the U.S. Environmental Protection Agency, and the state of California. However, the IRP schedule could result in delays in the conveyance of contaminated sites for reuse. In general, this is not expected to hamper most reuse plans, but the golf course could be unusable for a period of time.

Existing underground storage tanks (USTs) not in conformance with current regulations would be removed by the Air Force prior to base closure, as would all polychlorinated biphenyl (PCB) equipment with 50 parts per million (ppm) or greater. Future demolition and renovation of structures with asbestos-containing materials are assumed to be performed by new owners in compliance with applicable regulations and National Emissions Standards

for Hazardous Air Pollutants (NESHAP). No impacts due to radon or medical/biohazardous materials are expected under the Proposed Action.

Natural Environment. The Proposed Action would involve use of aggregate resources for construction, which are available in the local area. Development on the base would reduce the availability of these resources for mining, but other potential reserves are adequate to meet projected regional demands. New construction would be required to conform to building codes for Seismic Zone IV. Soils in the area are not particularly susceptible to erosion, so this is not expected to be an adverse impact. Construction activity would change surface drainage flows and may increase the amount of impervious surface.

Water consumption would increase by about 5 million gallons per day (MGD). The San Bernardino Valley Municipal Water District (SBVMWD) currently supplements local groundwater sources with other sources (i.e., surface water and imported water). Increased supplemental supplies will be needed to meet the additional demand from the Proposed Action. Air pollutant emission increases associated with the Proposed Action could delay the South Coast Air Quality Management District's (SCAQMD) efforts to bring the South Coast Air Basin (SCAB) into attainment of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for particulate matter, the CAAQS for ozone, and the CAAQS for carbon monoxide. Attainment of standards for other pollutants is not expected to be affected.

Aircraft noise associated with the Norton AFB airfield would be less under the Proposed Action than prior to base closure. Approximately 780 acres would be exposed to day-night noise levels (DNL) of 65 decibels (dB) or greater by the year 2005. Six existing residences would be within this area, where nine people reside as of June 1992. The area exposed to DNL of 65 dB or greater would decrease to about 300 acres by 2015, when new, quieter aircraft would predominate. This contrasts with about 7,300 acres exposed to those noise levels under preclosure conditions. Surface traffic noise would increase over certain roads.

The Proposed Action has the potential for adversely affecting biological resources on base. These resources are protected as long as the base remains in federal ownership. Future development could subject the endangered Santa Ana River woolly-star to adverse impacts. The Los Angeles Little Pocket Mouse and San Bernardino Merriam's kangaroo rat, both category 2 candidate species for listing as threatened or endangered, could also be affected. Foraging habitat for Swainson's hawk (state listed as threatened), habitat for the burrowing owl (state species of special concern), and habitat for the loggerhead shrike (a Category 2 candidate for federal listing) would be reduced. A loss of less than 1 acre of wetland would likely occur due to further channelization for flood control. There

would be no effect on cultural resources. Potential off-base impacts would be subject to state and, possibly, federal requirements regulating the treatment of these resources.

AIRPORT WITH MIXED USE ALTERNATIVE

The impacts of this alternative would be similar to those of the Proposed Action. The following summarizes the primary differences. Influencing factors and environmental impacts are presented in comparative form in Tables S-1 and S-2.

Local Community. This alternative would generate about 22,800 direct and 19,900 secondary jobs by the year 2015. About 28,900 of these jobs would occur in the ACS. Population in the San Bernardino-Riverside county region is projected to increase by about 26,300 compared to the post-closure baseline. An estimated 15,700 of this increase would be in the ACS communities. Land use on base would be more similar to preclosure conditions, maintaining the mixed-use patterns that currently characterize the base and the surrounding areas. The Airport with Mixed Use Alternative would be consistent with regional policies for improving the jobs-housing balance. Continued use of portions of the base for residential, commercial, and recreational activities would be inconsistent with the city of San Bernardino's proposed zoning for base property, which has not been adopted. Aircraft operations would be similar to the Proposed Action, so similar changes would be appropriate to the San Bernardino Development Code and policies of Redlands and Highland. Transportation, airspace, and utilities impacts would be essentially the same as reported for the Proposed Action. Improvements would be required to segments of Fifth and Mill streets to maintain LOS E or above.

Hazardous Materials/Hazardous Waste. There would be minor differences between the Airport with Mixed Use Alternative and the Proposed Action with respect to hazardous materials and hazardous waste management. Because this alternative includes residential land uses, consideration was given to the potential for radon hazards, but a survey conducted on base revealed levels below the U.S. Environmental Protection Agency's threshold for recommending mitigation.

Natural Environment. Impacts from this alternative on soils, geology, water resources, air quality, and biological resources would be similar as reported for the Proposed Action. Aircraft noise effects would also be similar, with about 750 acres exposed to DNL levels of 65 dB or greater in 2005, the noisiest year. Currently, six residences, presently occupied by nine people, exist within this area. Surface traffic noise would increase on some local roads. There would be no effect on cultural resources. Potential off-base impacts would be subject to state and, possibly, federal regulations.

AIRCRAFT MAINTENANCE CENTER ALTERNATIVE

This alternative differs from the Proposed Action and the Airport with Mixed Use Alternative in the number and type of aircraft operations and the inclusion of aggregate mining as a land use. Resulting differences in impacts are briefly described below and presented in comparative form in Tables S-1 and S-2.

Local Community. This alternative would generate about 18,100 direct and 16,200 indirect jobs by the year 2015. About 23,100 of these jobs would occur in the ACS. Population in the two-county region is projected to increase by about 21,000 compared to the post-closure baseline. An estimated 12,500 of this number would settle in the ACS communities. Land use in the main developed part of the base west of the airfield would be similar to the Airport with Mixed Use Alternative. The eastern portion of the base, including 27 acres in the Santa Ana Wash, would be devoted to aggregate mining. This could present a potential land use conflict with adjacent areas, requiring setbacks and screening to reduce adverse effects. Continued use of portions of the base for residential, commercial, and recreational activities would be inconsistent with the city of San Bernardino's proposed, but not adopted, zoning for base property. Aircraft operations would be substantially less than the Proposed Action and Airport with Mixed Use Alternative because there would be no commercial passenger service. The requirement for Airport Overlay Districts in the San Bernardino Development Code, as well as development restrictions in Redlands and Highland, would be eliminated. This would also reduce cumulative airspace conflicts with Ontario International Airport. Transportation and utilities impacts would be similar to the Airport with Mixed Use Alternative; only Mill and Fifth streets would require widening to maintain LOS E or above.

Hazardous Materials/Hazardous Waste. The Aircraft Maintenance Center Alternative would be similar to the Airport with Mixed Use Alternative with respect to hazardous materials and hazardous waste management. The area identified for potential mining includes a former base landfill, which is an IRP site. Plans for remediation of that site could affect the location and extent of aggregate mining activities.

Natural Environment. Impacts from this alternative on soils, geology, water resources, and air quality would not differ substantially from the Proposed Action. Mining activity would have to be carefully managed, including establishment of a reclamation program, to preclude significant effects on soils and drainage in the area. Mining in the Santa Ana Wash would require diverting the stream channel, which could result in sedimentation downstream and temporary loss of wetlands. Aircraft noise effects would be less, with areas exposed to DNL levels of 65 dB or greater confined to the immediate vicinity of the airfield. Noise would be greater in the area of

aggregate mining, due to aggregate processing, excavation, and transportation. Mining in the Santa Ana Wash and warehouse development would affect native vegetation and riparian areas, as well as habitat for the endangered Santa Ana River woolly-star, Los Angeles little pocket mouse, and San Bernardino Merriam's kangaroo rat, all federal candidate species for listing as threatened or endangered. There would be no effect on cultural resources. Potential off-base impacts would be subject to state and, possibly, federal regulations.

NON-AVIATION ALTERNATIVE

This alternative would replace aviation-related land uses with residential development. Therefore, there would be no impacts associated with aircraft operations. Impacts are briefly described below and summarized in Tables S-1 and S-2.

Local Community. This alternative would generate 25,500 direct and 19,800 secondary jobs by the year 2015. About 31,400 of these jobs would occur in the ACS. This would result in a population increase in the San Bernardino-Riverside County region of approximately 28,800. It is estimated that 17,300 of these people would settle in the ACS communities. Land use in the main developed part of the base, west of the airfield, would be similar to the Airport with Mixed Use Alternative. The airfield and eastern portion of the base would be developed for single-family residential use, with some neighborhood commercial and community service (schools) uses. This alternative would be inconsistent with the city of San Bernardino's proposed, but not adopted, zoning for base property, which emphasizes airport and office/industrial uses. It would also be inconsistent with regional goals to balance jobs and housing. The requirement for Airport Overlay Districts in the San Bernardino Development Code, as well as restrictions in Redlands and Highland, would be completely eliminated, as would cumulative airspace conflicts with Ontario International Airport. Transportation and utilities impacts would be similar to the Proposed Action. Improvements would be needed to segments of Fifth, Alabama, and Mill streets.

Hazardous Materials/Hazardous Waste. There would be some difference between the Non-Aviation Alternative and the Proposed Action and other alternatives with respect to hazardous materials and hazardous waste management, largely in the quantities of fuel and hazardous materials likely to be used or stored on site. There would be more household use of oils, pesticides, herbicides, and fungicides and less fuels and hazardous materials used for industrial purposes. IRP sites in the northeast portion of the base could delay development of residential land uses.

Natural Environment. Impacts from this alternative on soils, geology, water resources, air quality, and biological resources would be similar to the Proposed Action. There would be no noise effects from aircraft operations,

but traffic noise would increase on some roads. There would be no effect on cultural resources. Potential off-base impacts would be subject to state and, possibly, federal regulations.

OTHER LAND USE CONCEPTS

Other land use concepts are analyzed in terms of their effects on employment, population, and the environment when combined with the Proposed Action and the other alternatives. The effects of each concept on on-site employment and population and on development relative to the Proposed Action and each alternative are summarized in Table S-3. Impacts on the local community and the environment associated with the implementation of other land use concepts are summarized in Table S-4.

Most of these independent uses involve individual buildings or small parcels of land and could be integrated with any one of the reuse plans with little impact. There are a few exceptions. The U.S. Department of Agriculture has requested land for administrative and other functions and access to airport facilities for use by the Forest Service. This request could be only partially accommodated with the Non-Aviation Alternative. Some proposals involving use of existing facilities, such as those submitted by the Department of Veterans Affairs, the Department of the Interior, and the San Bernardino County work furlough program, would not be consistent with the long-term objectives of the Proposed Action but could be an integral part of the alternative reuse plans evaluated. Aggregate mining in conjunction with the Proposed Action and Airport with Mixed Use Alternative could severely constrain aviation support development and efficient use of the airfield and would increase impacts on biological resources. In conjunction with the Non-Aviation Alternative, aggregate mining could adversely affect adjacent residential land uses.

NO-ACTION ALTERNATIVE

Local Community. Under this alternative, the Air Force would still retain 146 acres for the BMO and military family housing. The only other Air Force activities associated with the No-Action Alternative would be caretaker maintenance of the remaining 1,981 acres of the base. This would generate less than 100 direct and secondary jobs. There would be no overall increase in employment or population. The presence of an essentially vacant and unused area in the middle of the community could hamper or delay redevelopment and revitalization of adjacent lands. No effects on utilities or on road, air, or railroad transportation are expected. LOS on I-10 and I-215 would continue to deteriorate independent of base activity.

Hazardous Materials/Hazardous Waste. Small quantities of various types of hazardous materials, hazardous waste, and pesticides, herbicides, and

Hazardous Materials/Hazardous Waste. Small quantities of various types of hazardous materials, hazardous waste, and pesticides, herbicides, and fungicides would be used for this alternative. All hazardous materials and waste would be managed and controlled by the Air Force's disposal management team in accordance with applicable regulations. Security of IRP sites would be enhanced under this alternative. All USTs would be removed or maintained in place according to required standards.

Natural Environment. This alternative would result in negligible impacts on air quality, the noise environment, and biological resources. The No-Action Alternative would not impact geological resources, soils, water resources, or cultural resources relative to baseline conditions.

Table S-3. Effects of Other Land Use Concepts Relative to Alternatives
Page 1 of 3

Agency/Proposal	Employment/Population	Alternative	Change in Reuse Plan
U.S. Department of the Interior (sponsor)/ City and County Parks and Recreation	140 direct jobs.	Proposed Action	Reduced OIP, commercial, and aviation support development. Net decrease of 2,992 on-site jobs.
		Airport with Mixed Use	Reduced OIP, commercial, and aviation support development. Net decrease of 778 on-site jobs.
		Aircraft Maintenance Center	Reduced aggregate mining development. Net increase of 11 on-site jobs.
		Non-Aviation	Reduced residential development. Net decrease of 211 single-family units. Net increase of 24 on-site jobs.
U.S. Department of Agriculture/ Forest Service-west site	150 direct jobs.	Proposed Action	Reduced OIP and aviation support development. Net decrease of 629 on-site jobs.
		Airport with Mixed Use, Aircraft Maintenance Center	Reduced commercial and aviation support development. Net decrease of 368 on-site jobs.
		Non-Aviation	Reduced commercial development. Net decrease of 286 on-site jobs.
U.S. Department of Agriculture/ Forest Service-east site	150 direct jobs.	Proposed Action	Reduced commercial development. Net decrease of 1,234 on-site jobs. Severely limits area for general aviation.
		Airport with Mixed Use	Reduced aviation support development. Net decrease of 665 on-site jobs. Limits area for general aviation.

Table S-3. Effects of Other Land Use Concepts Relative to Alternatives
Page 2 of 3

Agency/Proposal	Employment/Population	Alternative	Change in Reuse Plan
Department of Agriculture/Forest Service - east site (Cont'd)		Aircraft Maintenance Center	Limited airfield access. Reduced aggregate mining development. Site is divided into two parcels. Net increase of 145 on-site jobs.
		Non-Aviation	Reduced residential development. Net decrease of 63 single-family units. Net increase of 150 on-site jobs.
U.S. Department of Agriculture/ Forest Service-office and warehouse sites	150 direct jobs.	Proposed Action	Reduced OIP development. Net decrease of 140 on-site jobs.
		Airport with Mixed Use, Aircraft Maintenance Center, Non-Aviation	Reduced OIP and warehousing development. Net decrease of 29 on-site jobs.
U.S. Department of Education (sponsor) State/Community Higher Education	250 direct jobs; Up to 1,000 students.	Proposed Action	Reduced OIP and aviation support development. Net decrease of 40 on-site jobs.
		Airport with Mixed Use	Reduced residential and OIP development. Net decrease of 40 on-site jobs and 104 multi-family dwelling units.
		Aircraft Maintenance Center, Non-Aviation	Reduced residential and OIP development. Net decrease of 40 on-site jobs and 80 multi-family dwelling units.
U.S. Department of Veterans Affairs	140 direct jobs.	Proposed Action	Reduced OIP development. Net decrease of 1,021 on-site jobs.
		Airport with Mixed Use	Reduced residential and OIP development. Net decrease of 87 on-site jobs and 104 multi-family dwelling units.

Table S-3. Effects of Other Land Use Concepts Relative to Alternatives
Page 3 of 3

Agency/Proposal	Employment/Population	Alternative	Change in Reuse Plan
U.S. Department of Veterans Affairs (Cont'd)		Aircraft Maintenance Center, Non-Aviation	Reduced residential and OIP development. Net decrease of 87 on-site jobs and 160 multi-family dwelling units.
U.S. Postal Service	400 to 500 direct jobs.	Proposed Action	Reduced OIP development. Net decrease of 81 on-site jobs.
		Airport with Mixed Use, Aircraft Maintenance Center, Non-Aviation	Reduced warehousing development. Net increase of 369 on-site jobs.
McKinney Act/Homeless Housing	No direct jobs; housing of 70 homeless persons per building.	Proposed Action	Reduced OIP development. Net decrease of 140 on-site jobs per building.
		Airport with Mixed Use, *Aircraft Maintenance Center,* Non-Aviation	No change.
San Bernardino County/ Work Furlough Program	25 direct jobs; 210 inmates.	Proposed Action, Airport with Mixed Use, Aircraft Maintenance Center, Non-Aviation	Reduced OIP development. Net decrease of 265 on-site jobs.
Aggregate Mining	55 direct jobs.	Proposed Action Airport with Mixed Use	Reduced airfield and aviation support development. Net decrease of 32 on-site jobs.
		Aircraft Maintenance Center	No net effects
		Non-Aviation	Reduced residential and commercial development. Net decrease of 1,350 single-family units. Net decrease of 352 on-site jobs.

Table S-4. Summary of Impacts from Other Land Use Concepts
Page 1 of 4

Resource Category	Department of Agriculture	Department of the Interior	Department of Education	Department of Veterans Affairs
Local Community				
• Land Use and Aesthetics	No impact.	No impact.	No impact.	No impact.
• Transportation	Minor impact.	No impact.	No impact.	No impact.
• Utilities	No impact.	No impact.	No impact.	No impact.
Hazardous Materials and Waste				
• Hazardous Materials Management	Fuels and other materials used in conjunction with aviation activities and fire fighting.	Minimal quantities.	Minimal quantities, mostly in aviation training.	Minimal quantities.
• Hazardous Waste Management	Some wastes generated by aviation activities.	Minimal quantities.	Minimal quantities.	Minimal quantities.
• Installation Restoration Program	Minor impact.	May delay reuse of golf course.	No impact.	No impact.
• Storage Tanks	No impact.	No impact.	No impact.	No impact.
• Asbestos	Renovation of existing buildings may require removal and disposal and/or management in place.	No impact.	Use or modification of existing buildings may require removal/disposal or management in place.	Use or modification of existing buildings may require removal/disposal or management in place.
• Pesticides	Little to no use anticipated.	Used in maintenance of golf course and other grounds.	Little to no use anticipated.	Little to no use anticipated.

Table S-4. Summary of Impacts from Other Land Use Concepts
Page 2 of 4

Resource Category	Department of Agriculture	Department of the Interior	Department of Education	Department of Veterans Affairs
• PCBs	No impact.	No impact.	No impact.	No impact.
• Radon	Below level of concern.	Below level of concern.	Below level of concern.	Below level of concern.
• Medical/Biohazardous Wastes	None generated.	None generated.	None generated.	Small quantities from clinic.
Natural Environment				
• Soils and Geology	Minor impacts from disturbance if new construction involved.	No impact.	No impact.	No impact.
• Water Resources	No impact.	No impact.	No impact.	No impact.
• Air Quality	Minor impacts from construction and emission increases during operations.	Minor amounts of emissions.	Minor amounts of emissions.	Minor amounts of emissions.
• Noise	Periodic increases in noise during mobilization periods.	No impact.	No impact.	No impact.
• Biological Resources	Minor loss of weedy vegetation if construction required.	No impact.	No impact.	No impact.
• Cultural Resources	No impact.	No impact.	No impact.	No impact.

Table S-4. Summary of Impacts From Other Land Use Concepts
Page 3 of 4

Resource Category	U.S. Postal Service	McKinney Act	San Bernardino County	Aggregate Mining
Local Community				
• Land Use and Aesthetics	No impact.	No impact.	No impact.	Potential impact on nearby residents.
• Transportation	Minor increase in truck traffic.	No impact.	No impact.	Increase in truck traffic, especially on Third and Alabama streets.
• Utilities	No impact.	No impact.	No impact.	Increase in water use.
Hazardous Materials and Waste				
• Hazardous Materials	Minimal quantities.	No use anticipated.	No use anticipated.	Small quantities associated with vehicles and processing equipment.
• Hazardous Waste	Minimal quantities.	None anticipated.	None anticipated.	Small quantities generated.
• Installation Restoration Program	No impact.	No impact.	No impact.	Remediation of old landfill may constrain mining.
• Storage Tanks	No impact.	No impact.	No impact.	No impact.
• Asbestos	May require management in place.	May require removal and/or management in place.	May require removal and/or management in place.	No impact.
• Pesticides	Little to no use anticipated.	Little to no use anticipated.	Little to no use anticipated.	No use anticipated during excavation and processing. Some use may be involved in reclamation.
• PCBs	No impact.	No impact.	No impact.	No impact.
• Radon	Not applicable.	Below level of concern.	Below level of concern.	Not applicable.
• Medical/Biohazardous Wastes	None generated.	None generated.	None generated.	None generated.

Table S-4. Summary of Impacts From Other Land Use Concepts
Page 4 of 4

Resource Category	U.S. Postal Service	McKinney Act	San Bernardino County	Aggregate Mining
Natural Environment				
• Soils and Geology	No impact.	No impact.	No impact.	Increase in supply of aggregate. Increase soil disturbance and change in land contours.
• Water Resources	No impact.	No impact.	No impact.	Potential temporary increase in erosion and sedimentation due to diversion of Santa Ana River channel.
• Air Quality	Minor impacts from emissions increases associated with operations.	No impact.	Minor amounts of emissions.	Minor impacts from emissions increases associated with mining activities.
• Noise	Minor traffic noise from trucks	No impact.	No impact.	Noise from excavation, processing, and transportation.
• Biological Resources	No impact.	No impact.	No impact.	Loss of vegetation and habitat, including wetland and riperian areas. Impacts to the endangered Santa Ana River woolly-star, and 5 other sensitive species.
• Cultural Resources	No impact.	No impact.	No impact.	No impact.

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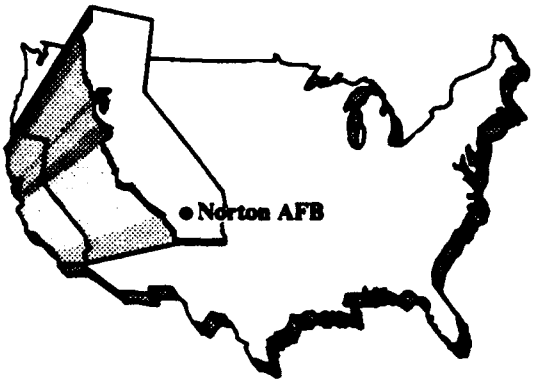

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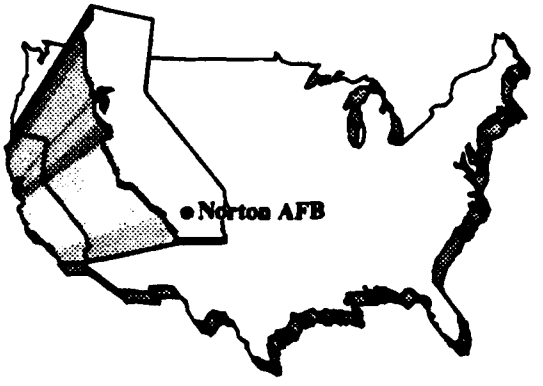

CHAPTER 1
PURPOSE AND NEED FOR ACTION

1.0 PURPOSE AND NEED FOR ACTION

This environmental impact statement (EIS) examines the potential impacts to the environment resulting from the disposal and reuse of Norton Air Force (AFB) Base, 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.

1.1 PURPOSE AND NEED

This EIS addresses the disposal of Norton AFB, in whole or part, to other federal agencies, public entities, and/or private parties. The disposal of Norton AFB is authorized by the Defense Authorization Amendments and Base Closure and Realignment Act (BCRA) (Public Law [P.L.] 100-526) and the recommendations of the Secretary of Defense's Commission on Base Realignment and Closure. The Secretary of Defense established the Commission in May 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 U.S. Congress and the President endorsed the Commission and its charter by implementing the Defense Authorization Amendments and BCRA on October 24, 1988.

On December 29, 1988, the Commission submitted its report to the Secretary of Defense, recommending realignments and closures affecting 145 military installations. Of these installations, 86 are to be closed, including Norton 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 realignments and closures of the selected installations. Congress did not pass a joint resolution disapproving the Commission's recommendations. Under the provisions of the BCRA, the Secretary of Defense must initiate the recommended closures and realignments by September 30, 1991 and complete them before September 30, 1995.

The Norton AFB property will be disposed of in compliance with the BCRA and the Federal Property Management Regulations (FPMR) (41 Code of Federal Regulations [CFR] 101-47), as amended by the Air Force (41 CFR 132-47).

Air Force decisions regarding Norton 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 Norton AFB property through transfer and/or conveyance to other government agencies and/or private parties. The Proposed Action supports use of the existing airfield to attract international trade and commerce to the inland valley region of southern California, replace employment lost as a result of the closure of Norton AFB, and integrate reuse of the base into the surrounding community.

Because the parcelization and disposal methods represent legal processes and do not directly affect the environment, this EIS will focus on the environmental impacts associated with the reuse implemented by future owner(s). The Air Force has based its Proposed Action on plans developed by the Inland Valley Development Agency (IVDA) for the purpose of conducting the required environmental analysis. In addition, the Air Force has analyzed the environmental impacts associated with other reasonable reuse plans received during the scoping period. The Air Force also developed additional alternatives in order to provide the basis for a broad environmental analysis, thus ensuring that all reasonably foreseeable impacts resulting from potential reuse have been identified. The recipient(s) of the property will ultimately determine the reuse of the property. Five alternatives have been identified, which include three aviation reuse proposals, one non-aviation reuse, and a No-Action Alternative that would not involve reuse.

In some cases, compliance with environmental laws may delay the Air Force's final disposal of the property while remedial actions are conducted on contaminated property. Until property can be transferred by deed, the Air Force may execute long-term leases with the ultimate recipients to allow reuse to begin as quickly as possible. The Air Force would structure the leases to provide the lessees with maximum control over the property, consistent with the terms of the final disposal and with any restrictions necessary to protect the remedial actions. In these cases, it is the Air Force's intent to dispose of leased property by converting leases to deeds at the earliest possible date.

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. In July 1990, the Air Force released the *Final Environmental Impact Statement for the Closure of Norton AFB*, which addressed the environmental impacts associated with closure (U.S. Air Force, 1990e). The Record of Decision (ROD) was signed on October 3, 1990 and 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 Norton AFB. Following the completion and consideration of this EIS, the Air Force will make a series of interrelated decisions regarding transfer, conveyance, and parcelization of the affected property. The federal decision documents, such as the ROD, will state the terms and conditions of the conveyance, including the mitigation measures, if any, that will be implemented by the Air Force or required of the recipients of the base properties. These decisions will affect the environment by determining or influencing the nature of the future use of the property.

Because the parcelization and disposal methods do not directly affect the environment, this EIS will focus on the environmental impact associated with the reuse implemented by future owners. This EIS addresses a range of reasonable, post-disposal reuse alternatives to help identify and evaluate indirect environmental impacts associated with Air Force disposal of the affected property.

The Air Force has adopted the redevelopment plans developed by the IVDA as the Proposed Action for the purpose of conducting the required environmental analysis. In addition, the Air Force has also analyzed the environmental impacts associated with other reasonable reuse alternatives to ensure that potential environmental impacts have been identified. These include two aviation reuse proposals, a non-aviation reuse, and a no-action alternative that involves no reuse. Actual decisions on reuse of the property will be made by its recipients subsequent to transfer or conveyance.

Certain activities inherent in the development or expansion of an airport constitute federal actions that fall under the statutory and regulatory authority of the Federal Aviation Administration (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 its effectiveness in achieving safe and efficient utilization of airspace, (2) assess factors affecting the movement of air traffic, and (3) establish conformance with FAA design criteria. 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, other navigational and visual aids, and facilities.

In view of its possible direct involvement with the disposal of Norton 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. Code [USC] 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 provides the assessment of potential environmental impacts of the proposed Airport Plan developed by the IVDA and required by the NEPA and Federal Aviation Regulations (FARs). It also provides environmental assessment information to aid FAA decisions on funding requests for airport development projects through covenants in the deed of conveyance. If the runway and associated land are to be conveyed and developed as an airport, the new owners are required to prepare an ALP and submit it to the FAA for approval.

The U.S. Department of Agriculture, Forest Service (USFS), Pacific Southwest Region is also a cooperating agency in the preparation of this EIS. The Forest Service has a variety of facilities scattered throughout southern California and is looking at Norton AFB as a potential site for facility consolidation. Facilities and/or land for the San Bernardino National Forest Supervisor's Office and emergency fire equipment cache and aviation needs will be considered in the EIS process. The USFS is a land management agency and has expertise in the area of land management planning.

This EIS analyzes the socioeconomic impacts of disposal and reuse of Norton AFB property only to the extent that those impacts affect the natural or physical environment. A concurrent, detailed *Socioeconomic Impact Analysis Study* analyzes in greater detail the socioeconomic impacts of the base closure, disposal, and reuse of the base property. It describes the effects on the local communities and the transition of activities on the base from conditions prior to closure through redevelopment, to address the concerns of state and local agencies and the general public regarding those issues.

1.3 SCOPING PROCESS

The scoping process identifies the significant environmental issues relevant to the Proposed Action and alternatives and provides an opportunity for public involvement in the development of the EIS in accordance with NEPA requirements.

The *Notice of Intent* (Appendix C) to prepare an EIS for disposal and reuse of Norton AFB was published in the *Federal Register* on February 19, 1991. Local notification of the public scoping meeting was achieved through direct mail, as well as media releases in the area.

A scoping meeting regarding the disposal and reuse of Norton AFB was held on March 20, 1991 at 300 North D Street, City Council Chambers, San Bernardino, California, to solicit comments and concerns from the general public. Approximately 50 people attended the meeting. Representatives of the Air Force presented an overview of the meeting objectives, agenda, and procedures, and described the process and purpose for the development of a disposal and reuse EIS. These presentations were followed by the public comment portion of the meeting. In addition to verbal comments received at the meeting, written comments were also received during the scoping process. These included comprehensive and partial base reuse plans proposed by federal agencies and local communities.

These comments, as well as information from previous Air Force projects and meetings with the IVDA, were used to determine the scope and direction of studies/analysis to accomplish the EIS. In addition, during public

review of the *Draft Norton AFB Closure EIS*, various issues related to the disposal and reuse of the base were identified, which are also addressed in this EIS. Copies of this EIS have been sent to all interested parties; Appendix D contains the distribution list.

1.3.1 Summary of Scoping Issues and Concerns

The issues and concerns raised during the scoping process for consideration in this EIS are discussed below.

Reuse Proposals

Comments addressing proposed land use plans for Norton AFB included one comprehensive reuse proposal, submitted by IVDA, and several partial proposals for limited acreage or specific facilities, including the following:

- Federal correctional institution (Note: This proposal was withdrawn by the U.S. Department of Justice, Federal Bureau of Prisons on January 27, 1992)
- U.S. Postal Service facilities
- Consolidation of administrative and air operations of the USFS
- Clinic and other facilities for use by the U.S. Department of Veterans Affairs (VA)
- Several classrooms, support facilities, and a training site for San Bernardino Valley College and other school systems identified by the U.S. Department of Education
- San Bernardino County work furlough site
- Recreation facilities
- Park for city of Highland using half of noncontiguous 30-acre parcel
- Use of some living quarters for the mentally disabled
- Continued availability of selected support facilities for retirees, veterans, public health service personnel, dependents, reservists, and recruiters
- Transfer of sensitive and valuable habitat and natural resources to the U.S. Fish and Wildlife Service (USFWS) and National Park Service.

Some comments were specifically against reuse of the base for work furlough and correctional facilities.

Environmental Issues

Environmental issues raised during scoping include the following:

- Impact of reuse proposals on on-base and off-base land uses
- Compatibility of reuse proposals with land uses and the general plans of surrounding communities
- Airport-related noise impacts and mitigation treatment
- Improvements required to on-base and community arterial roads
- Impacts of base reuse on growth projections and resulting transportation requirements
- Impacts on power distribution and consumption, water, wastewater, solid waste generation, and conservation initiatives
- Impacts of reuse and disposal alternatives on soils (erosion potential and dust generation)
- Seismic hazards and their impacts on new construction and increased population
- Ground and surface water quality
- Air quality from new stationary and mobile emissions sources, including ground and air traffic and construction activity
- Impacts to sensitive biological resources and wetlands
- Impacts from aircraft noise and vibration on historic structures
- Secondary impacts from increased population and induced construction of educational and recreational facilities
- Analysis of cumulative impacts
- Continued impacts from known and as yet unidentified Air Force-generated hazardous waste contamination after disposal of the base.

Additional comments were made to request that the EIS address all disposal options proposed or available by law for each parcel of the base. Comments were also made that the EIS incorporate mitigation alternatives, evaluate evolving alternatives, and include alternatives that involve significant delays in the disposal of base property.

Many comments were concerned not only with analysis of impacts, but also identification of mitigations.

1.3.2 Issues Beyond the Scope of the EIS

Concerns and issues 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 were not significant, not related to impacts on the physical or natural environment, or they have been or are being addressed by other surveys and studies.

Installation Restoration Program. The Air Force is currently conducting an Installation Restoration Program (IRP) that defines and implements the necessary procedures for the remediation of hazardous substance releases at Norton 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 and may not be for several years. The steps in this process are shown in a flow chart presented in Section 3.3, Hazardous Materials and Hazardous Waste Management.

With the base closing and reuse plans in a conceptual stage, the exact effect of IRP issues on base reuse cannot be quantified with certainty at this time. The IRP, in turn, needs additional information on reuse to ensure that risk-driven remediations are appropriate for the land uses that will occur in the future. As planning matures and additional IRP information becomes available, extensive coordination will take place over IRP and reuse issues. An in-depth consideration of IRP management and analysis procedures is beyond the scope of this EIS; however, IRP issues are discussed herein to provide a baseline for the affected environment.

The Air Force is committed to the identification, assessment, and remediation of the contamination from hazardous substances at Norton AFB. This commitment will assure the protection of the public health as well as restoration of the environment. The public may participate in the IRP through the program's Community Relations Plan. Information about this may be obtained through the Norton AFB Public Affairs Office. In addition, the general public will be invited to comment on the remediations proposed for the IRP sites through a formal process for facilities on the National Priorities List (NPL), on which Norton AFB is included. That process is similar to the process followed by this EIS, in that public hearings are held concerning proposed remediations and public comments are taken for analysis and consideration.

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 in 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 many of these issues is provided in the *Socioeconomic Impact Analysis Study*; this public document 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 Draft EIS (DEIS) was made available for public review and comment from January to March 1992.
- At a public hearing held on February 12, 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 data or changes to new 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 analysis. 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 DEIS were:

- A more thorough discussion of land use compatibility with surrounding communities should be included.
- Transportation impacts and mitigation measures should be discussed in greater detail.
- More discussion of contamination, hazardous materials, hazardous waste, and remediation was requested.
- Potential flooding and local drainage problems should be addressed more completely.
- The presentation of reuse-related construction emissions and aggregate mining impacts to air quality should be expanded.

- The discussion of the Air Force's responsibility to ensure the protection of wetlands should include more information.

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

- The appropriate sections have been updated to reflect the correct property boundaries and associated acreages.

- Section 2.3.5 was added to describe the treatment of interim uses of base property.

- Appropriate sections have been updated to reflect the withdrawal of the U.S. Bureau of Prison's proposal for a Federal Correctional Complex.

- Appropriate sections have been updated to reflect current extent of the TCE-contaminated groundwater plume.

- Hazardous Materials/Hazardous Waste Management (Sections 3.3 and 4.3) includes expanded discussions on the following:

  - FFA schedule moved from Appendix L to Section 3.3
  - Impacts of the IRP process on reuse development
  - Concept of risk associated with certain types of development and IRP sites

- Sections 3.4.2 and 4.4.2 have been revised to include existing flooding potential and the associated impacts.

- Sections 3.4.6 and 4.4.6 have been updated to include results of the cultural resource investigations and the latest status of the consultation effort with the State Historic Preservation Officer (SHPO).

- Section 4.2.3 has been revised to discuss the impacts to local plans caused by traffic congestion.

- Air quality impacts due to aggregate mining have been included in the presentation of reuse-related air quality impacts (Section 4.4.3).

- Air quality (Section 4.4.3) has been revised to include discussion of emission credits and credit transfer, as well as the conformity to the regional plans.

- Air quality analysis for NO_2 has been provided on a regional basis and not a local scale due to NO_x conversion variables (Section 4.4.3).

- Local air quality analysis has been refined in Section 4.4.3 to use actual meteorological data for modeling dispersion.
- Projections of future air emissions have been limited to the year 2010 due to the uncertainties of speculating far in the future.
- Additional potential mitigation measures for air quality impacts have been included in Section 4.4.3.
- Where applicable, the probable success of mitigation measures has been described.
- A discussion of the Air Force's responsibility toward the protection of wetlands has been included in Section 4.4.5.

1.6 RELATED ENVIRONMENTAL DOCUMENTS

The following environmental documents have been prepared separately and address environmental issues related to Norton AFB:

- *Final Environmental Impact Statement for the Closure of Norton AFB, July 1990*
- *Final Environmental Impact Statement for the Realignment of March AFB, July 1991*
- *IRP Bibliography (Appendix L).*

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

Federal, state, and local statutes, regulations, and guidelines with which the proponent and cooperating agencies must comply as related to this disposal and reuse EIS are presented in Table 1.7-1. Types of federal and federally mandated permits, and other approvals or consultations that may be required of reuse proponents are listed in Table 1.7-2.

1.8 ORGANIZATION OF THIS EIS

This EIS is organized into a number of chapters and appendices. Chapter 2 provides a description of the Proposed Action, alternatives to the Proposed Action, and other land use concepts that have been identified for reuse of Norton AFB property. Chapter 2 also briefly reviews alternatives eliminated from further consideration and identifies other, unrelated actions anticipated to occur in the region during the same time frame as the reuse activities to be considered in the analysis of cumulative impacts. Finally, Chapter 2 compares the Proposed Action and alternatives with respect to effects on the local community and the natural environment. Chapter 3 presents the affected environment under the baseline conditions of base closure, providing a basis for analyzing the impacts of the Proposed Action and

alternatives. The results of this analysis are presented in Chapter 4. Chapter 5 lists individuals and organizations consulted during the preparation of the EIS; Chapter 6 provides a list of the document's preparers; Chapter 7 contains references; Chapter 8 is an index; and Chapter 9 contains public comments and responses to the DEIS.

In addition to the main text, the following appendices are included in this document:

- Appendix A - a glossary of terms, acronyms, and abbreviations used in this document
- Appendix B - the Record of Decision for closure of Norton AFB
- Appendix C - the Notice of Intent to prepare this disposal/reuse EIS
- Appendix D - a list of individuals and organizations who were sent a copy of this Draft EIS
- Appendix E - a description of the methods used to evaluate the impacts of base reuse on resources of the local community and the environment
- Appendix F - Air Force policy regarding management of asbestos at bases that are closing
- Appendix G - Farmland Conversion Impact Rating for Norton AFB
- Appendix H - a detailed description of issues and findings related to noise effects
- Appendix I - air quality analysis methods for Norton AFB
- Appendix J - threatened, endangered, and other species of concern occurring on or near Norton AFB
- Appendix K - environmental permits held by Norton AFB
- Appendix L - list of IRP documentation.

Table 1.7-1. Relevant Federal, State, and Local Statutes, Regulations, and Guidelines
Page 1 of 5

Resource	Project Activity	Authority/Guideline	Agency
Air Quality	Changes in vehicle traffic levels of aircraft operations; changes in emissions from construction activity or the establishment or removal of any stationary source of emissions.	Clean Air Act, 42 USC §§7401 et seq.; 40 CFR Parts 50-87; California Clean Air Act; California Health and Safety Code Chapter 156B; South Coast Air Quality Management District plans and regulations.	U.S. Environmental Protection Agency; California Environmental Protection Agency; California Air Resources Board; South Coast Air Quality Management District.
	Analysis of environmental impact of development or improvement of a public airport.	Federal Aviation Administration (FAA) 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.
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 §§661 et seq., Natural Resources Act.	Department of the 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 the 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 the 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.
	Project activities that could affect stream beds.	California Fish and Game Code, Sections 1601 and 1603.	California Department of Fish and Game.

Table 1.7-1. Relevant Federal, State, and Local Statutes, Regulations, and Guidelines
Page 2 of 5

Resource	Project Activity	Authority/Guideline	Agency
Biological Resources (continued)	Project activities that may affect federally and/or state listed endangered or threatened species.	Endangered Species Act, 7 CFR Part 355 16 USC §§ 1531-1543, 7 CFR Part 355; California Fish and Game Code, §§ 2050-2098, "California Endangered Species Act of 1984".	Department of the 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); Federal-Aid Highway Act, 23 USC §138.	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; 111, Rev. Stal. 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; California Historic Preservation Act. 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 (Executive Order 11593); American Indian Religious Freedom Act, 42 USC §1996; Archaeological Resources Protection Act, 16 USC §470aa-11; Act for the Preservation of American Antiquities, 16 USC §§431-433; Archaeological and Historic Preservation Act, 16 USC §469.	Department of the Interior - National Park Service; Advisory Council on Historic Preservation, State Historic Preservation Office.

Table 1.7-1. Relevant Federal, State, and Local Statutes, Regulations, and Guidelines
Page 3 of 5

Resource	Project Activity	Authority/Guideline	Agency
Cultural Resources (continued)	Transportation programs or projects that will require the use of or have significant impacts on land of an historic site of national, state, or local significance.	Department of Transportation Act of 1966 49 USC §303; Section 15(a) of the Federal-Aid Highway Act; 23 USC §138.	U.S. Department of Transportation.
Environmental	Project activities that require state or local approval	California Environmental Quality Act, California Public Resources Code, Division 13 §2100 et seq.	California Resources Agency.
Soils and Geology	Project activities that include surface mining.	California Public Resources Code, Chapter 9, § 2710-2795, "Surface Mining and Reclamation Act of 1975".	California Division of Mines and Geology.
	Project activities that convert unique, prime farmland to nonagricultural use.	Farmland Protection Policy Act, 7 USC §§4201-4209; 7 CFR Part 658.	U.S. Department of Agriculture - Soil Conservation Service.
Land Use	Disposal of excess property and facilities.	McKinney Homeless Assistance Act, 42 USC §11411.	Department of Housing and Urban Development - Department of Health and Human Services.
	Transfer of federal properties comprising Norton Air Force Base.	Federal Property Administrative Services Act, 40 USC §471 et seq.; Base Closure and Realignment Act of 1988, P.L. 100-526.	General Services Administration; Department of Defense - U.S. Air Force.
	Control of height of structures.	Federal Aviation Regulations (FAR) Part 77.	U.S. Department of Transportation; Federal Aviation Administration.
Noise	Aircraft noise.	FAR Part 150 (14 CFR 150); U.S. Housing and Urban Development guidelines; Environmental Protection Agency guidelines; California Noise Standards, Title 21, Subchapter 6.	U.S. Department of Transportation - Federal Aviation Administration; U.S. Department of Housing and Urban Development - Federal Housing Administration; California Department of Transportation - Department of Aeronautics.
Transportation	Airspace use and air traffic.	Federal Aviation Act of 1958, as amended (P.L. 85-726); Federal Aviation Administration Handbooks 7400.2C and 8260.3.	U.S. Department of Transportation - Federal Aviation Administration.

Table 1.7-1. Relevant Federal, State, and Local Statutes, Regulations, and Guidelines
Page 4 of 5

Resource	Project Activity	Authority/Guideline	Agency
Hazardous Materials and Hazardous Waste Management	Remediation of past discharges of hazardous substances.	Comprehensive Environmental Response, Compensation and Liability Act, 42 USC §§9601 et seq. 40 CFR Part 300; Executive Order 12580 (Superfund Implementation).	U.S. Environmental Protection Agency; Department of Defense - U.S. Air Force; California Environmental Protection Agency.
	Generation and temporary storage of hazardous substances.	Resource Conservation and Recovery Act, 42 USC §§6901 et seq., 40 CFR Parts 260-271.	U.S. Environmental Protection Agency; Department of Defense- U.S. Air Force; California Environmental Protection Agency.
	Identification of asbestos-containing materials in base facilities.	Clean Air Act, 42 USC §§7401 et seq.; National Emission Standards for Hazardous Air Pollutants, 40 CFR 61; Air Force Policy on the Management of Asbestos at Closing Bases; Occupational Safety and Health Act, 29 USC §669 et seq.	Department of Defense - U.S. Air Force.
	Disposal of pesticides and pesticide containers.	Federal Insecticide, Fungicide and Rodenticide Act, 7 USC §§136 et seq.	U.S. Environmental Protection Agency; Department of Defense - U.S. Air Force.
	Closure of underground storage tanks.	Resource Conservation and Recovery Act; 42 USC §§6991 - 6991; California Administrative Code, Title 23, Subchapter 16; San Bernardino County Environmental Health code, §§33.0710-33.0722.	U.S. Environmental Protection Agency; Department of Defense - U.S. Air Force.
	Removal and storage of polychlorinated biphenyls (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.
	Location of PCB-contaminated electrical equipment.	PCB Transformer Fire Rule, 50 CFR 29, 177.	California Fire Marshall.
	Disposal of medical/ biohazardous waste.	California Medical Waste Management Act; California State Health and Safety Code, Chapter 6.1 §§20515-20589.3.	California Department of Environmental Health Services.
Water	Discharge of wastewater.	Clean Water Act, 33 USC §§1251 et seq.; The National Pollutant Discharge Elimination System permit., 40 CFR Part 122.	U.S. Environmental Protection Agency; Department of Defense - U.S. Air Force; California Environmental Protection Agency.

Table 1.7-1. Relevant Federal, State, and Local Statutes, Regulations, and Guidelines
Page 5 of 5

Resource	Project Activity	Authority/Guideline	Agency
Water (continued)	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.
	Public drinking water systems.	Safe Drinking Water Act, as amended, 42 USC §§ 300f to 300j-26.	
	Construction in/alteration of floodplain.	Executive Order 11988 (Floodplain Management).	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 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
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. Dept. of the Interior, National Park Service	Archaeological Resource Protection Act of 1979, 16 USC §470cc

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
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. Dept. of Interior, Fish & 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. Dept. of Transportation, Federal Aviation Administration	Federal Aviation Act of 1958, 49 USC App. §1432

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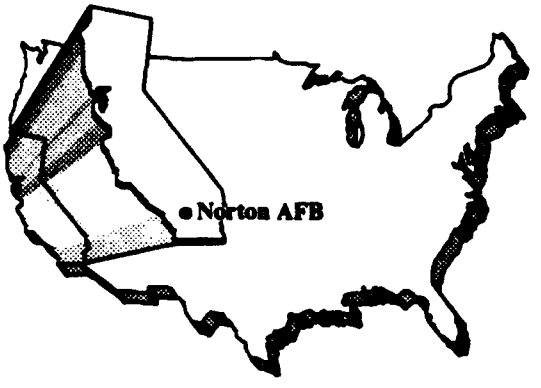


CHAPTER 2
ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

This chapter describes the Proposed Action, alternatives to the Proposed Action, and the No-Action Alternative. In addition, potential government conveyances of Norton AFB properties and facilities from DOD to other federal agencies are described, as are other independent reuse options that are not part of a complete plan. Other alternatives that were identified but eliminated from further consideration are briefly described. The potential environmental impacts of the Proposed Action, alternatives, and other land use concepts are summarized in comparative form at the end of the chapter.

2.1 INTRODUCTION

BCRA legislates the delegation of federal authority and consultative requirements. FPMR address disposal methods associated with base closure. Permissible disposal methods include transfer to another federal agency, public benefit conveyance to an eligible agency, negotiated sale to state or local government, and public sale by auction or sealed bid. Because these disposal methods are valid in the conveyance of Norton 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 of Norton AFB.

Current provisions of BCRA and FPMR require that the Air Force first notify other DOD departments that Norton AFB is scheduled for disposal. Any proposals from other DOD departments for the reuse of Norton AFB are given priority consideration, if the department is willing to purchase the property.

Under the provisions of 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.

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 the public.

One comprehensive reuse plan was provided to the Air Force during the scoping process for the disposal and reuse of Norton AFB. The proposal, developed by the IVDA, focuses on redevelopment of base property for a commercial airport with aviation support, aircraft maintenance, airport-related commercial uses, and office/industrial park (OIP). The plan was

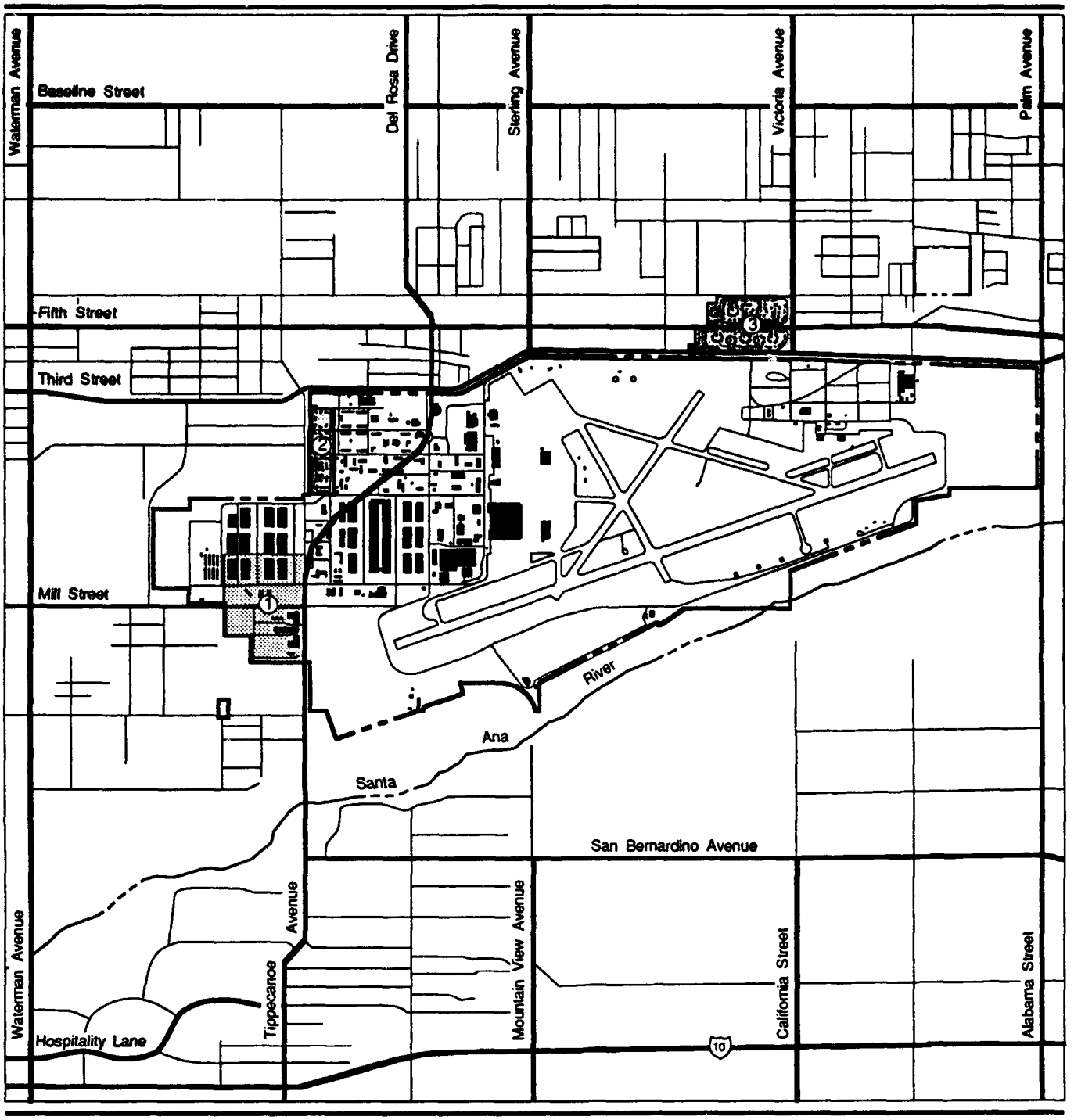
conceptual, and in order to accomplish the impact analysis, a set of general assumptions was made. Details regarding the generation of assumptions are found in Section 2.2 and in Appendix E, Methods of Analysis. All acreages used in this document are approximate.

Three additional alternatives were developed by the Air Force in order to analyze a range of potential reuse options. An Airport with Mixed Use Alternative was modeled after the Proposed Action, with the primary difference focusing on greater reuse of existing facilities and infrastructure that are structurally and functionally usable. An Aircraft Maintenance Center Alternative was developed to provide an analysis of an airport focused on general aviation and aircraft maintenance, without commercial passenger service and with an aggregate mining operation component. A Non-Aviation Alternative was also developed to provide an analysis of a wide array of possibilities. The plan includes residential use in place of an operating airfield. In addition to these reuse alternatives, the No-Action Alternative has been analyzed.

The disposal of Norton AFB does not include the properties required to support the Ballistic Missile Organization (BMO) or the existing officer and noncommissioned officer (NCO) military family housing units (Figure 2.1-2). The area retained for BMO and associated units totals 74 acres in the southwest portion of the base. The BMO facilities will support over 550 military and less than 500 civilian personnel, as well as about 900 contractor support personnel. The construction program for the consolidation of BMO activities is expected to be completed and the BMO activities are expected to be in place prior to closure. The residential areas (72 acres) include 264 military family housing units in two locations. These units will provide satellite housing for use by personnel assigned to March AFB.

2.2 DESCRIPTION OF PROPOSED ACTION

Section 204(b)(2)(D) of BCRA requires the Secretary of Defense, as part of the disposal process, to consult with the applicable state governor and heads of local governments for the purposes of considering any plan for the use of such property by the concerned local community. Air Force policy is to encourage timely community reuse planning by offering to use the community's plan for reuse or development of land and facilities as the Air Force's proposed action in the EIS. The state of California created a specific provision (Health and Safety Code Section 33320.5) in its Community Development and Housing law that allows legislative bodies for communities having territory within, adjacent to, or near a BCRA-affected military installation within San Bernardino County, to form a joint powers agency (JPA). The JPA serves as the central redevelopment agency, legislative body, and planning commission for redevelopment of any lands



EXPLANATION

- ① Ballistic Missile Organization
- ② Officer Residential Area
- ③ NCO Residential Area
- Base Boundary

0 750 1500 3000 Feet

Air Force Retained Property

Figure 2.1-2

within an approved project area within the JPA's jurisdiction. The JPA must include the county of San Bernardino as one of its members.

On June 6, 1992, the San Bernardino International Airport Authority (SBIAA) was formed as an additional JPA with responsibility to redevelop the airfield portion of the base as described in the proposed action. The membership of SBIAA consists of the cities of San Bernardino, Colton, Loma Linda, Redlands, and Highland.

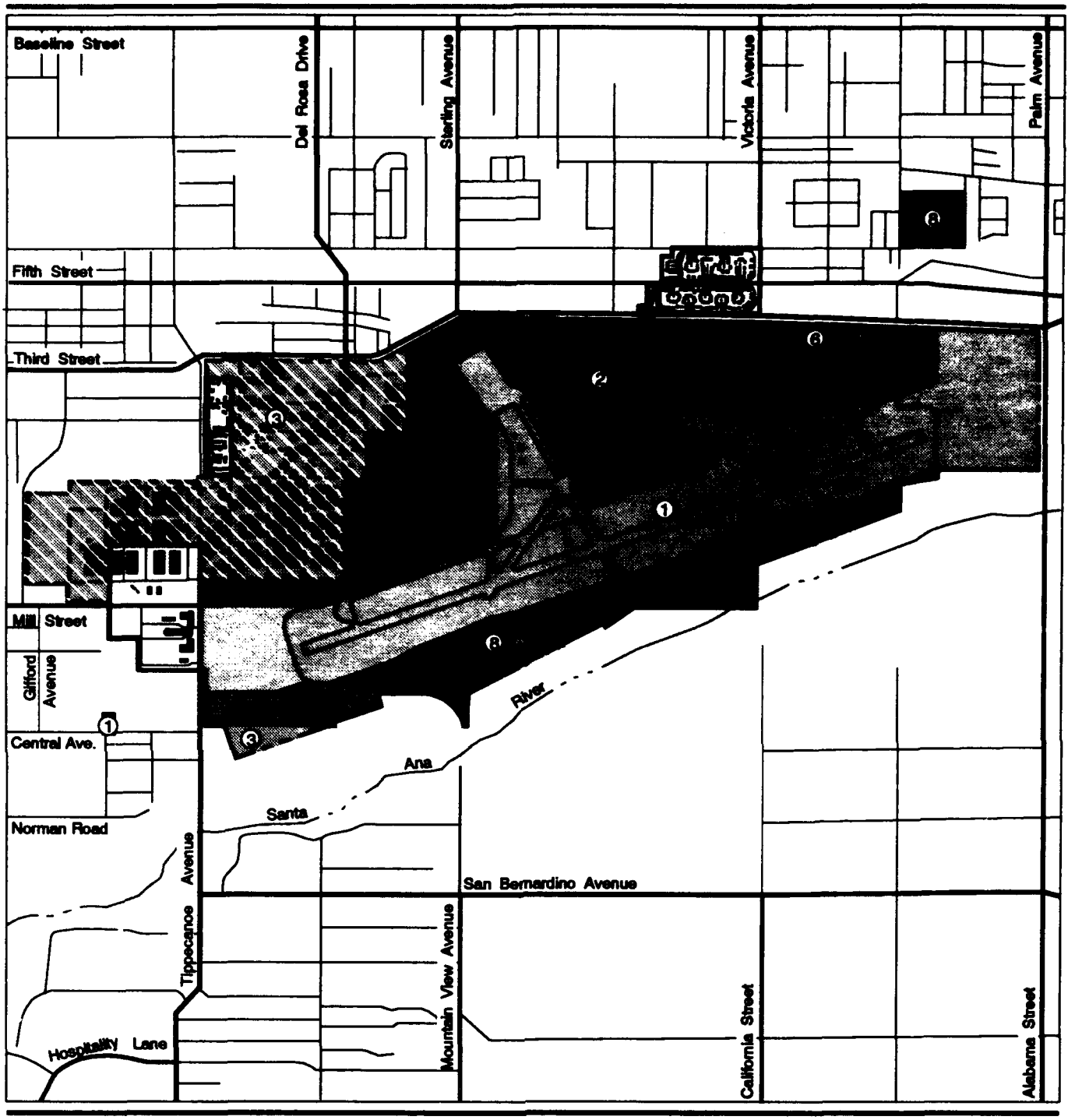
On January 24, 1990, the IVDA was formed as the JPA, to obtain title to Norton AFB and its facilities and provide for the reuse and development of the base property. The membership of IVDA includes the cities of San Bernardino, Colton, and Loma Linda and the county of San Bernardino. The cities of Redlands and Highland, which border Norton AFB on the north, east, and south have declined membership in IVDA.

IVDA contracted with consulting firms to assess existing land, facilities, and infrastructure on Norton AFB and evaluate their potential for airport and non-aviation uses. Two plans were prepared: an Airport Master Plan for the Reuse of Norton Air Force Base (P&D Technologies, 1991) and an overall Base Reuse Plan (URS Consultants, Inc., 1991a), which incorporates the Airport Master Plan by reference and focuses on non-aviation uses. These plans addressed the following:

- Airport development
- Marketing/financial analysis and strategy
- Projected employment
- Projected facility/infrastructure demolition and new construction
- Projected traffic generation.

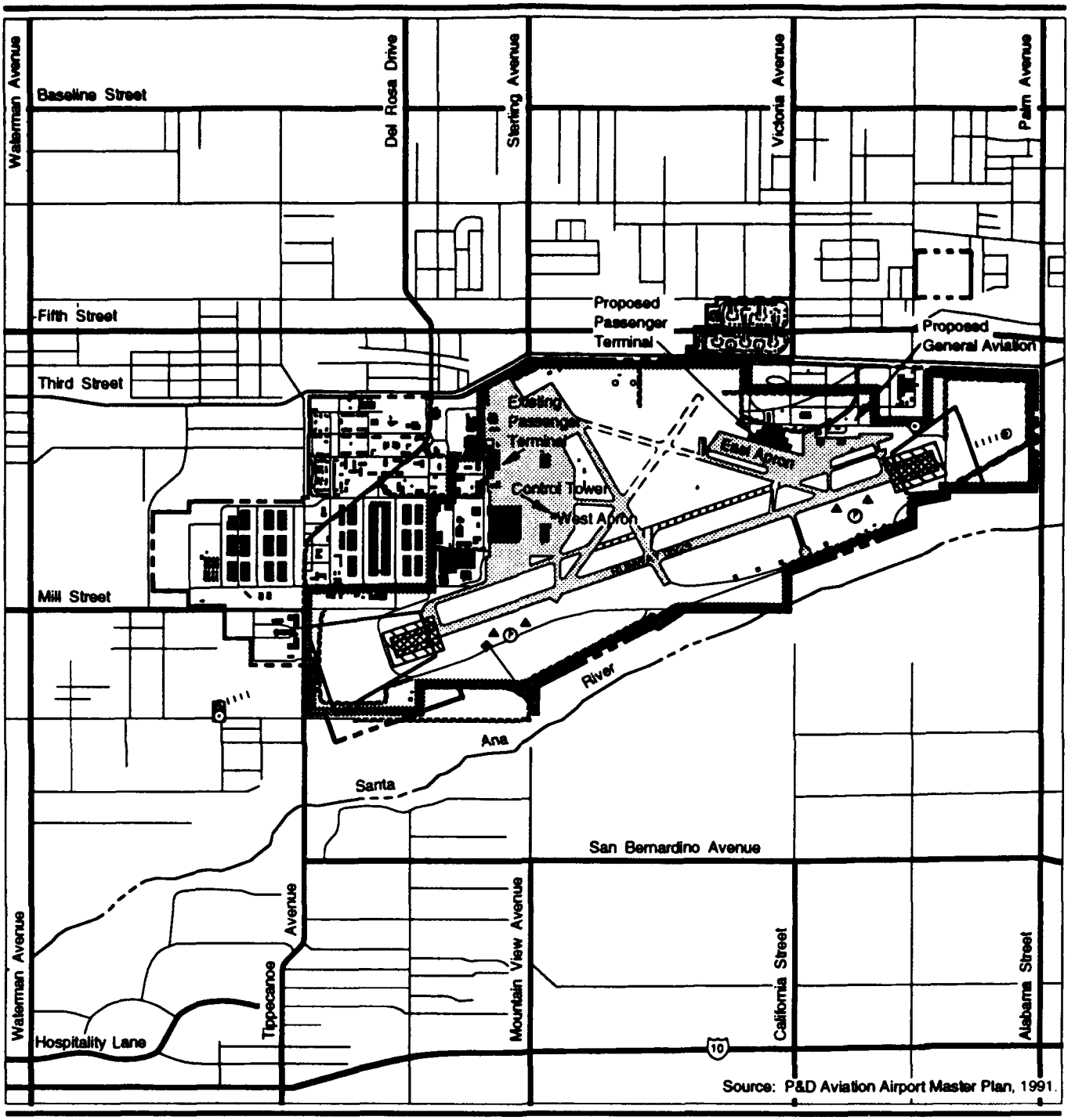
The Air Force has used these plans in developing the Proposed Action for analysis. The Proposed Action is a comprehensive reuse plan for the base centered around a civil aviation facility. The general land use for the base was established by the Mayor and Common Council of San Bernardino on February 19, 1990. The land uses presented in the Proposed Action (Figure 2.2-1) provide a framework for development within these general guidelines. The aviation-related area would encompass 1,256 acres, or about 63 percent, of the property available for disposal and would include the airfield and aviation support areas. Non-aviation land uses would cover the remaining 725 acres and include industrial, commercial, and recreational uses. The acreage associated with each land use category is provided in Table 2.2-1.

A preliminary Airport Plan, shown in Figure 2.2-2, is included in the IVDA's Airport Master Plan. The airport area in the Airport Plan includes land with direct aviation-related uses and sufficient revenue-producing land to keep



Proposed Action (Airport with Office/Industrial Park)

Figure 2.2-1



EXPLANATION

- Airport Boundary
- Airfield Pavement
- New Airfield Pavement
- Runway Safety Area
- Runway Object Free Area
- Runway Protection Zone
- Instrument Landing System (ILS) Glide Slope Site
- ALSF-II Generator/ Power Regulator
- ALSF-2 & ILS Localizer Antenna Site
- RVR Transmissometer Facility
- Wind Measuring Set
- Proposed Road Improvements
- Pavement Removal
- Base Boundary

0 750 1500 3000 Feet

Preliminary Airport Plan - Proposed Action

Figure 2.2-2

Table 2.2-1. Land Use Acreage - Proposed Action

Land Use	Acreage
Base Property	
Airfield	729
Aviation Support	527
Industrial (Warehouse)	14
Industrial (OIP)	372
Commercial	66
Public/Recreation	273
Subtotal	1,981
Air Force Retained Property	146
Total	2,127

the airport financially self-sustaining. The airport boundary in the Airport Plan has yet to be finalized, but the location of the boundary should not affect the environmental impact analysis, because land uses on base are expected to remain essentially the same regardless of real estate arrangements.

The IVDA plan covers only the contiguous portions of Norton AFB identified for disposal, along with a 3-acre noncontiguous airfield avigation equipment site located southwest of the base in the city of San Bernardino. A separate 30-acre parcel north of Fifth Street in Highland has also been identified for disposal. The Air Force has received a request from the city of Highland, supported by the U.S. Department of the Interior (National Park Service), for public benefit conveyance of a portion of this parcel for use as a municipal park. This recreational use proposal is included as part of the Proposed Action.

Information for defining the Proposed Action was obtained from the IVDA and its consultants. When information was not available, assumptions were generated for analysis purposes.

The following types of data were provided by IVDA:

- Proposed reuse options for the airfield (types of aircraft, fleet mix, annual operations, aviation support functions, aircraft maintenance uses)
- Projected air passenger demand to the year 2010
- Types of airport improvements

- Anticipated demolition/reconstruction activities (buildings, utilities/roads)
- Phasing plans for redevelopment
- Layout and general acreages of the proposed land uses
- Roadway alignment for Del Rosa Drive and Tippecanoe Avenue
- Long-range development concept for the OIP, new airport terminal, and aviation support
- Construction cost projections
- Criteria for calculating disturbed acreage.

The following assumptions were developed to expand upon the analysis:

- Flight tracks
- Incorporation of future aviation trends in the aircraft fleet mix (e.g., fleet mix represents a minimum of 50 percent Stage 3 aircraft, as applicable, in 2005 and all Stage 3 aircraft in 2015)
- Utility requirement projections to the year 2015
- Projected air passenger demand for the year 2015
- Specific land use acreages
- Employment generated by the project to the year 2015
- Projected traffic and distribution to the year 2015
- Roadway improvements to Alabama, Mill, and Fifth streets required to increase their capacity
- Percent of each land use area disturbed by construction and operation activities.

The acreages within each land use assumed to be disturbed under the Proposed Action are provided in Table 2.2-2 for three phases of development: 1995 to 2000, 2000 to 2005, and 2005 to 2015.

A detailed description of each land use category is provided below.

2.2.1 Airfield

The airfield land use category under the Proposed Action comprises 729 acres and includes runways, taxiways, apron, and runway protection zones (RPZs). It also includes 27 acres of open area in the Santa Ana

Table 2.2-2. Acres Disturbed by the Proposed Action

Land Use	Acres Disturbed (by phase)			
	1995-2000	2000-2005	2005-2015	Total
Airfield	36	0	0	36
Aviation Support	78	202	39	319
Industrial	62	180	122	364
Commercial	11	33	22	66
Public/Recreation	44	0	0	44
Total	231	415	183	829

Wash, south of the flood control levee. The Airport Master Plan indicates that the airfield would be used primarily for commercial passenger service and corporate and private general aviation. Air cargo would comprise a small percentage of airfield use. The airfield would also be used for flights associated with aircraft maintenance, overhaul, and modification activities expected to be part of the reuse of Norton AFB.

The Airport Plan (see Figure 2.2-2) provides for use of the existing runway, taxiways, and navigational aids. The runway orientation uses the existing runway layout at Norton AFB which accounts for the majority of the needed pavement. Other orientations were considered but dismissed because they would have greater adverse impacts and additional facilities would have to be relocated.

The following airfield improvements are proposed and would be developed in accordance with the FAA advisory circulars, standards, and recommendations:

- Recommission existing Runway 06/24, 10,001 feet by 200 feet with High Intensity Runway Lighting (HIRL).
- Maintain and strengthen existing lighted taxiway and apron systems and construction of additional lighted taxiways and aircraft aprons.
- Install Precision Approach Path Indicator (PAPI) system for Runways 06 and 24.
- Install Runway End Identifier Lights (REIL) on Runway 24.
- Establish two helicopter landing areas.
- Operate a full Precision Instrument Landing System (ILS) including Runway Visual Range (RVR) with off-airport marker facilities to Runway 06. The ILS system consists of a Localizer,

Glide Slope, and approach light system with sequenced flashing lights, and marker facilities (inner, middle, outer).

- Establish a nonprecision instrument (NPI) approach to Runway 24.
- Retain or recommission an Air Traffic Control Tower (ATCT).
- Establish RPZ to meet FAA criteria.
- Retain passenger handling facilities including auto parking. Construct a new passenger terminal complex complete with passenger handling facilities, aircraft apron and taxiways, auto parking, access road system, and associated facilities.
- Construct or retain taxiways, aprons, buildings, and hangars for aircraft maintenance and general aviation operations.
- Improve and construct on-airport roads to accommodate aviation development and facilities.
- Develop the runway, taxiway system, and aprons to accommodate aircraft as large as the Boeing 747-400 class.
- Retain with modifications and additions the existing aviation fuel handling and storage systems.
- Relocate four existing golf course fairways to improve safety.

Airfield improvements are expected to be completed soon after base closure. The airfield would likely be conveyed to the airport authority, which would manage the development and operations of the airfield in accordance with FAA and state aviation regulations.

The terminal and airspace capacity is estimated to be 95 departures per day. Terrain and airspace constraints will limit the amount and types of air traffic which can use the airport. A Terminal Instrument Approach Procedures (TERPS) analysis included in the IVDA's Airport Master Plan concluded that instrument departures to the east on Runway 06 by some loaded air carrier aircraft could be restricted because of high terrain, forcing departures to the west, which is the opposite direction of regional air traffic flow.

Projected airfield operations are provided in Table 2.2-3 for the years 1995, 2000, 2005, and 2015. Assumptions on fleet mix were generated by IVDA within four overall categories: air passenger, cargo, corporate/private, and aircraft maintenance. For analysis purposes, 90 percent of operations are projected to occur during daytime hours (7 a.m. to 10 p.m.) and 10 percent during nighttime hours (10 p.m. to 7 a.m.). These forecasts result in an estimated 130,000 annual (180 daily) passengers in 1995, increasing to 500,000 annual passengers in 2000, 940,000 annual in 2005, and

Table 2.2-3. Projected Flight Operations - Proposed Action

Year	Operations	Function	Fleet Mix	Annual Operations
1995	Air Passenger	Air Carrier	B-737-200	0
		Commuter	BEI/SWM/SF3/EM2	10,830
	Air Cargo		DHC-7/BAe 146	850
	General Aviation		Single-Engine Piston	11,750
			Multi-Engine Piston	3,650
			Turboprop	600
			Turbojet	410
			Helicopter	410
	Aircraft Maintenance		B-747-200	200
	Total			28,700
2000	Air Passenger	Air Carrier	B-737-200/B-737-300	5,000
		Commuter	BEI/SWM/SF3/EM2	14,290
	Air Cargo		DHC-7/Bae 146	2,400
	General Aviation		Single-Engine Piston	11,750
			Multi-Engine Piston	4,050
			Turboprop	810
			Turbojet	410
			Helicopter	810
	Aircraft Maintenance		B-747-200	300
	Total			39,820
2005	Air Passenger	Air Carrier	B-737-200/B-737-300	11,840
		Commuter	BEI/SWM/SF3/EM2	12,050
	Air Cargo		DHC-7/BAe 146	4,210
	General Aviation		Single-Engine Piston	12,150
			Multi-Engine Piston	4,460
			Turboprop	810
			Turbojet	410
			Helicopter	810
	Aircraft Maintenance		B-747-200	400
	Total			47,140
2015	Air Passenger	Air Carrier	B-737-300	15,560
		Commuter	BEI/SWM/SF3/EM2	14,700
	Air Cargo		DHC-7/BAe 146	7,260
	General Aviation		Single-Engine Piston	12,150
			Multi-Engine Piston	4,860
			Turboprop	1,220
			Turbojet	1,220
			Helicopter	810
	Aircraft Maintenance		B-747-200	600
	Total			58,380

Source: Based on P&D Technologies, 1991.

1.22 million annual passengers (MAP) in 2015. Freight and mail would be transported by small all-cargo services or as "belly cargo" in the fuselage of passenger aircraft. Enplaned cargo is estimated at 1,900 tons in 1995, 7,600 tons in 2000, 14,700 tons in 2005, and 19,700 tons in 2015.

2.2.2 Aviation Support

The proposed aviation support area covers 527 acres of base property and includes the existing passenger terminal, proposed new passenger terminal, control tower, fire station, hangars, apron area, aircraft maintenance facilities, air cargo terminal, vocational education facilities, and other aviation-related industrial uses. Aircraft maintenance functions are likely to include FAA-mandated modifications and major repairs, similar to activities currently performed on base under an interim lease. These activities could be in place shortly after base closure.

Proposed development in the aviation support areas is included in the preliminary Airport Plan in Figure 2.2-2. Key features of the plan are listed below.

- Existing aviation facilities are to be used to the maximum extent practicable. Existing facilities which have direct application for civilian aviation include aircraft parking aprons, fuel storage and distribution systems, passenger terminal, ATCT, fire station, and hangars.

- Existing hangars on the west apron would continue to be used for aircraft maintenance and modification. Air cargo and vocational educational facilities would be located directly west of the apron area.

- The existing aviation fuel storage and underground hydrant system may continue to be used.

An interim development concept was prepared to guide development from 1994 to 2000. It provides for the establishment of a general aviation area for corporate and private aircraft use at the ramp on the northeast side of the airfield. Other airport activities would be located at the west ramp. The existing passenger terminal on the west ramp would be used for commercial airline passenger service. The development concept would allow for immediate start-up of some aircraft maintenance operations in existing hangars and other aviation facilities.

Short-term improvements would include demolition of all existing buildings on the northeast side of the airfield and in-fill paving in the east apron area to make room for general aviation, fencing, and installation of aircraft tie-down anchors. Some internal improvements would also be made to the existing passenger terminal. Total building demolition in the aviation support

area would be approximately 130,000 square feet (7 percent) of the existing 1.9 million square feet of floor space.

The long-range development concept provides for the construction of a new passenger terminal and parking facilities along the east apron. Eventually, aviation support in-fill is projected within and adjacent to the western apron and in the area cleared by the removal of portions of two taxiways between the west and east apron. This in-fill will take place only after the western and eastern ends of the airfield have been fully developed. Approximately 15 acres of aviation support in-fill development (about 310,000 square feet of building space) is expected to occur within the first 20 years of reuse.

In addition to the airfield, a portion of the aviation support land use zones would likely be included in the area conveyed to an airport authority. The development and operations of the aviation support area included in the airport would be managed in accordance with FAA and state aviation regulations.

2.2.3 Industrial

The primary non-aviation land use of the Proposed Action is identified as OIP, concentrated over approximately 372 acres on the west side of the base. Almost all existing buildings in the area would be demolished (3.0 million square feet of the existing 3.2 million square feet or approximately 95 percent of the floor space), the infrastructure would be replaced, and a new transition artery connecting Tippecanoe Avenue and Del Rosa Drive would be constructed. The area would then be marketed for private development of a mixed-use industrial park. The layout of this area would be designed by a single developer who would submit a Specific Plan for approval by the city of San Bernardino.

Uses envisioned in this district include corporate office, research and development, light industrial/manufacturing, and supporting retail services. The buildings would be organized in a campus or park-like setting planned around central open spaces and a thoroughfare system. The park could include a number of amenities designed to attract "Fortune 500" companies, including lakes, jogging and bicycle trails, streams, greenbelts, gardens, and community parks.

Of the 372 acres in this land-use district, 112 acres are expected to be required for roads, leaving 260 acres for development. The maximum allowable building coverage would be 50 percent or 130 acres; 44 acres are expected to be used for office development and 86 acres for industrial development. The remaining 130 acres would be used as open areas, recreation amenities, and vehicle parking. The density of new office construction could range from one- to three-story office buildings. An average density of two stories was selected for analysis.

Initial construction would focus on infrastructure improvements. Most of the existing infrastructure would be replaced, and existing structures built prior to 1980 would be demolished. Since a number of these structures contain asbestos, demolition activities would involve extensive asbestos removal and disposal. While the Proposed Action involves eventual removal of most existing buildings in the OIP area, some buildings would be retained and might be upgraded for interim use. These include post- and pre-1980 structures that can be cost-effectively retrofitted. Full build out would be reached by 2010. The developable area would allow for over 8.2 million square feet of new floor space.

In addition to the OIP land use, industrial warehouse uses would be developed within 14 acres of vacant land located in the southwestern portion of the base. Development would occur within the first 5 years of reuse and could generate about 195,000 square feet of new facility floor space.

2.2.4 Commercial

Approximately 66 acres in the northeast section of the base are proposed for commercial development to provide services compatible with airport activities. All existing buildings and other improvements in the area would be removed. Development could include offices for travel agencies, aircraft charter services, air ambulance services, and similar activities, as well as commercial-retail uses that support and cater to commercial airport activities, such as conference center, restaurants, gas station, and car rental.

About 13 acres of this area would be dedicated to roads. Of the remaining 53 acres, about 13 acres would be developed for commercial facilities, 13 acres would be used for office space, and 27 acres would be used for open areas and parking. This would allow 1.7 million new square feet of floor space. Full build out is expected by 2010.

2.2.5 Public/Recreation

Aside from the amenities provided in the OIP area described above, recreational land use in the Proposed Action plan is confined to the golf course, which would comprise 148 acres along the southern boundary of the base. As mentioned in Section 2.2.1, four fairways would be relocated to avoid safety hazards within the RPZ. East of the golf course, an area of 95 acres south of the runway and near the Santa Ana River bed would be retained as open area.

A portion of the separate 30-acre parcel in Highland would be used for recreation.

2.2.6 Transportation

The primary transportation element in the Proposed Action is a new corridor through the base connecting Tippecanoe Avenue and Del Rosa Drive. This would provide access to the OIP from Interstate (I) 10 to the south (via Tippecanoe) and State Route (SR) 30 to the north (via Del Rosa). Ongoing improvements to Del Rosa Drive north of the base are expected to be completed by the time of base closure.

Existing local streets within the base would be used in the short term, but ultimately the entire on-base circulation pattern would be upgraded in accordance with an approved Specific Plan prepared by the new owner. The scope and locations of most street improvements have not been identified, but for analysis purposes it is assumed that 100 percent of the existing on-base streets would be replaced.

The specific improvements that have been identified (see Figure 2.2-2) are:

- A new one-way loop road would be provided from the Del Rosa Drive-Tippecanoe Avenue connector to the existing passenger terminal area to provide efficient loading and unloading. Seven buildings southwest of the terminal would be demolished, and a parking lot for the passenger terminal would be constructed in the vacated area.

- A new east-west access road would be developed through the proposed new general aviation area near the east apron.

- Roads and intersections would be developed to serve the proposed general aviation area.

- Access roads, circulation roads, and parking for the new passenger terminal would eventually be constructed on the east side.

Key roadway segments surrounding the base that could require improvements to meet city standards as a result of base reuse activities include Alabama, Mill, and Fifth streets.

2.2.7 Employment and Population

The Proposed Action is expected to generate a peak of about 1,000 direct short-term, construction-related jobs (2005) and about 30,300 direct long-term jobs by 2015. An additional 23,000 secondary jobs are expected to be generated in the San Bernardino-Riverside county region as a result of base reuse. The region currently contains a large number of people who commute outside the region to work. Many of the jobs created by the Proposed Action can be expected to be filled by individuals who already live in the region and who choose to take jobs closer to their residences rather

than commute long distances. These include retail/commercial, educational, recreational, government, and other services needed by reuse businesses, their employees, and their employees' families. Table 2.2-4 summarizes estimated employment at closure and at 5, 10, and 20 years with reuse. The employment generated by base reuse would result in an increase in population of about 34,300. Population effects are also included in Table 2.2-4. These increases are relative to the closure baseline.

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

	Closure	2000	2005	2015
Employment				
Direct	50	7,269	18,607	30,264
Secondary	20	6,783	15,199	22,962
Population Increase	NA	7,220	19,002	34,289

NA = Not applicable.

2.2.8 Traffic Generation

Based on employment and population projections, average daily vehicular traffic to and from base property would be approximately 97,400 trips by 2015. Most vehicular traffic would occur during daylight hours.

2.2.9 Utilities

The Proposed Action involves almost total replacement of base utility distribution systems. Both water distribution and wastewater collection lines would be replaced. The wells on base would continue to be used to supplement the local water supply.

The base steam heat system may be used, or existing gas service could be expanded to replace the steam heat system. The electrical distribution system would be replaced and converted to public utility company service, with meters installed at all buildings. Microwave and satellite communication systems on base would be replaced. It is assumed that the existing microwave and satellite equipment will be removed by the Air Force.

In addition to replacing and upgrading utilities in the developed portions of the base, new utility services, including electricity, water, sewer, and natural gas, would be provided to the proposed passenger terminal and commercial developments on the northeast side of the base.

By 2015, the projected activities and population increases associated with the Proposed Action would produce the following increases in utility demands over post-closure (baseline) conditions:

- Water - 5 million gallons per day (MGD)
- Wastewater - 3.2 MGD
- Solid Waste - 0.13 million cubic yard per year
- Electricity - 456 megawatt-hours (MWH) per day
- Natural Gas - 29,000 therms/day.

2.3 DESCRIPTION OF ALTERNATIVES

Three comprehensive reuse alternatives and the No-Action Alternative have been identified for analysis. These are described below, along with a number of federal transfers and conveyances to non-federal agencies and private parties.

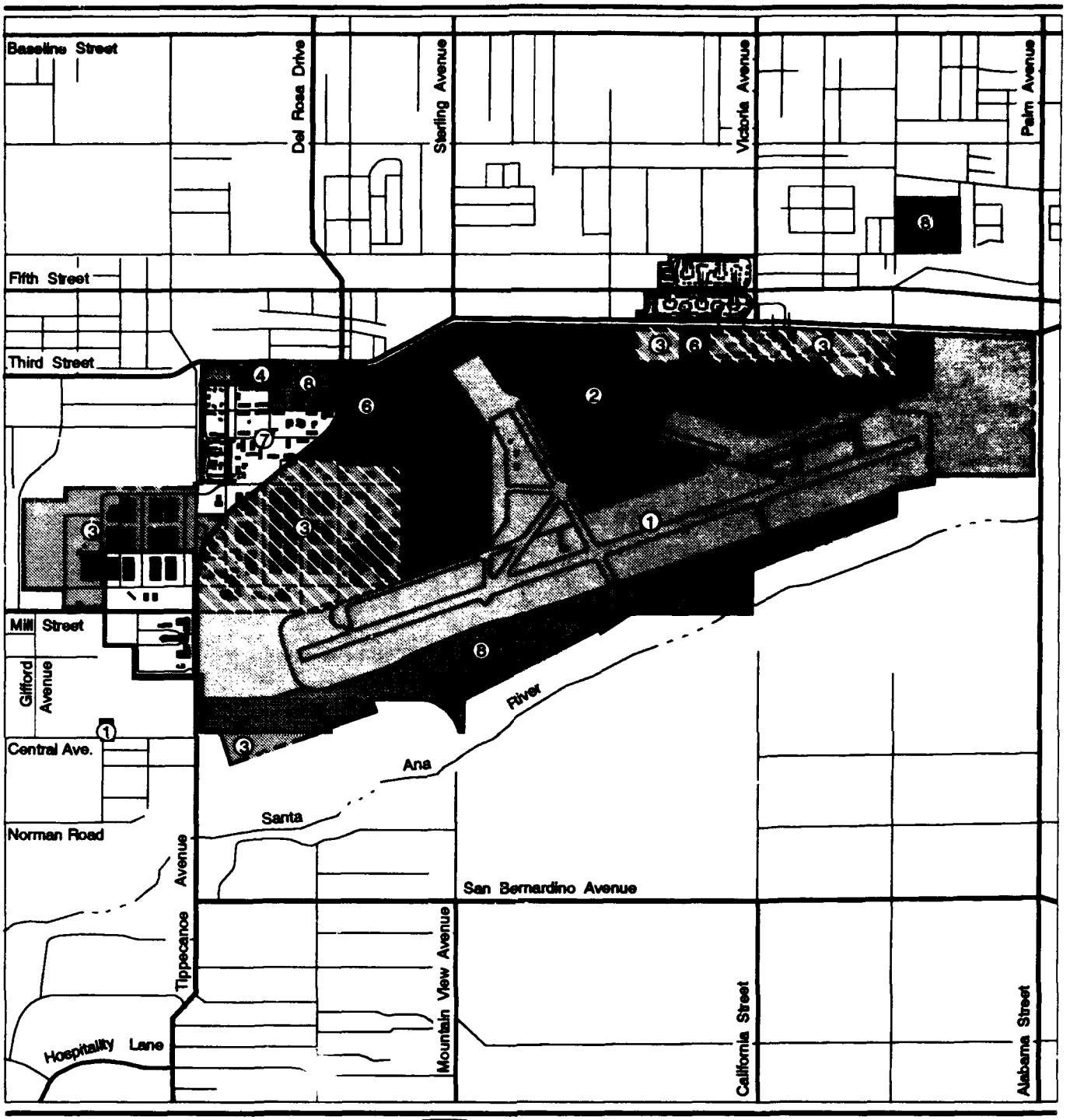
2.3.1 Airport with Mixed Use Alternative

This alternative emphasizes greater reuse of existing facilities on Norton AFB and land uses that are more similar to preclosure conditions than the Proposed Action. It assumes maximum reuse of existing facilities that are structurally and functionally usable. Facilities that could not be practicably reused and facilities that would be incompatible with land use designations would be removed and replaced. In addition, vacant areas would be filled in with suitable development. This alternative also includes road/circulation improvements that would require removal of some buildings.

Like the Proposed Action, the Airport with Mixed Use Alternative would convert the base airfield and supporting facilities to civilian use. Non-aviation land uses would include industrial, office, institutional (medical), commercial, residential, and recreational uses. The 30-acre parcel in Highland would become a municipal park as under the Proposed Action. Land use areas are illustrated in Figure 2.3-1, and acreages by land use are listed in Table 2.3-1.

For land use areas that are basically the same as the Proposed Action, information from IVDA plans was used. The following assumptions were used to develop data and expand on the analysis for the Airport with Mixed Use Alternative:

- IVDA data used in the analysis
  - Types of airfield improvements



Airport with Mixed Use Alternative

Figure 2.3-1

Table 2.3-1. Project-Related Land Use Acreage - Airport with Mixed Use Alternative

Land Use	Acreage
Base Property	
Airfield	729
Aviation Support	434
Industrial (Warehouse)	135
Industrial (OIP)	259
Institutional (Medical)	8
Commercial	57
Residential	61
Public/Recreation	298
Subtotal	1,981
Air Force Retained Property	146
Total	2,127

  - Roadway alignment for Del Rosa Drive and Tippecanoe Avenue
  - Long-range development concept for the new airport passenger terminal

- Layout and acreages of proposed land uses
- Phasing plans for redevelopment
- Construction and demolition activities
- Projected flight operations and fleet mix (based on general California Department of Transportation [Caltrans] projections)
- Incorporation of future aviation trends
- Flight tracks
- Projected air passenger demand to the year 2015
- Employment generated by the project to the year 2015
- Utility requirement projections to the year 2015
- Projected traffic and distribution to the year 2015
- Roadway improvements to Mill and Fifth streets to maintain traffic volume below road capacity

- Percent of each land use area disturbed by construction and operations activities.

Table 2.3-2 summarizes acreages assumed to be disturbed during each phase of development, and the sections below describe activities associated with each land use category.

Table 2.3-2. Acres Disturbed by the Airport with Mixed Use Alternative

	Acres Disturbed (by phase)			
Land Use	1995-2000	2000-2005	2005-2015	Total
Airfield	36	0	0	36
Aviation Support	88	143	26	257
Industrial	103	87	90	280
Institutional	1	0	0	1
Commercial	3	17	11	31
Residential	5	18	0	23
Public/Recreation	46	0	0	46
Total	282	265	127	674

2.3.1.1 Airfield. The airfield land use category would be the same as described for the Proposed Action. The airfield would be used primarily for commercial passenger service and general aviation, with some maintenance/overhaul-related traffic. No Airport Plan has been developed for this alternative. However, it is assumed that similar airfield improvements would be made as for the Proposed Action (see Figure 2.2-2).

The airfield would likely be conveyed to an airport authority, which would manage the development and operation of the airfield in accordance with the FAA and state aviation regulations.

Projected operations were derived from a study conducted by Caltrans (Stewart, 1991) and represent the "most likely" case projections. They are summarized in Table 2.3-3. Approximately 90 percent of the operations would occur between 7 a.m. and 10 p.m., and 10 percent would likely occur between 10 p.m. and 7 a.m.

2.3.1.2 Aviation Support. The aviation support area in this alternative would be similar to, but somewhat smaller than, the Proposed Action. Existing control tower, terminals, hangars, aircraft maintenance facilities, fire station, and other aviation-related industrial facilities would be used for aviation support activities, and in-fill with additional aviation-related facilities

Table 2.3-3. Projected Flight Operations - Airport with Mixed Use Alternative

Year	Operations	Function	Fleet Mix	Annual Operations
1995	Air Passenger	Air Carrier	B-737-200/B-737-300	0
		Commuter	BEI/SWM/SF3/EM2	10,830
	General Aviation		Single-Engine Piston	11,750
			Multi-Engine Piston	3,600
			Turboprop	810
			Turbojet	410
			Helicopter	410
	Aircraft Maintenance		B-747-200	130
			B-767-200	130
			B-757-200	70
			B-727-200	160
	Total			28,300
2000	Air Passenger	Air Carrier	B-737-200/B-737-300	6,000
		Commuter	BEI/SWM/SF3/EM2	17,140
	General Aviation		Single-Engine Piston	11,750
			Multi-Engine Piston	4,050
			Turboprop	810
			Turbojet	410
			Helicopter	810
	Aircraft Maintenance		B-747-200	200
			B-767-200	160
			B-757-200	100
			B-727-200	160
	Total			41,590
2005	Air Passenger	Air Carrier	B-737-200/B-737-300	11,340
		Commuter	BEI/SWM/SF3/EM2	11,640
	General Aviation		Single-Engine Piston	12,150
			Multi-Engine Piston	4,460
			Turboprop	810
			Turbojet	410
			Helicopter	810
	Aircraft Maintenance		B-747-200	220
			B-767-200	220
			B-757-200	110
			B-727-200	180
	Total			42,350
2015	Air Passenger	Air Carrier	B-737-300	19,700
		Commuter	BEI/SWM/SF3/EM2	18,610
	General Aviation		Single-Engine Piston	12,150
			Multi-Engine Piston	4,860
			Turboprop	1,220
			Turbojet	1,220
			Helicopter	810
	Aircraft Maintenance		B-747-200	220
			B-767-200	220
			B-757-200	110
			MD-83	180
	Total			59,300

Source: Stewart, 1991.

would occur in undeveloped areas north of the airfield. Some aircraft maintenance operations would start up soon after closure, and build out would be reached by about 2015. Approximately 200 acres of aviation support in-fill development (approximately 720,000 square feet of new floor space) is expected to occur within the first 20 years of reuse.

2.3.1.3 Industrial. Under this alternative, the areas west of the aviation support land use, where existing facilities have supported a combination of administrative and industrial uses, would be used for similar purposes after closure. In addition, a portion of the area north of the east apron would also be developed as OIP, and existing warehouses and vacant land north and east of the BMO cantonment area would be used for warehousing. Older buildings near the new Tippecanoe-Del Rosa corridor would be demolished and replaced, but many of the existing buildings farther east are suitable for reuse. An estimated 1.9 million square feet of the existing 2.3 million square feet of building space would be retained, and 5.5 million square feet of new floor space would be built. Full build out would be reached by about 2015.

2.3.1.4 Institutional (Medical). The existing clinic in the northwest area of the base would be retained for medical use and converted to a neighborhood clinic. This involves 8 acres immediately south of Third Street.

2.3.1.5 Commercial. Due to the relatively new Base Exchange and Commissary facilities and their location next to the passenger terminal, these facilities and surrounding area in the northwest portion of the base would be converted to private commercial use. This area comprises 47 acres and would include in-fill development south of the Base Exchange and Commissary. It is assumed that the Base Exchange would be adopted for similar commercial use with little modification, and the Commissary would become a supermarket. In addition to these shopping facilities, a 10-acre commercial center across Third Street from the NCO housing would be developed.

Together, these commercial areas would retain about 200,000 square feet of existing floor space and could accommodate approximately 540,000 square feet of floor space and provide airport-related commercial activities, such as car rentals, restaurants, and hotels.

2.3.1.6 Residential. Existing dormitories and visitors' quarters in the northwest area of the base would continue to be used for residential purposes. Nonconforming facilities within the residential zone would be removed, including the existing civil engineering complex. Recreational facilities interspersed with the dormitories, however, would be retained. Existing dormitories that cannot be retained for structural reasons would be demolished (approximately 90,000 square feet of 504,000 square feet of floor space, or 18 percent) and replaced with new apartments or other

multi-family housing. An estimated 450 units with about 225,000 square feet would be newly constructed. Full build out would be reached by about 2005.

2.3.1.7 Public/Recreation. Under this alternative, existing recreation facilities in the western portion of the base would continue to be used for recreational use, as would the golf course south of the airfield. This includes the gymnasium, recreation center, bowling alley, youth center, and swimming pools. The 95 acres of land south of the runway and east of the golf course would be retained as open area. The 30-acre parcel in Highland would also be used for recreation under this alternative.

2.3.1.8 Transportation. The Airport with Mixed Use Alternative is similar to the Proposed Action in the development of a transition corridor connecting Tippecanoe Avenue and Del Rosa Drive. Some streets within the base would require widening or upgrading. In areas of heavy demolition, roads would be upgraded to meet City of San Bernardino Development Code criteria. In areas where existing facilities are expected to be reused, road improvements would be limited to modifying intersections to better accommodate commercial vehicles. Widening of Mill and Fifth streets is assumed to occur as under the Proposed Action.

2.3.1.9 Employment and Population. This alternative is expected to generate about 500 short-term, construction-related jobs over the first 10 years and about 22,800 direct long-term jobs by the year 2015. Employment estimates are summarized in Table 2.3-4. Approximately 19,900 additional secondary jobs are expected to be generated in the San Bernardino-Riverside county region with this reuse alternative. Resulting population increases are also summarized in Table 2.3-4.

Table 2.3-4. Project-Related Employment and Population Effects - Airport with Mixed Use Alternative

	Closure	2000	2005	2015
Employment				
Direct	50	8,979	17,204	22,780
Secondary	20	8,378	15,239	19,944
Population	NA	8,956	18,043	26,276

NA = Not applicable.

2.3.1.10 Traffic Generation. Average daily vehicular traffic to and from the base would be about 83,600 trips by 2015. Most of the traffic would be on the roadways during daylight hours.

2.3.1.11 Utilities. Utilities improvements would generally parallel facilities construction. Existing utilities distribution lines would continue to be used in areas where existing facilities would be retained. New distribution lines would be developed to service new facilities. Exceptions are the electrical distribution system, which would require immediate replacement throughout the base, and the steam lines, which would be abandoned and replaced with natural gas for heating.

By 2015, the projected activities and population increases associated with this alternative would produce the following estimated increases in utility demands over post-closure (baseline) conditions:

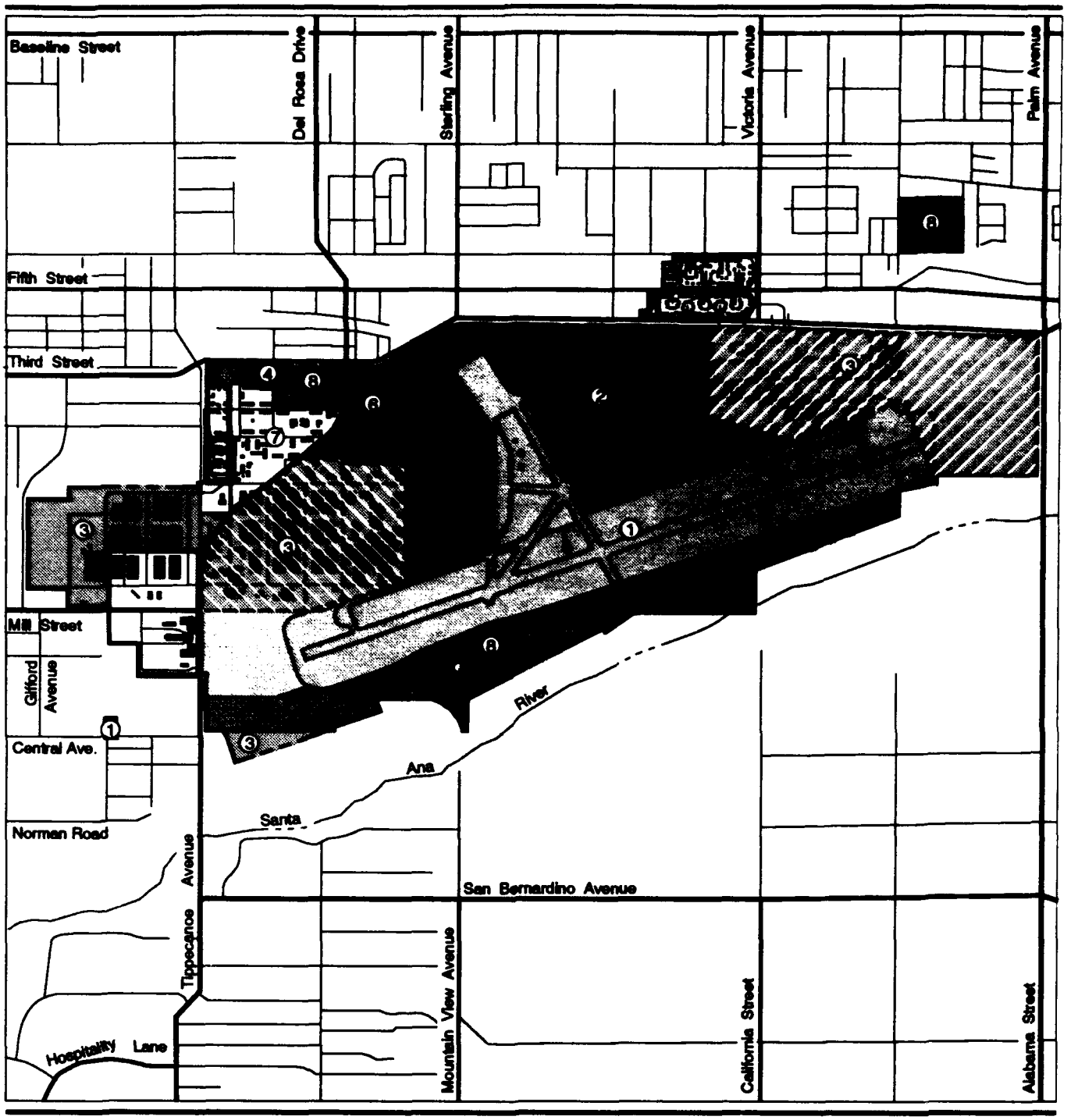
- Water - 3.8 MGD
- Wastewater - 2.4 MGD
- Solid Waste - 0.08 million cubic yards/year
- Electricity - 346 MWH/day
- Natural Gas - 22,000 therms/day.

2.3.2 Aircraft Maintenance Center Alternative

This alternative centers around aviation-related industrial use, specifically aircraft maintenance activities that need access to a functional airfield. Types of maintenance functions would be similar to those described for the Proposed Action. The airport would also support general aviation, but no commercial passenger service is included in this alternative. Land uses in the western portion of the base would be similar to the Airport with Mixed Use Alternative, but the area north and east of the airfield would be used for aggregate mining. The 30-acre parcel in Highland would become a municipal park, as in the Proposed Action and the Airport with Mixed Use Alternative. Land use areas for this alternative are shown in Figure 2.3-2, and acreages by land use are listed in Table 2.3-5.

The following data were provided by a private aggregate mining operation to support the environmental analysis:

- Amount of annual aggregate production
- Types of facilities and general concept of operations (e.g., operating times, number of trucks)
- General concept for mining site location and acreage requirements
- Estimated amount of mining waste in the alluvial deposits
- Assumptions for depth of mining pit.



Aircraft Maintenance Center Alternative

Figure 2.3-2

Table 2.3-5. Project-Related Land Use Acreage - Aircraft Maintenance Center Alternative

Land Use	Acreage
Base Property	
Airfield	587
Aviation Support	339
Industrial (Warehouse)	135
Industrial (OIP)	189
Industrial (Aggregate Mining)	309
Institutional (Medical)	8
Commercial	55
Residential	61
Public/Recreation	298
Subtotal	1,981
Air Force Retained Property	146
Total	2,127

Assumptions about the following were made to develop this alternative and expand upon the analysis:

- Layout and acreages of proposed land uses
- Phasing plans for redevelopment
- Construction and demolition activities
- Projected flight operations and fleet mix
- Incorporation of future aviation trends
- Flight tracks
- Employment related to the project to the year 2015
- Utility requirement projections to the year 2015
- Projected traffic and distribution to the year 2015
- Roadway improvements to Mill and Fifth streets to maintain traffic volume below road capacity
- Percent of land use zones disturbed by construction/demolition.

Table 2.3-6 summarizes acreages assumed to be disturbed during each phase of development, and the sections below describe activities associated with each land use category.

2.3.2.1 Airfield. The airfield land use would be similar to the Proposed Action and Airport with Mixed Use Alternative, except that portions of the

Table 2.3-6. Acres Disturbed by the Aircraft Maintenance Center Alternative

Land Use	Acres Disturbed (by phase)			
	1995-2000	2000-2005	2005-2015	Total
Airfield	29	0	0	29
Aviation Support	8	102	33	143
Industrial	219	133	185	537
Institutional	1	0	0	1
Commercial	3	18	5	26
Residential	0	23	0	23
Public/Recreation	46	0	0	46
Total	306	276	223	805

eastern RPZ would be used for aggregate mining (see Section 2.3.2.3). The airfield would be used primarily for general aviation and operations associated with aircraft maintenance and overhaul. No Airport Plan has been developed for this alternative. For the purpose of this analysis, it is assumed that few modifications would be required. The east apron would not be used for aviation, so all airfield activities would be concentrated on the west apron. The only improvements needed to the airfield would be the extension of the taxiways parallel to the runway and safety and navigation improvements required to conform to FAA criteria. The four golf course fairways would also be relocated on base as under the Proposed Action.

Projected aircraft operations are presented in Table 2.3-7. All maintenance/overhaul-related operations and 90 percent of general aviation operations are assumed to occur between 7 a.m. and 10 p.m. The airport could be operated by an airport authority, an aircraft maintenance firm, or a private fixed base operator.

2.3.2.2 Aviation Support. The aviation support area would be smaller for this alternative than the Proposed Action or the Airport with Mixed Use Alternative. It would comprise the existing aviation support areas on the west side of the airfield and in-fill potential on the east side of the west apron, for a total of 339 acres. Existing control tower, hangars, aircraft maintenance facilities, fire station, and other aviation-related industrial facilities would be used for aviation support activities. The existing passenger terminal could be used by the fixed base operator. Only about 10,000 square feet of the existing 1.8 million square feet (less than 1 percent) of the existing floor space would be demolished. Some aircraft maintenance operations would be in effect soon after closure and approximately 100 acres of in-fill (350,000 square feet of floor space) is expected by the year 2015.

Table 2.3-7. Projected Flight Operations - Aircraft Maintenance Center

Year	Operations	Fleet Mix	Annual Operations
1995	General Aviation	Single-Engine Piston	11,750
		Multi-Engine Piston	3,600
		Turboprop	810
		Turbojet	410
		Helicopter	410
	Aircraft Maintenance	B-747-200	130
		B-767-200	130
		B-757-200	70
		B-727-200	160
	Total		17,470
2000	General Aviation	Single-Engine Piston	11,750
		Multi-Engine Piston	4,050
		Turboprop	810
		Turbojet	410
		Helicopter	810
	Aircraft Maintenance	B-747-200	200
		B-767-200	160
		B-757-200	100
		B-727-200	160
	Total		18,450
2005	General Aviation	Single-Engine Piston	12,150
		Multi-Engine Piston	4,460
		Turboprop	810
		Turbojet	410
		Helicopter	810
	Aircraft Maintenance	B-747-200	220
		B-767-200	220
		B-757-200	110
		B-727-200	180
	Total		19,370
2015	General Aviation	Single-Engine Piston	12,150
		Multi-Engine Piston	4,860
		Turboprop	1,220
		Turbojet	1,220
		Helicopter	810
	Aircraft Maintenance	B-747-200	220
		B-767-200	220
		B-757-200	110
		MD-83	180
	Total		20,990

2.3.2.3 Industrial. The same areas on the west side of the airfield identified for industrial use in the Airport with Mixed Use Alternative would also become industrial under this alternative. Most are existing industrial areas with a mixture of warehouse, industrial shop, and administrative facilities. The total area in OIP would be 189 acres, slightly less than under the Airport with Mixed Use Alternative, since there would be no OIP development in the northeast portion of the base. The same 135 acres would be used for warehousing. Approximately 430,000 square feet of the 2.3 million square feet (approximately 19 percent) of existing floor space would be demolished. An estimated 3.9 million square feet of new floor space would be constructed.

This alternative includes an area where aggregate mining operations could be developed north and east of the airfield. The operation would be similar to existing mining across Alabama/Palm Avenue from the base. The area comprises 309 acres, including the existing base landfill in the northeast corner of the base and 27 acres in the Santa Ana Wash in the southeast corner of the base. Approximately 15 percent of the designated area would be used for facilities, with the rest for extraction.

Several buildings in the northeast area would need to be demolished (approximately 400,000 square feet of floor space). It is not known at this time how much of that area would be suitable for mining. It is anticipated that the actual area mined would total approximately 260 acres of the 309 acres designated, although more of the area could be used if feasible. The mining would be constrained by airfield operations to areas outside designated object-free areas. The mining operations and facility locations would be in accordance with FAA safety criteria.

At a projected production rate of approximately 1 million tons per year, aggregate operations would continue throug[illegible] entire 20-year analysis period. On-site activities would include extra[illegible]n and some processing. In addition to processing raw material, the operation could also process waste concrete and asphalt for recycling.

Aggregate mining operations would include open-pit mining, internal transport of materials for processing, on-site processing, and delivery of processed material to off-site customers. Open-pit mining areas would be excavated to a depth of 10 feet above groundwater levels. For the purpose of this analysis, excavation was assumed to be to the depth of 70 feet. Excavated materials are likely to include a mixture of sand, gravel, and boulders. Ten percent of the material is estimated to be unusable overburden. This material would be used to backfill excavated pits and for berms. Settling ponds are expected to be used to remove fine clays and sediments. Sediments may be removed from the ponds periodically and processed for marketing or used to fill in pit areas. A reclamation plan would be required as part of the permitting process.

Material extracted from mining areas would be transported to an on-site processing facility by open-bed 25-ton trucks. Unimproved dirt roads would be used as on-site haul routes from the pit areas to the processing facility. Water and dust suppressants would be used to control fugitive dust. As areas are mined out and extraction operations moved, old haul routes would be reclaimed and new ones designated. The vehicles would remain on base property for all internal transport. Transport between the Santa Ana Wash and the processing area is assumed to pass over the existing flood-control levee. It is assumed that adequate precautions would be taken to avoid damaging the levee.

Materials processing would include crushing, screening, sorting, and loading for off-site transport. Processing and support facilities are expected to be located in the vicinity of the east apron, or they could be placed on the existing landfill area if it is sufficiently compacted. It is assumed that these facilities would be located 100 feet from the northern boundary of the base. Facilities would include crushers, conveyers, feeders, scales, and equipment storage areas. Processed materials would be stockpiled in the vicinity of the facilities area.

2.3.2.4 Institutional (Medical). As with the Airport with Mixed Use Alternative, the existing clinic on base would be retained for medical use as a neighborhood clinic.

2.3.2.5 Commercial. Commercial use under this alternative would be centered around the existing Commissary and Base Exchange. A total of 55 acres in this area would be used for commercial retail and commercial office uses. All of the existing commercial buildings would be retained (200,000 square feet), and an additional 240,000 square feet of new commercial floor space would be constructed. Unlike the Airport with Mixed Use Alternative, there would be no aviation-related commercial developments.

2.3.2.6 Residential. Residential land use under this alternative would be the same as described for the Airport with Mixed Use Alternative.

2.3.2.7 Public/Recreation. Public recreation areas would also be the same under this alternative as under the Airport with Mixed Use Alternative. This includes recreational facilities in the northwest portion of the base, the open area south of the runway, the golf course, and the 30-acre parcel in the city of Highland.

2.3.2.8 Transportation. In addition to the haul roads associated with the aggregate mining operation, some road construction would be needed on base to improve circulation. The Tippecanoe Avenue-Del Rosa Drive corridor included in the Proposed Action and Airport with Mixed Use Alternative would also be part of the Aircraft Maintenance Center Alternative. Other

road improvements on the west side of the base would be similar to the Airport with Mixed Use Alternative. Improvements to Mill and Fifth streets are also assumed to occur.

2.3.2.9 Employment and Population. This alternative is expected to generate a peak of over 500 short-term construction-related jobs (in the first 5 years) and about 18,100 direct operations jobs including approximately 50 jobs generated by the mining operation. Approximately 16,200 secondary jobs are expected to be generated in the region. Employment estimates are summarized in Table 2.3-8. Resulting population increases are also included in Table 2.3-8.

Table 2.3-8. Project-Related Employment and Population Effects - Aircraft Maintenance Center Alternative

	Closure	2000	2005	2015
Employment				
Direct	50	8,600	15,363	18,122
Secondary	20	8,323	14,119	16,198
Population	NA	8,571	16,248	20,961

NA = Not applicable.

2.3.2.10 Traffic Generation. Total average daily vehicular traffic to and from the base would be about 64,000 for this alternative by 2015. This includes traffic associated with residential and employment-related land uses, including mining activity. Most of the traffic would be on the roadways during daylight hours.

At an estimated 1 million tons per year, the aggregate mining operation would produce approximately 3,200 to 3,800 tons per day, depending on whether it is a 5- or 6-day operation. Assuming 25 tons are transported in the average delivery truck, there would be as many as 150 trips per day involved in transporting material off site to customer locations. These trips would commence in the vicinity of the facilities area at the north end of the base and exit the base either at Third Street or Victoria Avenue.

2.3.2.11 Utilities. Utilities improvements for the west side of the base would be the same for this alternative as the Airport with Mixed Use Alternative. New distribution lines would not be required in the northeast portion of the base to serve commercial and aviation facilities. However, the facilities associated with the aggregate mining operation would require electricity, water, and sewer service. In addition to domestic service for employees, water would be required for materials processing and dust control. It is expected that water for mining operations would be extracted

from the existing well near the east apron. No process wastes would be disposed in the domestic sewer system. Used process water would be recycled through a clarification tank and reused in processing.

By 2015, the projected activities and population increases associated with this alternative would produce the following increases in utility demands over post-closure (baseline) conditions.

- Water - 3.0 MGD
- Wastewater - 1.9 MGD
- Solid Waste - 0.07 million cubic yards/year
- Electricity - 276 MWH/day
- Natural Gas - 18,000 therms/day.

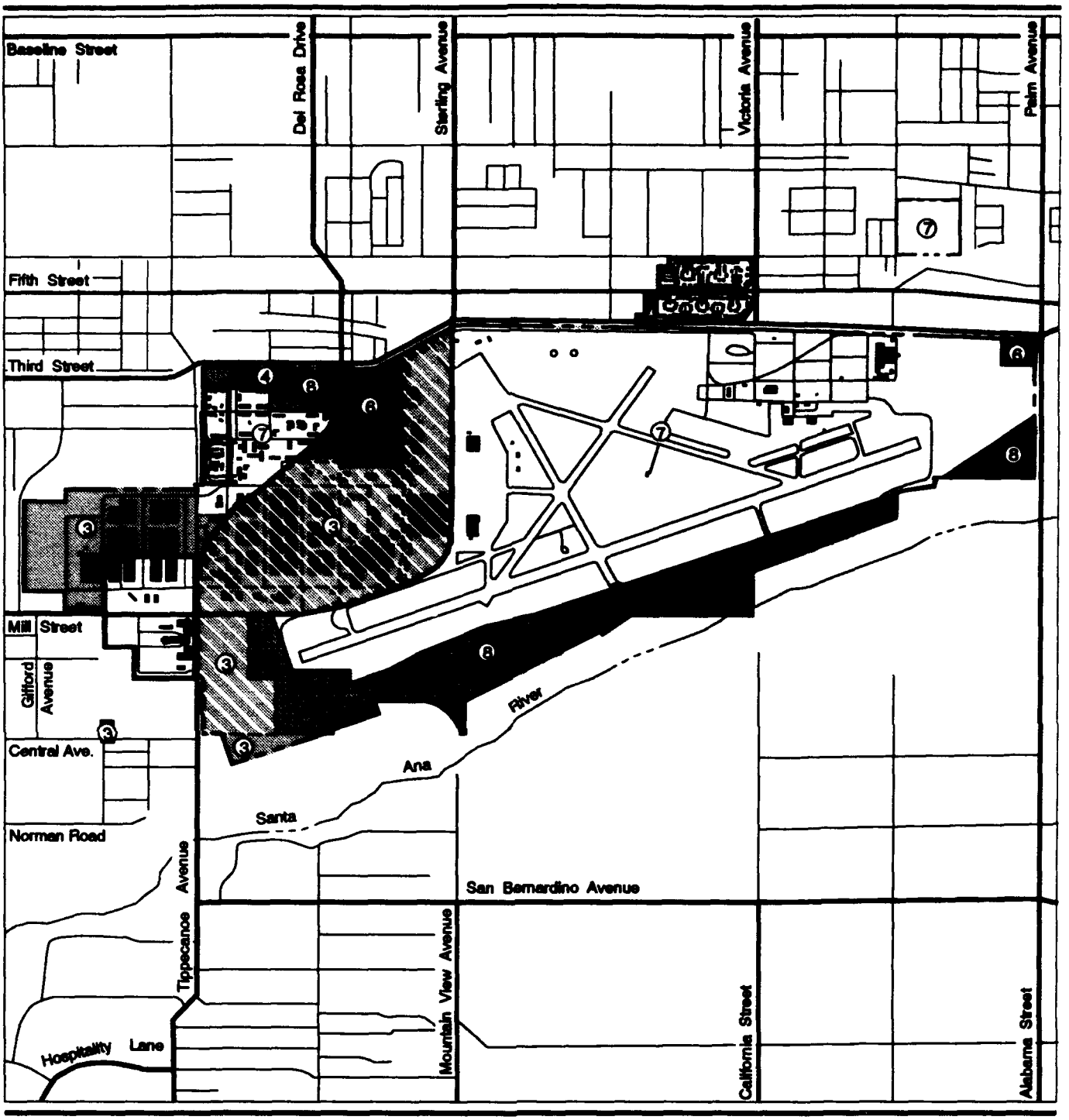
2.3.3 Non-Aviation Alternative

Under this alternative, Norton's airfield and aviation facilities would be closed and removed. Base property would be developed only for non-aviation land uses. Existing residential areas on base would be retained for residential use, and the entire airfield area would be developed with new single-family residences. Figure 2.3-3 illustrates land use areas, and Table 2.3-9 lists acreages by land use.

Table 2.3-9. Project-Related Land Use Acreage - Non-Aviation Alternative

Land Use	Acreage
Base Property	
Industrial (Warehouse)	135
Industrial (OIP)	366
Institutional (Medical)	8
Commercial	63
Residential	1,119
Public/Recreation	290
Subtotal	1,981
Air Force Retained Property	146
Total	2,127

The Non-Aviation Alternative would be similar to the Airport with Mixed Use Alternative in the reuse of existing industrial, administrative, commercial, residential, and recreational land use areas. An additional, small neighborhood commercial area would be developed on the east side of the



Non-Aviation Alternative

Figure 2.3-3

base. The 30-acre parcel in Highland would be developed for residential use under this alternative.

The following assumptions were used to develop this alternative and expand on the analysis:

- Layout and acreage of the proposed land use
- Phasing of redevelopment
- Employment related to the project to the year 2015
- Utility requirement projections to the year 2015
- Projected traffic and distribution to the year 2015
- Roadway improvements to Mill, Alabama, and Fifth streets
- Construction and demolition activities
- Percent of land use zone disturbed by construction/demolition.

Table 2.3-10 summarizes acreages assumed to be disturbed during each phase of development, and the sections below describe activities associated with each land use category.

Table 2.3-10. Acres Disturbed by the Non-Aviation Alternative

	Acres Disturbed (by phase)			
Land Use	1995-2000	2000-2005	2005-2015	Total
Industrial	84	84	261	429
Institutional	1	0	0	1
Commercial	9	6	7	22
Residential	381	414	317	1,112
Public/Recreation	23	0	0	23
Total	498	504	585	1,587

2.3.3.1 Industrial. As in the Airport with Mixed Use Alternative, existing administrative and industrial areas in the western part of the base would be used for similar civilian purposes under the Non-Aviation Alternative. OIP would comprise 366 acres and warehousing 135 acres. These acreages include areas adjacent to the airfield that would no longer be used for aviation support. Approximately 2 million square feet of the 3.9 million square feet (about 51 percent) of existing floor space would be demolished. Approximately 7.8 million square feet of floor space would be newly constructed by 2015.

2.3.3.2 Institutional (Medical). As with the Airport with Mixed Use Alternative, the existing clinic would be retained for medical use.

2.3.3.3 Commercial. The existing Base Exchange and Commissary would be converted to commercial use, as under the Airport with Mixed Use Alternative. However, the large quantity of residential development associated with the Non-Aviation Alternative would increase the demand for community commercial services, so the commercial area would be larger than under the Airport with Mixed Use Alternative. In addition, 7 acres at the corner of Fifth Street and Alabama/Palm Avenue on the east side of the base would be developed for neighborhood commercial uses, such as a convenience store, cleaners, or similar enterprises. All 200,000 square feet of the existing commercial floor space would be retained and an additional 440,000 square feet of new floor space would be constructed. Full build out is estimated to occur by 2015.

2.3.3.4 Residential. The entire airfield and all areas east of Sterling Avenue (extended) and the 30-acre parcel in Highland would be developed for single-family residential use (except the 7-acre neighborhood commercial area described above). This would require demolition and removal of all existing structures (approximately 440,000 square feet of floor space) and pavements in the area. The average new dwelling is expected to be 1,400 square feet at an average density of about 4.5 units per acre, for a total of about 4,400 new units. This increase in residential population is anticipated to require four new elementary schools and one new junior high school. Eighty acres within the 1,119 acres designated for single-family housing is assumed to be reserved for these schools. Their location would be determined by the new owner's Specific Plan.

In addition to the single-family housing areas, the northwest portion of the base would be developed for multi-family housing. This development would be similar to the Airport with Mixed Use Alternative. Approximately 542,000 square feet of the 614,000 square feet, or 88 percent, of the existing floor space would be demolished and replaced with new apartments or other multi-family housing. An estimated 890 units with about 758,000 square feet would be newly constructed. Full build out would be reached by about 2003.

2.3.3.5 Public/Recreation. Under this alternative, existing recreational facilities in the western portion of the base and the golf course would be retained for public recreational use, as under the Airport with Mixed Use Alternative. The golf course, however, would be used with the current layout because the fairways are compatible with the non-aviation uses. The open area east of the golf course would be retained as undeveloped area, as in the Proposed Action. In addition, 27 acres in the Santa Ana Wash would be included as open area.

2.3.3.6 Transportation. This alternative includes the transition corridor connecting Tippecanoe Avenue and Del Rosa Drive described for the other alternatives. Another artery would be provided by extending Sterling Avenue south onto the base and then curving west to tie into Mill Street. This artery would function as the boundary between the office/industrial area and the new residential area, providing access in and out of the office/industrial area with minimal traffic in residential neighborhoods. A new network of streets would be developed in the new residential area in accordance with a Specific Plan. Access from the residential areas to Alabama Street has also been assumed in the analysis. These new roads would ensure that adequate connection to major off-base arterial roadways, including Victoria and Palm avenues, is provided to efficiently distribute traffic into and out of the residential area. Improvements to Mill, Alabama, and Fifth streets are also assumed to occur.

2.3.3.7 Employment and Population. This alternative would generate a peak of over 1,100 short-term construction jobs (in the first 5 years) and about 25,500 direct long-term jobs in office, industrial, and commercial sectors. Secondary employment generated by this alternative is estimated at 19,800 jobs. Population impacts from this alternative would more likely be the result of increased available housing, rather than from employment generated by base reuse. Many of the new residents attracted to the area would commute to employment centers outside the area. Population and employment effects of this alternative are summarized in Table 2.3-11.

Table 2.3-11. Project-Related Employment and Population Effects - Non-Aviation Alternative

	Closure	2000	2005	2015
Employment				
Direct	50	8,045	14,283	25,467
Secondary	20	7,097	11,823	19,769
Population	NA	7,532	14,531	28,751

NA = Not applicable.

2.3.3.8 Traffic Generation. This alternative is expected to generate about 118,400 average daily vehicular trips. Fifteen percent of these trips are estimated to be internal to base property, between residential areas and commercial facilities or employment locations. Most of the traffic would occur during daylight hours.

2.3.3.9 Utilities. As under the Airport with Mixed Use Alternative, existing utilities systems would be used to service existing facilities to be retained for reuse. The electrical distribution network would be replaced, and the

system would be replaced with expanded natural gas service. The new residential area would require completely new utility distribution systems.

By 2015, the projected activities and population increases associated with this alternative would produce the following increases in utility demands over post-closure (baseline) conditions:

- Water - 4.2 MGD
- Wastewater - 2.7 MGD
- Solid Waste - 0.09 million cubic yards/year
- Electricity - 381 MWH/day
- Natural Gas - 24,000 therms/day.

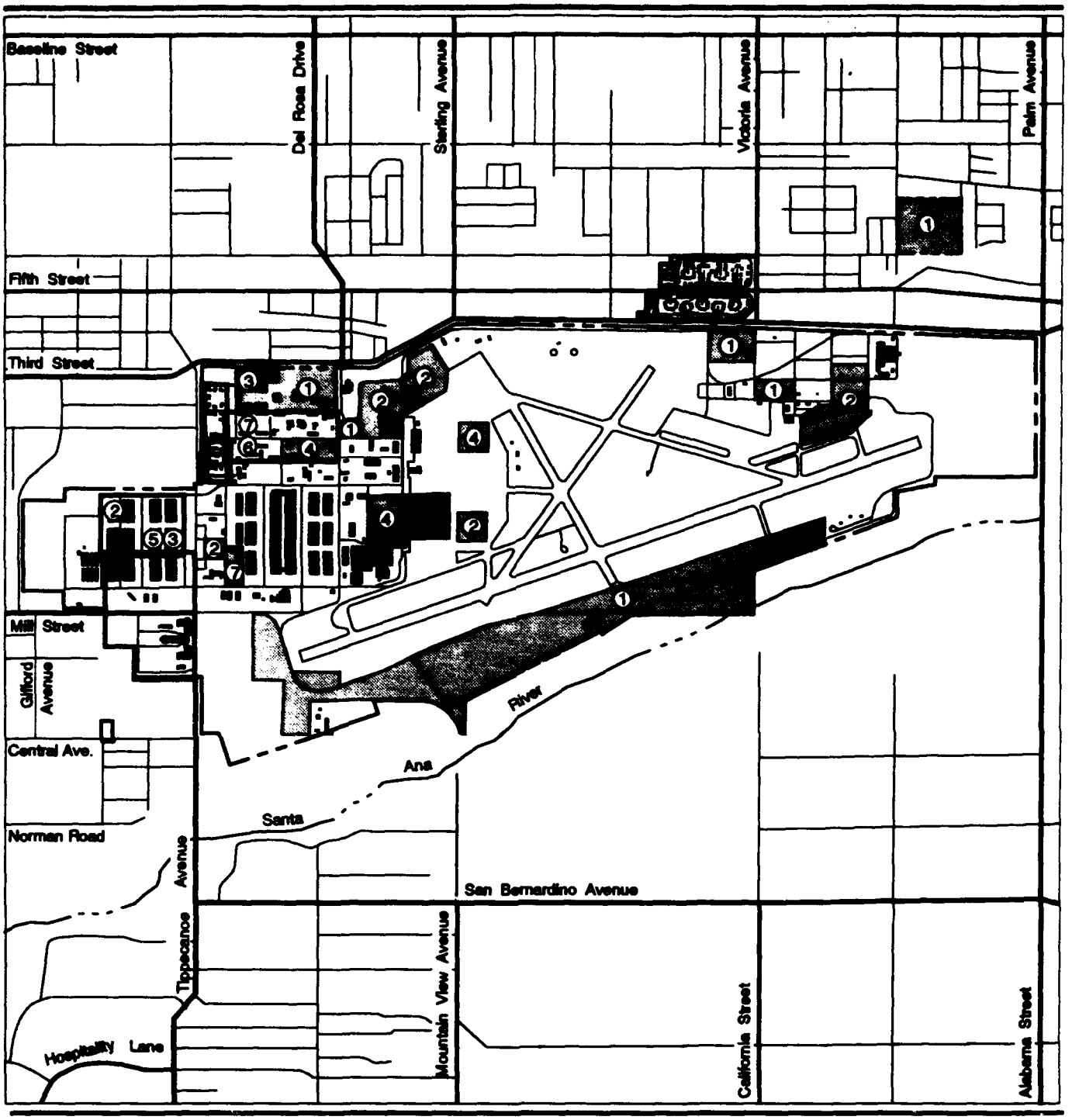
2.3.4 Other Land Use Concepts

In compliance with the Federal Property and Administrative Services Act of 1949, the Air Force solicited proposals from other federal agencies regarding their interest in acquiring any lands or facilities identified for disposal at Norton AFB. Responses include several proposals for direct federal use, as well as sponsorship of local governmental programs.

This section describes land use concepts that are not part of any integrated reuse plan, but could be initiated on an individual basis. These concepts include proposed federal transfers and conveyances to non-federal agencies and private parties. They are independent of one another and could be implemented individually or in combination with one of the reuse alternatives. Figures 2.3-4 and 2.3-5 show potential locations for each government and independent proposal.

U.S. Department of the Interior. The U.S. Department of the Interior, National Park Service is sponsoring requests by the city and county of San Bernardino for conveyance through the public benefit program of all base recreational facilities, as well as the open space east of the golf course and south of the main runway for public use. This includes the golf course and adjoining open space, gymnasium, recreation center, bowling center, youth center, outdoor sports complex, arts and crafts center, auto hobby shop, and family campground. The National Park Service is also supporting the city of Highland's request for transfer of a portion of the 30-acre parcel to the city as a municipal park. For the purposes of this analysis, it has been assumed that up to 140 jobs would be created to maintain and manage these public areas.

U.S. Department of Agriculture. The USFS has entered a request for the use of facilities and/or vacant land for the San Bernardino Forest Supervisor's Office, for FIRESCOPE, a joint-use program involving USFS, California Forestry and Fire Protection, Governor's Office of Emergency Services, and



EXPLANATION

Government Proposals

1 U.S. Department of Interior (sponsor),
County of San Bernardino,
City of San Bernardino,
City of Highland

2 U.S. Department of Agriculture,
Forest Service,
California Forestry Department

3 U.S. Department of Veterans Affairs

4 U.S. Department of Education (sponsor),
California State University
California Department of Youth Authority
San Bernardino County Schools
Northrop University
San Bernardino Community College District

5 U.S. Postal Service

6 McKinney Act Proposals

7 San Bernardino County Work Furlough Program

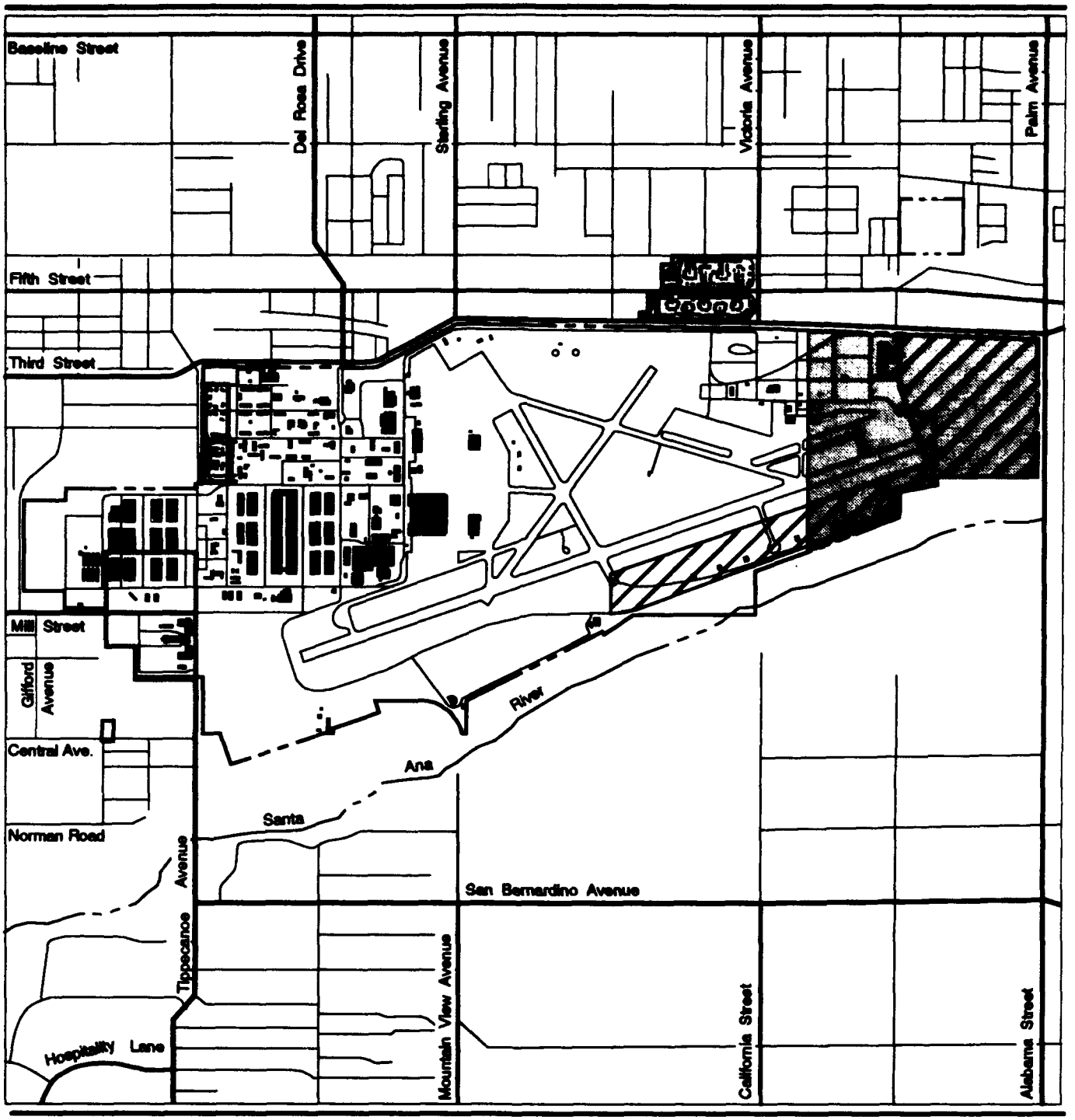
Areas where multiple requests may be located

Retained by Air Force

0 650 1300 2600 Feet

Other Land Use Concepts: Government Proposals

Figure 2.3-4



EXPLANATION

- Aggregate Mining Overlay with Proposed Action and Airport with Mixed Use Alternative
- Aggregate Mining Overlay with Non-Aviation Alternative
- Base Boundary
- Retained by Air Force

0 650 1300 2600 Feet

Other Land Use Concepts: Independent Proposals

Figure 2.3-5

other agencies. The proposal calls for administrative, warehouse, and aviation support facilities to consolidate and augment activities currently located throughout southern California into a southern California coordination and support facility. The request identifies 67,000 square feet of office facility, 180,000 square feet of parking, 80,000 square feet of warehouse storage and open storage, a hangar, an operations apron, and 10 acres of aircraft parking. The aviation support requirements would be contingent on continued operation of the base airfield. If the Non-Aviation Alternative were selected for the base, USFS would still be interested in the office, vehicle parking, warehouse, and open storage. While it would be advantageous to consolidate all of the operations at one location, this is not essential.

Three potential sites for these facilities have been identified. One location is along the east apron. This site is undeveloped and would require the construction of office and warehouse facilities. Land near the airfield would serve the aviation needs and hangar space could be provided in the west apron. The second potential location would be on the west side of the airfield near the existing passenger terminal. Existing buildings (possibly including the existing Base Exchange and/or Commissary) would be converted to office and warehouse facilities, and the land near the airfield would serve the aviation needs. The third potential location is an existing warehouse (Building 942) and adjacent land for open storage and parking. This would serve warehouse and storage needs only. This site also includes an existing office (Building S-2) which would serve as office space for the San Bernardino National Forest Supervisor's Office only. Construction of additional office space would probably be required. Aircraft parking and hangar space for the third site could be accommodated at the apron areas located in the previously mentioned site locations.

Aviation operations would involve two heavy tankers (C-130, P-3), two light air tankers (S-2), and other light aircraft (A-100). The base of operations would support fire fighting and emergency response mobilizations, involving transport of up to 5,000 people within a 24-hour period, with hourly rotation. Routine (non-emergency) operations would average one flight per day during summer months, with training flights once per month. For the purpose of analysis it has been assumed that this proposal would generate about 150 jobs.

U.S. Department of Education. The U.S. Department of Education is sponsoring four education organizations interested in facilities at Norton AFB: the California State University system, San Bernardino County Superintendent of Schools, Northrop University, and San Bernardino Community College District. The only specific proposal received is for 120,000 square feet of hangar space with runway and apron access and 80,000 square feet of classroom, laboratory, and office space for aviation, vocational, and academic training. For the purpose of this analysis, it has

vocational, and academic training. For the purpose of this analysis, it has been assumed that about 250 jobs and about 750 to 1,000 students would be associated with these educational uses.

U.S. Department of Veterans Affairs. The VA has requested transfer of the existing clinic and supporting facilities, two to four dormitories for use as research offices and inpatient facilities for psychiatric and substance abuse patients, and warehouse space. In addition, the VA is interested in access to existing recreational facilities available for public use including the gymnasium, recreation center, bowling alley, and swimming pools. The VA's proposal does not include actual acquisition of those recreation facilities. For the purposes of this analysis, it has been assumed that this proposal would generate 140 VA jobs. The facility would serve about 2,000 inpatient and 50,000 outpatient visits per year.

U.S. Postal Service. The U.S. Postal Service has requested 20,000 square feet of office space; 95,000 square feet of warehouse; parking space for 200 employees; and adequate dock, parking, and maneuvering area for semi-trailer vehicles. These facilities would be used to establish administrative and storage facilities and a detached mail processing operation on base property. The mail processing operation would involve sorting mail to be delivered to various post offices in the region, including San Bernardino, Imperial, and parts of Riverside counties. The complex would employ about 400 to 500 personnel over multiple shifts, primarily at night. The operation is estimated to generate 80 to 100 truck arrivals and departures per day, with the bulk of this traffic leaving the facility between 5:00 a.m. and 7:30 a.m.

McKinney Act Housing. As part of the McKinney Act of 1987 (P.L. 100-77), HUD evaluates surplus government buildings and properties for suitability as housing for the homeless. If suitable and there is a need, these properties can then be made available to homeless providers through the U.S. Department of Health and Human Services. This assessment has not been performed at Norton AFB. There are several potential locations within the base property that could support the needs for homeless housing and support facilities. However, for the purposes of analysis in this EIS, existing dormitories in the northwest portion of Norton AFB were identified as having potential to provide low-income housing or housing for the homeless. Dormitories could be occupied soon after base closure. In the analysis, it is assumed that at least one dormitory could be designated for housing of homeless persons.

San Bernardino County. The county Adult Correction Advisory Council has requested use of dormitories, associated dayrooms, and classroom space on base for a 210-bed work furlough facility. The purpose of the facility would be to house low-risk offenders who are employed in the community for the duration of their sentences. These inmates would live under minimum

security conditions that would include monitoring, but no fencing. Security monitoring would be provided by cameras and motion detectors. During the day, 90 percent of the inmates would leave the facility to go to their jobs. In addition to lodging, the inmates would receive counseling at the facility during nonworking hours. Based on a similar facility in San Diego County, the program would employ about 25 personnel. The requestor has specified the use of Buildings 503, 504, 517, or 561-563.

Aggregate Mining. This independent land use concept has been developed in response to a proposal by a local aggregate mining firm to mine aggregate in portions of the base property, primarily located in the extreme eastern part of the base. The suitable area for such an overlay differs somewhat between the aviation alternatives and the Non-Aviation Alternative. Approximately 250 acres have been identified in combination with the Proposed Action and the Airport with Mixed Use Alternative, where available area would be constrained by the airfield. Approximately 300 acres have been identified in combination with the Non-Aviation Alternative. These areas are shown in Figure 2.3-5. Mining operations would employ about 55 personnel. Aggregate mining is already included as part of the Aircraft Maintenance Center Alternative.

2.3.5 Interim Uses

Prior to base closure, interim uses may be conducted under lease agreements with the Air Force. The terms and conditions of the leases will be arranged to ensure that the preclosure interim uses do not prejudice future disposal and reuse plans of the base. At Norton AFB, Lockheed Corporation has a lease for interim use of a number of base facilities.

Since the terms of the Air Force lease agreements allow for expiration at the time of closure, the baseline does not include these preclosure interim uses. Instead, the baseline used in this environmental analysis is the future conditions at the time of base closure. However, Section 3.2.2.1, Land Use, includes a summary of preclosure interim uses on base to provide a reference to preclosure conditions.

Short-term uses are also included in the environmental impact analysis as part of the conceptual reuse alternatives. These post-closure interim uses are incorporated into the absorption phasing and operations of appropriate land use zones within the reuse alternatives. It is anticipated that preclosure activities performed by Lockheed under an interim lease could continue after closure, and they are included in the analysis of the Proposed Action.

2.3.6 No-Action Alternative

The No-Action Alternative would result in the U.S. Government retaining ownership of the base property after closure. The BMO and military family

housing uses would continue, but the remainder of the base would not be put to further use. All interim leases would be terminated. The base would be preserved in a condition intended to minimize deterioration, ensure base security, and maintain the grounds and physical assets, including the existing utilities and structures.

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 mowing to eliminate fire, health, and safety hazards.
- Maintain golf course in such a manner to facilitate economical resumption of use.

A disposal management team (DMT) has been established at Norton 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 at the time of closure.

The DMT, as used in this document, may refer to the Air Force disposal personnel or to one of the caretaker contractors. In some cases, each team may have distinct responsibilities. For example, under the No-Action Alternative, each contractor is 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.

The base would maintain its license with the State Water Resources Control Board to continue to fill its water requirements from the same well system, although the amount drawn would be significantly reduced. Nonessential waterlines would be drained and shut off. The San Bernardino Regional Wastewater Treatment Plant (SBRWTP) would continue to provide wastewater treatment under caretaker status, but the flow would be negligible or zero. Solid waste collection from the base would likely be reduced to a negligible level under this alternative. The existing power and space-heating systems serving Norton AFB would likely be utilized at substantially reduced levels while the base is in caretaker status. Electrical power would be required for security lighting and other essential systems,

and natural gas would probably be required during winter months to maintain minimal space heating in mothballed facilities.

BMO facilities and military family housing would receive all utilities directly from local purveyors.

2.4 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

Most reuse proposals submitted for Norton AFB were either addressed as alternatives or other land use concepts and fell within the context of the reuse alternatives described above. In addition to reuse proposals received, the Air Force identified potential reuse alternatives that would be reasonable for Norton AFB. The following options were considered and eliminated from detailed analysis.

2.4.1 Major Regional Hub Airport

Development of Norton AFB as a major commercial hub airport to serve the southern California region was not selected for further analysis because of plans to expand Ontario International Airport, limitations in demand given Ontario's expansion plans, and airspace conflicts with Ontario approach that limit Norton's terminal capacity.

2.4.2 Major Air Cargo Center

Use of Norton AFB as a major air cargo center was not developed further due to limited market demand. Air cargo carriers are likely to locate at major regional airports, such as Ontario.

2.4.3 Regional Shopping Center

The development of a regional shopping center on Norton AFB property was not carried over for detailed analysis because of low market demand and extensive regional shopping resources nearby.

2.4.4 Natural Resource Conservation Area

Norton AFB is substantially developed and does not currently provide high-quality habitat for wildlife. Its location in a generally urban area also renders it unsuitable for conservation. For these reasons, use of all or major portions of the base for conservation of natural resources was not developed as an alternative.

2.5 OTHER FUTURE ACTIONS IN THE REGION

2.5.1 Disposal and Reuse of George AFB

George AFB in the Victor Valley area north of the San Bernardino Valley was closed on December 15, 1992, and is undergoing property disposal activities. The proposed reuse action for George AFB is a regional commercial and general aviation civilian airport. The action would use the existing base property and an additional 2,200 acres off base for development. Other alternatives being considered include other aviation and non-aviation options, industrial/commercial uses, and residential uses. Population in the Victor Valley area could increase by 8,500 to 56,700. Changes in direct employment could range from a negligible number to as many as 54,800 new jobs, and an additional 50,400 secondary jobs could be created.

2.5.2 Seven Oaks Dam Project

The U.S. Army Corps of Engineers (COE), Los Angeles District, is constructing the Seven Oaks Dam on the Santa Ana Wash, 1 mile north of where the wash crosses Greenspot Road. The dam will be approximately 7 miles from base property. The dam will be 550 feet high and 3,000 feet across the length of the embankment. Work has begun on the abutments, and construction of the embankment will begin in 1993 and continue until 1997 (U.S. Army Corps of Engineers, 1988). Upon completion, the dam will retain up to 145,000 acre-feet of water and will be used for flood control purposes (Link, 1991).

2.5.3 East Valley Corridor

The East Valley Corridor Specific Plan is a cooperative planning effort by the cities of Loma Linda and Redlands, the county of San Bernardino, and private landowners. The development area is focused around I-10 and SR-30. Much of this land is undeveloped or agricultural. The plan presents guidelines for high quality and organized industrial, commercial, and residential development in the study area. The study area includes Marigold Commercial Center, a new Wal-Mart complex, and Barton Center. The Barton Center consists of over 300 acres between Mountain View, California, Lugonia, and San Bernardino avenues, which is planned for 7 million square feet of industrial park offices and warehouses. The East Valley Corridor Development Study (EVCDS) project areas will add over 155,000 vehicle trips to the surrounding road system daily. This is more than the number of trips for the most intensive Norton reuse projections. As part of the Barton project, San Bernardino Avenue would be widened to six lanes within the project area only.

2.5.4 Santa Ana River Trail System

The Santa Ana River Trail System Master Plan is to develop a bicycle and equestrian trail along the Santa Ana River. The trail would serve as a major spine into which other local trails will feed, ultimately creating a complete network. Each municipality or jurisdiction would finance its own section of the trail system. The bicycle trail would be paved, approximately 15 feet wide, generally on the south side of the wash. Equestrian trails would be dirt, also about 15 feet wide, and generally on the north side of the wash.

2.5.5 Transportation Projects

I-10 Interchange between Waterman and Tippecanoe. Construction on this intersection began in September 1991. The project eliminated the existing westbound Waterman Avenue off-ramp. The project also extended Carnegie Street into a new on- and off-ramp between Waterman and Tippecanoe avenues for westbound traffic. The existing westbound I-10 on-ramp is now only used to access I-215 northbound to San Bernardino, and southbound to Riverside. There were no changes to eastbound traffic on- and off-ramps.

State Route 30. SR-30 between I-215 and I-10 will be completed during the 1990s with several new interchanges. SR-30 between San Bernardino Avenue and Fifth Street will be widened to four lanes. New interchanges will be built along SR-30 at Arden Avenue, Pacific Avenue, Baseline Road, Fifth Street, and San Bernardino Avenue. Also, a segment of SR-330 between SR-30 and a point just north of Highland Avenue will be widened to four lanes.

I-215 Interchange at Washington Avenue. The city of Colton is awaiting approval from Caltrans on interchange improvements, including widening and extending the northbound off-ramp and realigning a second northbound on-ramp.

San Bernardino Avenue Extension. San Bernardino Avenue will be extended to the west to connect with Pioneer Avenue and then Orange Show Road. This extension will include a new bridge over the Santa Ana River to the west of Tippecanoe Avenue.

Other Projects. Other transportation projects in the area involve existing streets. These include: Mountain View Avenue widened between I-10 and the Santa Ana River, Mill Street widened to four lanes between Tippecanoe Avenue and Inland Center Drive, Arden Avenue extended between the new SR-30 interchange and Baseline Avenue, Del Rosa Avenue widened to four lanes between Baseline and Sixth Street, and Church Street modifications at I-10 in Redlands.

2.5.6 Pharris Aggregate Mining

C.L. Pharris Sand and Gravel, Inc. has prepared a draft agreement with the city of Redlands to establish ground rules for future operation and expansion of aggregate processing at its existing Orange Street plant site. Under the agreement, Pharris would be able to increase processing from the current level of 2.75 million tons per year to 7 million tons per year. The agreement does not identify any new mining areas in addition to those already vested or permitted.

2.5.7 Other Redevelopment Projects

City of San Bernardino Redevelopment Projects. There are a number of redevelopment projects under way in San Bernardino. The Southeast Industrial Park is primarily an industrial development south of the Santa Ana River around Tippecanoe Avenue, with a commercial development area west of Waterman Avenue between I-10 and I-215. The Tri-City project consists of 283 acres of commercial development east of Waterman Avenue with Hospitality Lane as the primary link. The Central City Project is a downtown redevelopment area, primarily commercial, with some medium- and high-density residential land uses. The Mount Vernon corridor project area along I-215 is being developed as a commercial use corridor. Uptown redevelopment areas are predominantly commercial along the main roadways (E Street, Baseline Street, and Highland Avenue) and west of I-215 between Rialto Avenue and Third Street. Other redevelopment areas farther north include State College and Northwest, both primarily residential, and Central City North which has a mixture of commercial, residential, and public facility uses.

Agua Mansa Enterprise Zone. This is a joint project involving the counties of San Bernardino and Riverside and the cities of Colton, Rialto, and Riverside. An Enterprise Zone area is being developed offering tax incentives to attract business into the area. The area will have industrial, commercial, and office park areas.

City of Colton Redevelopment Projects. The city of Colton has six redevelopment project areas for commercial, industrial, and residential use.

2.6 COMPARISON OF ALTERNATIVES

A summary comparison of the influencing factors and impacts over the 20-year study period on each resource area affected by the Proposed Action and alternatives is presented in Tables 2.6-1 and 2.6-2. Table 2.6-3 estimates employment and population associated with other land use concepts and indicates how they would relate to the Proposed Action and each reuse alternative. Table 2.6-4 presents a summary of the impacts of

the other land use concepts. Impacts to the environment are discussed in detail in Chapter 4.

Table 2.6-1. Summary of Project-Related Influencing Factors for Reuse of Norton AFB

Factor	Proposed Action			Airport with Mixed Use Alternative			Aircraft Maintenance Center Alternative			Non-Aviation Alternative			No-Action* Alternative
	2000	2005	2015	2000	2005	2015	2000	2005	2015	2000	2005	2015	
Ground Disturbance (acres by phase)	231	415	183	282	265	127	306	276	223	498	504	585	No Change
Aircraft Operations (annual)	39,820	47,140	58,380	41,590	42,350	59,300	18,450	19,370	20,990	0	0	0	No Change
Direct Employment	7,269	18,607	30,264	8,979	17,204	22,780	8,600	15,363	18,122	8,045	14,283	25,467	No Change
Secondary Employment	6,783	15,199	22,962	8,378	15,239	19,944	8,323	14,119	16,198	7,097	11,823	19,769	No Change
Population Increase (regional)	7,220	19,002	34,289	8,956	18,043	26,276	8,571	16,248	20,961	7,532	14,531	28,751	No Change
Traffic (average daily trips)	32,421	78,331	97,357	38,551	69,364	83,621	34,351	59,537	63,959	61,281	88,625	118,433	No Change
Increase in Water Demand (MGD)	1.0	2.7	5.0	1.3	2.5	3.8	1.3	2.3	3.0	1.2	2.1	4.2	No Change
Increase in Wastewater Production (MGD)	0.6	1.7	3.2	0.8	1.6	2.4	0.8	1.5	1.9	0.7	1.3	2.7	No Change
Increase in Solid Waste (cubic yards/yr)	20,000	60,000	130,000	20,000	50,000	80,000	20,000	50,000	70,000	20,000	40,000	90,000	No Change
Increase in Electricity Demand (MWH/day)	91	251	456	121	237	346	116	213	276	104	191	381	No Change
Increase in Natural Gas Demand (therms/day)	6,000	16,000	29,000	8,000	15,000	22,000	8,000	13,000	18,000	6,000	12,000	24,000	No Change

* No-Action Alternative summarizes influencing factors relative to the closure baseline conditions.

Table 2.6-2. Summary of Impacts from Reuse of Norton AFB
Page 1 of 4

Resource Category	Proposed Action	Airport with Mixed Use Alternative	Aircraft Maintenance Center Alternative	Non-Aviation Alternative	No-Action Alternative*
Local Community					
• Land Use and Aesthetics	Replacement of most facilities and infrastructure. New transportation corridor through base. Potential impacts from industrial development and new passenger terminal on adjacent residents. Warehouse development could affect future recreation along the Santa Ana River Corridor. Change in general appearance of the base.	Retention and reuse of existing facilities. New transportation corridor through base and new passenger terminal. Potential impacts from industrial uses on adjacent residents and development along the Santa Ana River. Little change in general appearance of base.	Similar impacts as Airport with Mixed Use Alternative. No passenger terminal. Potential impacts from aggregate mining and industrial uses on nearby residents and recreational uses.	Major change in base land use from predominantly aviation-related to residential. Potential impacts from aggregate mining across Alabama Street. Change in general appearance of base. Warehouse development could affect future recreation along the Santa Ana River Corridor.	No change in on-base land use. Potential effects on redevelopment of area. No change in base appearance.
• Transportation	Improvements to Mill, Fifth, and Alabama streets to maintain LOS E or above. Cumulative airspace congestion with expansion of Ontario airport.	Improvements to Mill and Fifth streets to maintain LOS E or above. Airspace conflicts same as Proposed Action.	Improvements same as Airport with Mixed Use Alternative. Little airspace conflict.	Improvements to Mill, Fifth, and Alabama streets to maintain LOS E or above. No airspace conflicts.	No impacts on roadways or airspace.
• Utilities	Increase in utilities demand. Minimal impact on local suppliers.	Similar to Proposed Action. Demand slightly lower.	Similar to Proposed Action. Demand slightly lower.	Similar to Proposed Action. Demand slightly lower.	No increase in utilities demand.
Hazardous Materials and Hazardous Waste Management					
• Hazardous Materials Management	Increase in types and quantities of materials. Need for adequate emergency response capability.	Same as Proposed Action.	Same as Proposed Action.	Smaller quantities of fuel and hazardous materials than under the Proposed Action. Dependent on off-site emergency response support.	Small quantities of hazardous materials, managed by Air Force.

* No-Action Alternative summarizes impacts relative to the closure baseline conditions

Table 2.6-2. Summary of Impacts from Reuse of Norton AFB
Page 2 of 4

Resource Category	Proposed Action	Airport with Mixed Use Alternative	Aircraft Maintenance Center Alternative	Non-Aviation Alternative	No-Action Alternative*
Hazardous Materials and Hazardous Waste Management (continued)					
• Hazardous Waste Management	Increase in types and quantities of wastes.	Same as Proposed Action.	Same as Proposed Action.	Quantities of waste likely to be smaller than Proposed Action and other reuse alternatives.	Small quantities of waste generated.
• Installation Restoration Program	Remediation activities may delay conveyance of some parcels.	Same as Proposed Action.	Same as Proposed Action. Landfill in northeast part of base may constrain aggregate mining.	Same as Proposed Action. Landfill may affect residential development.	Remediation activities would be ongoing.
• Storage Tanks	All underground tanks not meeting current regulations to be removed prior to disposal.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action. Caretaker maintenance of aboveground tanks.
• Asbestos	Extensive demolition will require removal and disposal. Remaining asbestos will require management in place.	Some demolition and renovation will require removal and disposal. Remaining asbestos will require management in place.	Same as Airport with Mixed Use Alternative.	Same as Airport with Mixed Use Alternative.	Continued management of facilities with asbestos.
• Pesticides	Increase in use associated with extensive landscaping in office industrial park and golf course.	Slight increase in use; similar to preclosure use.	Same as Airport with Mixed Use Alternative.	Increase in use of household pesticides in housing area.	Minimal use as part of caretaker activities.
• Polychlorinated Biphenyls (PCBs)	All equipment with PCBs greater than 50 ppm removed or retrofilled prior to disposal.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.
• Radon	Below level of concern.	Below level of concern.	Below level of concern.	Below level of concern.	Below level of concern.

*No-Action Alternative summarizes impacts relative to the closure baseline conditions

Table 2.6-2. Summary of Impacts from Reuse of Norton AFB
Page 3 of 4

Resource Category	Proposed Action	Airport with Mixed Use Alternative	Aircraft Maintenance Center Alternative	Non-Aviation Alternative	No-Action Alternative*
Hazardous Materials and Hazardous Waste Management (continued)					
• Medical/Biohazardous Waste	None generated.	Small quantities generated from clinic.	Same as Airport with Mixed Use Alternative.	Same as Airport with Mixed Use Alternative.	None generated.
Natural Environment					
• Soils and Geology	Consumption of aggregate for construction. Alteration of natural surface and soils disturbance. New construction required to meet standards for Seismic Zone IV.	Same as Proposed Action.	Same as Proposed Action. Aggregate mining would increase supply of construction material but also increase disturbance.	Same as Proposed Action.	No impact.
• Water Resources	Increased runoff could overburden existing drainage and flood control facilities. Increase in water demand requiring additional supplemental supply.	Same as Proposed Action.	Same as Proposed Action. Potential increase in erosion and sedimentation due to diversion of Santa Ana River channel to enable aggregate mining in wash.	Same as Proposed Action.	No impact.
• Air Quality	Increase in air pollutant emissions. Potential interference with reaching attainment of federal and state PM_{10} standards, as well as state ozone and CO standards. No interference with meeting attainment goals for NO_2. No jeopardy of SO_2 attainment status.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	No measurable increase in air pollutant emissions.

*No-Action Alternative summarizes impacts relative to the closure baseline conditions

Table 2.6-2. Summary of Impacts from Reuse of Norton AFB
Page 4 of 4

Resource Category	Proposed Action	Airport with Mixed Use Alternative	Aircraft Maintenance Center Alternative	Non-Aviation Alternative	No-Action Alternative*
Natural Environment (continued)					
• Noise	Maximum of about 780 acres exposed to DNL 65 dB or greater. Area currently includes 9 residents. Increased traffic noise along some roads.	Similar tc Proposed Action. Maximum of about 750 acres exposed to DNL 65 dB or greater from aircraft noise. Area currently includes 9 residents. Increased traffic noise along some roads.	Less than 100 acres and no area outside of airport exposed to DNL 65 dB or greater from aircraft noise. Increased traffic noise along some roads.	No aircraft noise. Increased traffic noise along some roads.	No impact.
• Biological Resources	Loss of 12 acres of native vegetation, including 1 acre of wetlands. Impact on endangered Santa Ana River woolly-star and 5 other sensitive species. Loss of wildlife habitat and foraging area for several species.	Same as Proposed Action.	Loss of 47 acres of native vegetation, including 7 acres of wetlands. Also includes 21 acres of native vegetation in the Santa Ana Wash lost due to aggregate mining. Impact on Santa Ana River woolly-star and 5 other sensitive species. Loss of wildlife habitat and foraging area.	Loss of 21 acres of native vegetation, including 1 acre of wetlands. Loss of wildlife habitat and foraging area. Replacement with more landscaped areas. Impact on Santa Ana River woolly-star and 5 other sensitive species.	No impact. Potential increase in habitat value.
• Cultural Resources	No significant resources on base; therefore, redevelopment will have no impact. Off-base road improvements may affect resources.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	No impact.

* No-Action Alternative summarizes impacts relative to the closure baseline conditions.

Table 2.6-3. Effects of Other Land Use Concepts Relative to Alternatives
Page 1 of 3

Agency/Proposal	Employment/Population	Alternative	Change in Reuse Plan
U.S. Department of the Interior (sponsor)/City and County Parks and Recreation	140 direct jobs.	Proposed Action	Reduced OIP, commercial, and aviation support development. Net decrease of 2,992 on-site jobs.
		Airport with Mixed Use	Reduced OIP, commercial, and aviation support development. Net decrease of 778 on-site jobs.
		Aircraft Maintenance Center	Reduced aggregate mining development. Net increase of 11 on-site jobs.
		Non-Aviation	Reduced residential development. Net decrease of 211 single-family units. Net increase of 24 on-site jobs.
U.S. Department of Agriculture/ Forest Service-west site	150 direct jobs.	Proposed Action	Reduced OIP and aviation support development. Net decrease of 629 on-site jobs.
		Airport with Mixed Use, Aircraft Maintenance Center	Reduced commercial and aviation support development. Net decrease of 368 on-site jobs.
		Non-Aviation	Reduced commercial development. Net decrease of 286 on-site jobs.
U.S. Department of Agriculture/ Forest Service-east site	150 direct jobs.	Proposed Action	Reduced commercial development. Net decrease of 1,234 on-site jobs. Severely limits area for general aviation.
		Airport with Mixed Use	Reduced aviation support development. Net decrease of 665 on-site jobs. Limits area for general aviation.
		Aircraft Maintenance Center	Limited airfield access. Reduced aggregate mining development. Site is divided into two parcels. Net increase of 145 on-site jobs.
		Non-Aviation	Reduced residential development. Net decrease of 63 single-family units. Net increase of 150 on-site jobs.

Table 2.6-3. Effects of Other Land Use Concepts Relative to Alternatives
Page 2 of 3

Agency/Proposal	Employment/Population	Alternative	Change in Reuse Plan
U.S. Department of Agriculture/ Forest Service-office and warehouse sites	150 direct jobs.	Proposed Action	Reduced OIP development. Net decrease of 140 on-site jobs.
		Airport with Mixed Use, Aircraft Maintenance Center, Non-Aviation	Reduced OIP and warehousing development. Net decrease of 29 on-site jobs.
U.S. Department of Education (sponsor) State/Community Higher Education	250 direct jobs; Up to 1,000 students.	Proposed Action	Reduced OIP and aviation support development. Net decrease of 40 on-site jobs.
		Airport with Mixed Use	Reduced residential and OIP development. Net decrease of 40 on-site jobs and 104 multi-family dwelling units.
		Aircraft Maintenance Center, Non-Aviation	Reduced residential and OIP development. Net decrease of 40 on-site jobs and 80 multi-family dwelling units.
U.S. Department of Veterans Affairs	140 direct jobs.	Proposed Action	Reduced OIP development. Net decrease of 1,021 on-site jobs.
		Airport with Mixed Use	Reduced residential and OIP development. Net decrease of 87 on-site jobs and 104 multi-family dwelling units.
		Aircraft Maintenance Center, Non-Aviation	Reduced residential and OIP development. Net decrease of 87 on-site jobs and 160 multi-family dwelling units.
U.S. Postal Service	400 to 500 direct jobs.	Proposed Action	Reduced OIP development. Net decrease of 81 on-site jobs.
		Airport with Mixed Use, Aircraft Maintenance Center, Non-Aviation	Reduced warehousing development. Net increase of 369 on-site jobs.

Table 2.6-3. Effects of Other Land Use Concepts Relative to Alternatives
Page 3 of 3

Agency/Proposal	Employment/Population	Alternative	Change in Reuse Plan
McKinney Act/Homeless Housing	No direct jobs; housing of 70 homeless persons per building.	Proposed Action	Reduced OIP development. Net decrease of 140 on-site jobs per building.
		Airport with Mixed Use, Aircraft Maintenance Center, Non-Aviation	No change.
San Bernardino County/ Work Furlough Program	25 direct jobs; 210 inmates.	Proposed Action, Airport with Mixed Use, Aircraft Maintenance Center, Non-Aviation	Reduced OIP development. Net decrease of 265 on-site jobs.
Aggregate Mining	55 direct jobs.	Proposed Action Airport with Mixed Use	Reduced airfield and aviation support development. Net decrease of 32 on-site jobs.
		Aircraft Maintenance Center	No net effects
		Non-Aviation	Reduced residential and commercial development. Net decrease of 1,350 single-family units. Net decrease of 352 on-site jobs.

Table 2.6-4. Summary of Impacts from Other Land Use Concepts
Page 1 of 4

Resource Category	Department of Agriculture	Department of the Interior	Department of Education	Department of Veterans Affairs
Local Community				
• Land Use and Aesthetics	No impact.	No impact.	No impact.	No impact.
• Transportation	Minor impact.	No impact.	No impact.	No impact.
• Utilities	No impact.	No impact.	No impact.	No impact.
Hazardous Materials and Hazardous Waste Management				
• Hazardous Materials Management	Fuels and other materials used in conjunction with aviation activities and fire fighting.	Minimal quantities.	Minimal quantities, mostly in aviation training.	Minimal quantities.
• Hazardous Waste Management	Some wastes generated by aviation activities.	Minimal quantities.	Minimal quantities.	Minimal quantities.
• Installation Restoration Program	Minor impact.	May delay reuse of golf course.	No impact.	No impact.
• Storage Tanks	No impact.	No impact.	No impact.	No impact.
• Asbestos	Renovation of existing buildings may require removal and disposal and/or management in place.	No impact.	Use or modification of existing buildings may require removal/disposal or management in place.	Use or modification of existing buildings may require removal/disposal or management in place.
• Pesticides	Little to no use anticipated.	Used in maintenance of golf course and other grounds.	Little to no use anticipated.	Little to no use anticipated.

Table 2.6-4. Summary of Impacts from Other Land Use Concepts
Page 2 of 4

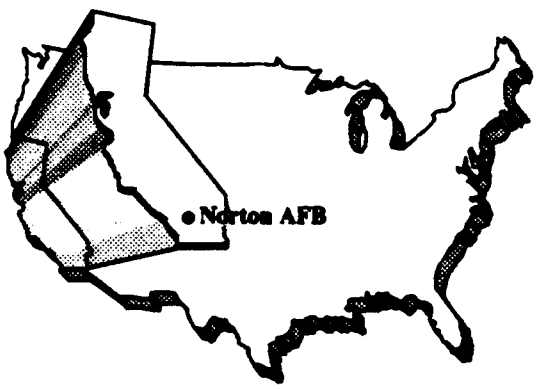
Resource Category	Department of Agriculture	Department of the Interior	Department of Education	Department of Veterans Affairs
Hazardous Materials and Hazardous Waste Management (continued)				
• PCBs	No impact.	No impact.	No impact.	No impact.
• Radon	Below level of concern.	Below level of concern.	Below level of concern.	Below level of concern.
• Medical/Biohazardous Wastes	None generated.	None generated.	None generated.	Small quantities from clinic.
Natural Environment				
• Soils and Geology	Minor impacts from disturbance if new construction involved.	No impact.	No impact.	No impact.
• Water Resources	No impact.	No impact.	No impact.	No impact.
• Air Quality	Minor impacts from construction and emission increases during operations.	Minor amounts of emissions.	Minor amounts of emissions.	Minor amounts of emissions.
• Noise	Periodic increases in noise during mobilization periods.	No impact.	No impact.	No impact.
• Biological Resources	Minor loss of weedy vegetation if construction required.	No impact.	No impact.	No impact.
• Cultural Resources	No impact.	No impact.	No impact.	No impact.

Table 2.6-4. Summary of Impacts From Other Land Use Concepts
Page 3 of 4

Resource Category	U.S. Postal Service	McKinney Act	San Bernardino County	Aggregate Mining
Local Community				
• Land Use and Aesthetics	No impact.	No impact.	No impact.	Potential impact on nearby residents.
• Transportation	Minor increase in truck traffic.	No impact.	No impact.	Increase in truck traffic, especially on Third and Alabama streets.
• Utilities	No impact.	No impact.	No impact.	Increase in water use.
Hazardous Materials and Hazardous Waste Management				
• Hazardous Materials	Minimal quantities.	No use anticipated.	No use anticipated.	Small quantities associated with vehicles and processing equipment.
• Hazardous Waste	Minimal quantities.	None anticipated.	None anticipated.	Small quantities generated.
• Installation Restoration Program	No impact.	No impact.	No impact.	Remediation of old landfill may constrain mining.
• Storage Tanks	No impact.	No impact.	No impact.	No impact.
• Asbestos	May require management in place.	May require removal and/or management in place.	May require removal and/or management in place.	No impact.
• Pesticides	Little to no use anticipated.	Little to no use anticipated.	Little to no use anticipated.	No use anticipated during excavation and processing. Some use may be involved in reclamation.
• PCBs	No impact.	No impact.	No impact.	No impact.
• Radon	Not applicable.	Below level of concern.	Below level of concern.	Not applicable.
• Medical/Biohazardous Wastes	None generated.	None generated.	None generated.	None generated.

Table 2.6-4. Summary of Impacts From Other Land Use Concepts
Page 4 of 4

Resource Category	U.S. Postal Service	McKinney Act	San Bernardino County	Aggregate Mining
Natural Environment				
• Soils and Geology	No impact.	No impact.	No impact.	Increase in supply of aggregate. Increase soil disturbance and change in land contours.
• Water Resources	No impact.	No impact.	No impact.	Potential temporary increase in erosion and sedimentation due to diversion of Santa Ana River channel.
• Air Quality	Minor impacts from emissions increases associated with operations.	No impact.	Minor amounts of emissions.	Minor impacts from emissions increases associated with mining activities.
• Noise	Minor traffic noise from trucks	No impact.	No impact.	Noise from excavation, processing, and transportation.
• Biological Resources	No impact.	No impact.	No impact.	Loss of vegetation and habitat, including wetland and riparian areas. Impacts to the endangered Santa Ana River woolly-star, and 5 other sensitive species.
• Cultural Resources	No impact.	No impact.	No impact.	No impact.



CHAPTER 3
AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

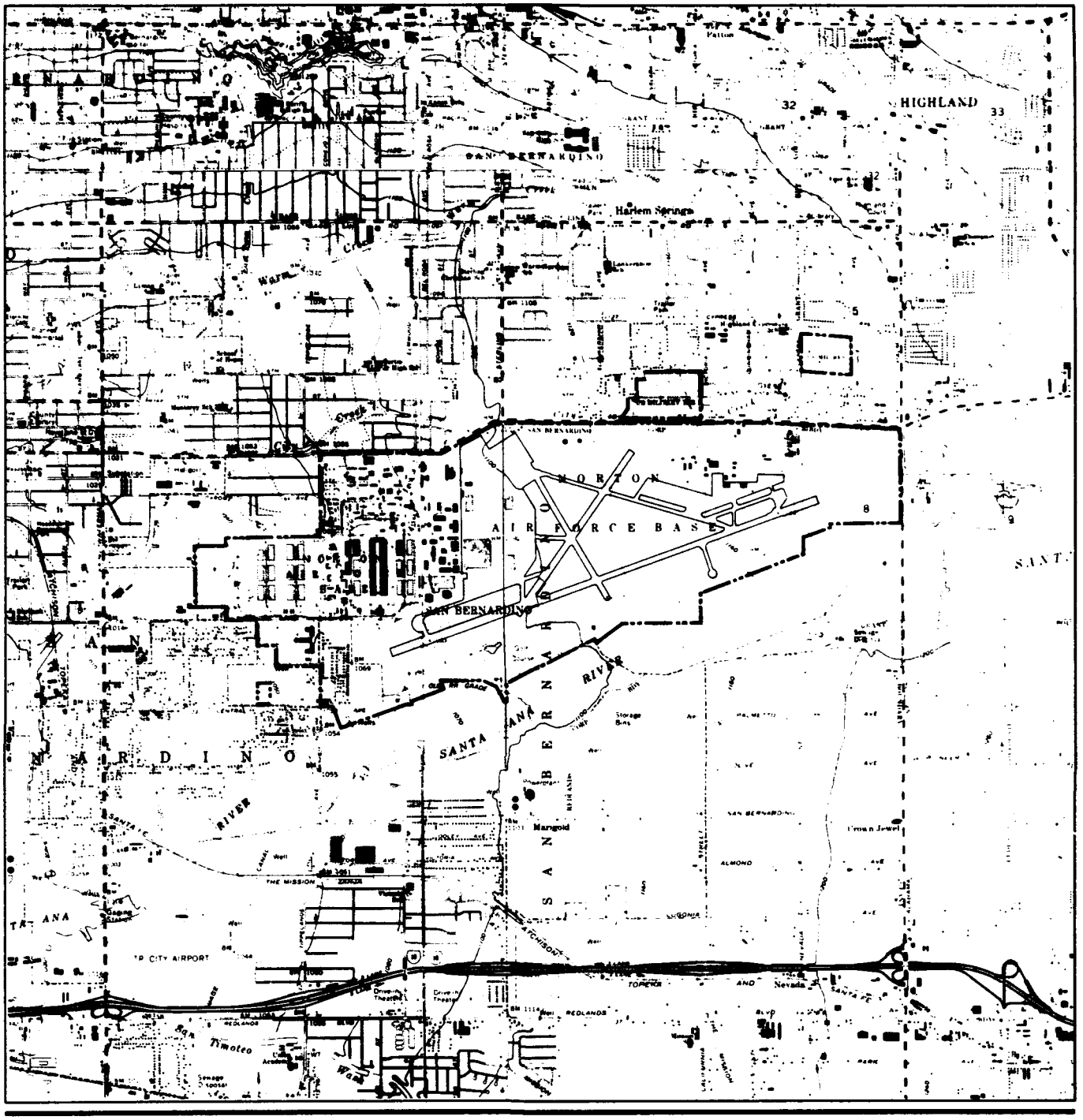
3.1 INTRODUCTION

This chapter presents the environmental conditions of Norton AFB (Figure 3.1-1) and its Region of Influence (ROI) as they would be at the time of base closure. It provides information to serve as a baseline from which to identify and evaluate environmental changes resulting from disposal and reuse of Norton AFB. Although this EIS focuses on the biophysical environment, influencing factors (i.e., community effects) are addressed to the extent that they may directly impact the environment. These include population and employment, land use and aesthetics, public utility systems, and local and regional transportation networks. This chapter also describes hazardous materials on base, including storage tanks, asbestos, pesticides, polychlorinated biphenyls (PCBs), and radon. The IRP is also described. Finally, the chapter describes existing natural resources, including geology and soils, water resources, air quality, noise, biological resources, and cultural resources.

The ROI to be studied is defined for each resource area. A resource area's ROI determines the geographical area within which environmental impacts are addressed. Although the base boundary may constitute the ROI limit for some resources, others (e.g., air quality, utility systems, land use) have potential impacts that extend beyond base property. ROIs must be carefully delineated to allow an accurate analysis that provides the basis for Air Force decision-making regarding base disposal and subsequent reuse.

The baseline conditions assumed for the purpose of analysis are the conditions projected at base closure. General preclosure conditions and impacts of the closure action were addressed in the closure EIS (U.S. Air Force, 1990e). Nevertheless, a reference to preclosure conditions is provided in this document where appropriate (e.g., air quality, noise) to provide a comparative analysis over time. This will assist the decision-maker and reviewing agencies in understanding potential long-term impacts in comparison to conditions when the installation was active.

The "base," as defined in this EIS, comprises those properties identified for disposal. It does not include the BMO and military family housing areas to be retained by the Air Force.



EXPLANATION

—·—·— Base Boundary

Norton AFB and Vicinity

0 1000 2000 4000 Feet

Map Source: U.S.Geological Survey, 1960a, 1960b, 1960c, 1960d

Figure 3.1-1

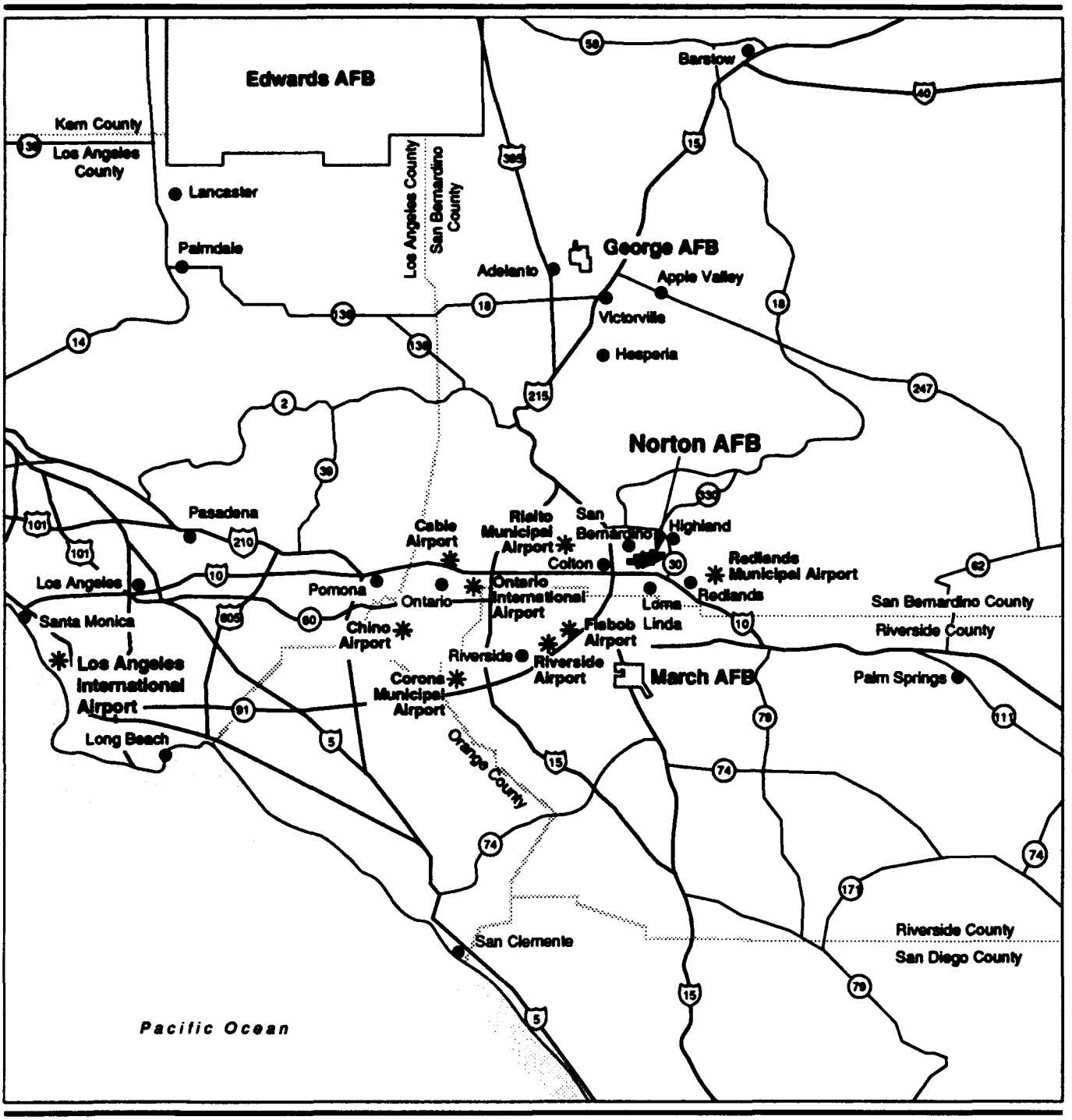
3.2 LOCAL COMMUNITY

Norton AFB is in southern California in San Bernardino County, about 65 miles east of Los Angeles, 50 miles west of Palm Springs, and 5 miles north of the San Bernardino-Riverside county line (Figure 3.2-1). The base is near the east end of the San Bernardino Valley, which is surrounded by the San Bernardino Mountains, 6 miles to the north; the San Jacinto Mountains, about 25 miles to the southeast; and the Santa Ana Mountains, about 25 miles southwest of the base. The San Bernardino Valley continues westward for approximately 35 miles from the base and includes the cities of Ontario and Pomona. Two passes lead out of the valley: San Gorgonio Pass, 20 miles to the east; and Cajon Pass, 15 miles to the northwest. The Santa Ana River, the primary San Bernardino Valley drainage, originates in the San Bernardino Mountains and enters the valley northeast of the base. It flows through the citrus groves east of Norton AFB, then continues as the Santa Ana Wash along the southern boundary of the base and turns southwest out of the valley (see Figure 3.1-1).

The climate in the San Bernardino Valley is characterized by hot summers and moderate winters with light annual rainfall, light to moderate winds, and humidity ranging from 10 to 60 percent. The climate is affected by the valley's relationship to the Pacific Ocean to the west and southwest, the mountains to the north, and the desert to the east. Temperature inversions frequently inhibit circulation and dispersion. Prevailing winds north beyond the mountains are from the west-southwest, with an average wind speed of 2.8 knots. High-speed anticyclonic winds (Santa Ana) and cyclonic winds from the north can reach gale velocities as high as 69 knots (U.S. Air Force, 1990e). July is the hottest month with an average maximum temperature of 95°F. January is the coolest month with an average high of 63°F and average low of 38°F. Temperatures frequently go above 100°F in the summer and occasionally drop below freezing in the winter.

The region is served by a well developed system of highways (Figure 3.2-1). I-10, a major transcontinental route, passes 2 miles south of the base. I-15, the main route to Las Vegas, Nevada, intersects I-10 at Ontario, 15 miles west of San Bernardino. I-215 intersects I-10 at San Bernardino and connects with I-15 near Devore, about 10 miles north of the city. Norton AFB, portions of San Bernardino County, and the cities of San Bernardino and Highland are contained within a freeway ring (almost completed) formed by SR-30 to the north and east, I-10 to the south, and I-215 to the west. Section 3.2.3 further describes the regional transportation system.

Airports serving the San Bernardino Valley include Ontario International Airport, Redlands Municipal Airport, Corona Municipal Airport, Flabob Airport in Riverside, Riverside Municipal Airport, Chino Airport, and Rialto Municipal Airport. Of these airports, only Ontario, located 25 miles to the west, provides scheduled passenger service. Three major railroad companies have



EXPLANATION

- Selected Airports
- Interstate Highways
- U.S. Highways
- State Highways

0 12.5 25 Miles

Regional Map

Figure 3.2-1

lines passing through the San Bernardino area: the Southern Pacific, the Union Pacific, and The Atchinson, Topeka & Santa Fe (AT&SF). An AMTRAK passenger line also serves San Bernardino. Commuter rail service from Los Angeles to the area was recently initiated. However, local transportation agencies have plans to provide diesel commuter rail service to Los Angeles in the future. Although an AT&SF railroad line once served Norton AFB (the Air Depot), it has since been abandoned. Most of the track has been removed, but the easement on base for the spur line still exists.

Norton AFB was originally the site for the San Bernardino Air Depot, established on February 14, 1942. The original depot occupied 500 acres and had 1,000 employees. By 1943, the staff had increased to 13,000 civilian and 5,000 military employees. For a period, the depot was renamed San Bernardino Air Materiel Area before receiving its present name in 1950, in honor of Captain Leland F. Norton, an A-20 bomber pilot from San Bernardino who was killed in action over France in 1944. Since 1967, Norton AFB has been the home for the 63rd Military Airlift Wing (MAW). During the Vietnam War, the 63rd MAW ferried supplies and military personnel around-the-clock to Southeast Asia.

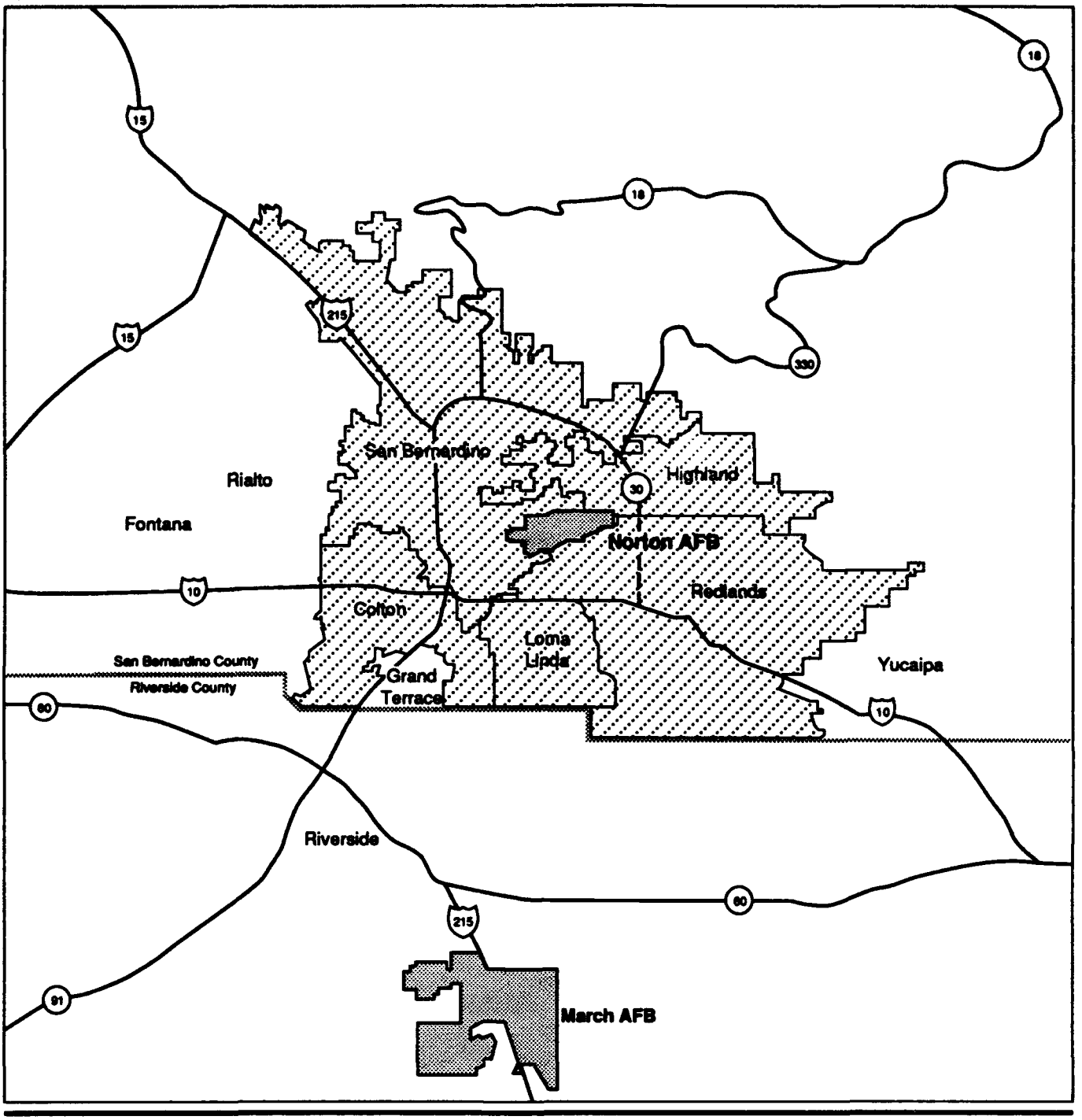
In 1988, the Base Realignment and Closure Commission recommended closure of Norton AFB because of increasing air congestion in the greater Los Angeles area, outdated facilities on base, and mission redundancies. At that time Norton AFB was host to thirty DOD tenant organizations in addition to the 63rd MAW.

3.2.1 Community Setting

The area surrounding Norton AFB is mostly urbanized, comprised of the cities of San Bernardino to the north and west, Highland to the north and east, Redlands to the south and east, Loma Linda and Grand Terrace to the south, and Colton to the southwest, as well as several unincorporated pockets of San Bernardino County.

The base is located in the San Bernardino-Riverside county metropolitan statistical area (MSA). The greatest effects from reuse of the base are expected to occur in the adjacent local communities; therefore the cities of San Bernardino, Redlands, Highland, Loma Linda, and Colton (herein referred to as the Area of Concentrated Study [ACS]) are highlighted in the analysis (Figure 3.2-2). The city of Grand Terrace is not expected to be affected by reuse of Norton AFB and, therefore, was not included in the ACS.

The total employment in the San Bernardino-Riverside county region was 916,563 in 1990 and was projected to be 1,028,897 by 1994, with base closure. Overall employment growth in the region was 4.2 percent annually between 1970 and 1988, almost double the national average. In 1988, the government sector provided about 20 percent of the jobs. The sectors



EXPLANATION

- Area of Concentrated Study (ACS)
- City Boundaries
- Highways
- Highway Under Construction
- Interstate Highways
- State Highways

0 1.5 3 6 Miles

Area of Concentrated Study

Figure 3.2-2

showing the most growth during the mid-1980s were construction, manufacturing, and financial services industries.

Population projections have been made for 1994, the year of base closure. They assume closure of both Norton AFB and George AFB and realignment at March AFB. They also assume personnel transferred from Norton AFB to March AFB between preclosure conditions (1990) and closure (1994) would not relocate their residences outside of the ACS. Population in the San Bernardino-Riverside county region was about 2.6 million in 1990 and is projected to be over 3 million at closure in 1994. Population in the five-city ACS was approximately 317,000 in 1990 and is projected to be 330,000 by 1994.

Housing units in the region increased steadily during the 1980s. Over 1 million units were available in 1990 (approximately 484,000 units in Riverside County and approximately 542,000 in San Bernardino County). The average annual growth rate for housing was 3.9 percent in San Bernardino County and 5.1 percent in Riverside County. Within the ACS, the highest growth occurred in Highland with an average annual increase of 12.6 percent during the 1980 to 1990 period. The Colton housing inventory also grew faster than the county as a whole, by an average of 5.9 percent per year. The growth rates reflect demand for more affordable housing within the southern California region. The cities of San Bernardino, Redlands, and Loma Linda housing stock increased somewhat slower than the county average at a rate of 2.4, 3.1, and 3.6 percent per year, respectively. Residential vacancy rates in the ACS in 1990 were 7.3 percent in the city of San Bernardino, 5.2 percent in Redlands, 9.9 percent in Highland, 7.7 percent in Loma Linda, 8.8 percent in Colton, and 14.3 percent for all of San Bernardino County (U.S. Bureau of Census, 1981, 1991). In 1994, an estimated 646,400 housing units will be available in San Bernardino and Riverside counties.

Norton AFB employed about 10,400 personnel in 1989 (U.S. Air Force, 1990e). By closure, employment at Norton AFB will decrease to 1,030 jobs associated with the BMO (U.S. Air Force, 1990e), 885 contractor personnel supporting the BMO, and an additional 50 jobs associated with the Norton AFB DMT. Approximately 1,062 Air Force jobs (479 military, 583 civilian) will be transferred from Norton AFB to March AFB as part of the base realignment program. The number of residents living in base housing (including unaccompanied personnel in dormitories and military families) will decrease from approximately 1,800 in 1990 to 750 in 1994. The remaining residents will occupy the 264 military family housing units to be retained by the Air Force. The *EIS for the Closure of Norton AFB* (U.S. Air Force, 1990e) addresses the action of retaining the Air Force properties. For the purposes of this analysis, only the DMT is included in the closure baseline for the analysis of the effects of the No-Action Alternative because it is the only Air Force employment associated with the property designated for

disposal. The BMO and military family housing are included as part of the larger community.

3.2.2 Land Use and Aesthetics

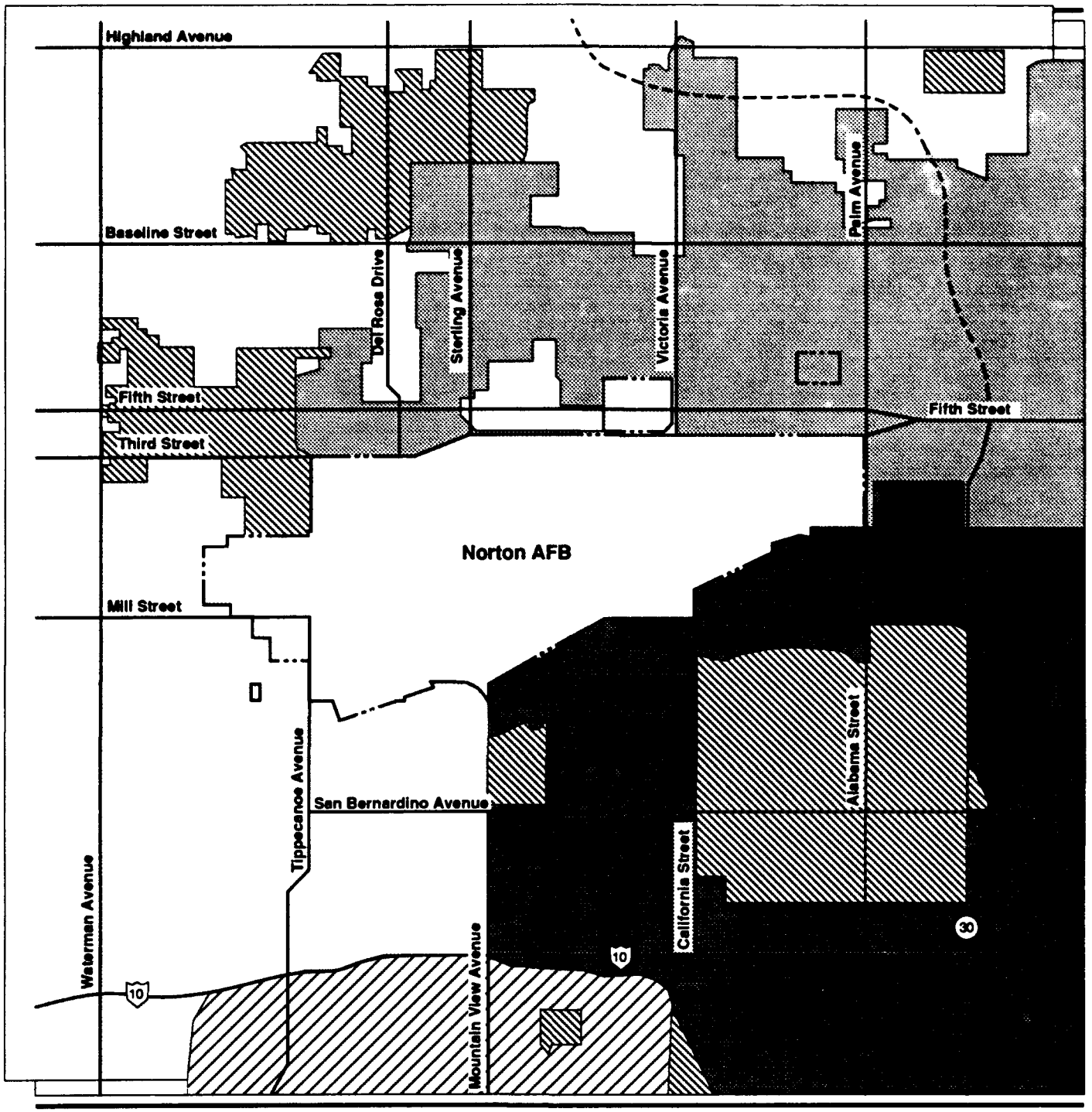
This section describes the land uses and aesthetics for the base property and surrounding areas of Norton AFB at base closure. Off-base land uses at the time of closure are assumed to be similar to existing land uses in the vicinity of the base, unless specific development plans project a change.

Norton AFB is owned by the U.S. Government, but most of it falls within the jurisdictional boundaries of the city of San Bernardino. A noncontiguous 30-acre parcel lies within the boundaries of the city of Highland. The base adjoins the cities of San Bernardino, Highland, and Redlands and unincorporated areas of San Bernardino County (Figure 3.2-3). These jurisdictions regulate planning, zoning, and subdivision control within their respective boundaries.

3.2.2.1 Land Use. Land uses addressed in this section include base land, off-base land use trends and land uses immediately surrounding the base, land use plans and regulations, and areas affected by airport operations at Norton. The ROI for the majority of direct land use impacts consists of Norton AFB; portions of the cities of San Bernardino, Highland, and Redlands surrounding the base; and unincorporated parcels of San Bernardino County interspersed among those cities. Off-base land use is also discussed within the context of broader regional growth trends. The ROI for airport-related land use impacts is determined by the extent of noise contours and safety zones created by airfield operations and includes portions of the cities of Loma Linda, Colton, Grand Terrace, Rialto, and Fontana in addition to San Bernardino, Highland, and Redlands.

On-Base Land Use. The base occupies 2,127 acres including 2,094 acres of contiguous property and two noncontiguous annexes within 1 mile of the main base: a small 3-acre parcel to the southwest used for avigational equipment and a 30-acre parcel to the northeast, previously used as a transmitter site and now vacant and used for recreation. Most of the base property is held in fee and was acquired in stages. The bulk of the acquisitions occurred in 1942. Additional parcels acquired in the 1950s and 1980s include runway clear zone (CZ) areas. The parcel where the BMO is currently located was acquired in 1983.

Easements on the south side of the airfield were acquired from San Bernardino County, the cities of Riverside and Redlands, and San Bernardino Valley Municipal Water District (SBVMWD) in 1967, as a safety buffer for munitions stored on the south side of the runway. The easements are in the Santa Ana Wash outside the fenced areas of the base. The easement from the city of Redlands and SBVMWD terminated in 1987. The base leases



EXPLANATION

- City of San Bernardino
- City of Highland
- City of Redlands
- City of Loma Linda
- County of San Bernardino
- Highway Under Construction
- Base Boundary

0 1000 2000 4000 Feet

City Boundaries

Figure 3.2-3

about 1 acre from the city of Riverside on the south side of the golf course for recreational facilities. The base also has an indefinite lease for a small parcel from CSE Repeater Company for communication equipment along the ridgeline of the San Bernardino Mountains.

The Air Force outgrants a number of agreements, leases, easements, licenses, and permits to other agencies for use of base property. These include roadways, utilities, flood control areas, services (e.g., bank, credit union), and work space in base facilities. The terms of these outgrants range from 1 year to perpetuity. Outgrants with durations that extend past base closure are largely roadway and utility easements held by the city of San Bernardino or local utility companies (Table 3.2-1).

A portion of Hangar 763 and support areas on base are under an interim lease to the IVDA, which in turn subleases it to Lockheed Corporation. Lockheed uses these facilities for maintaining and modifying commercial aircraft, including Boeing 747 models. Each aircraft requires about 15 to 60 days to accomplish FAA mandated modification and/or heavy maintenance checks. The current IVDA lease expires on July 9, 1993. Continued use of the facilities by Lockheed beyond that date would require an extension of the lease agreement or other action by the Air Force.

Norton AFB consists primarily of an airfield with two developed areas: one on the west side of the airfield and the other on the northeast side of the airfield, which was the location of the base's original facilities. Facilities on base include over 50 buildings classified as warehouse or storage facilities, 9 mechanical workshops and laboratories, 10 plants for utility functions, 5 commercial buildings, 20 barracks/dormitory buildings (ranging in size from 5,700 to 26,000 square feet), and 3 hangars. The base property includes the following general land uses:

Airfield	784 acres
Aviation Support	130 acres
Industrial	510 acres
Institutional (medical)	8 acres
Institutional (educational)	10 acres
Commercial	45 acres
Residential	125 acres
Public/Recreation	205 acres
Vacant Land	310 acres

Each on-base land use category is described briefly below and shown on Figure 3.2-4.

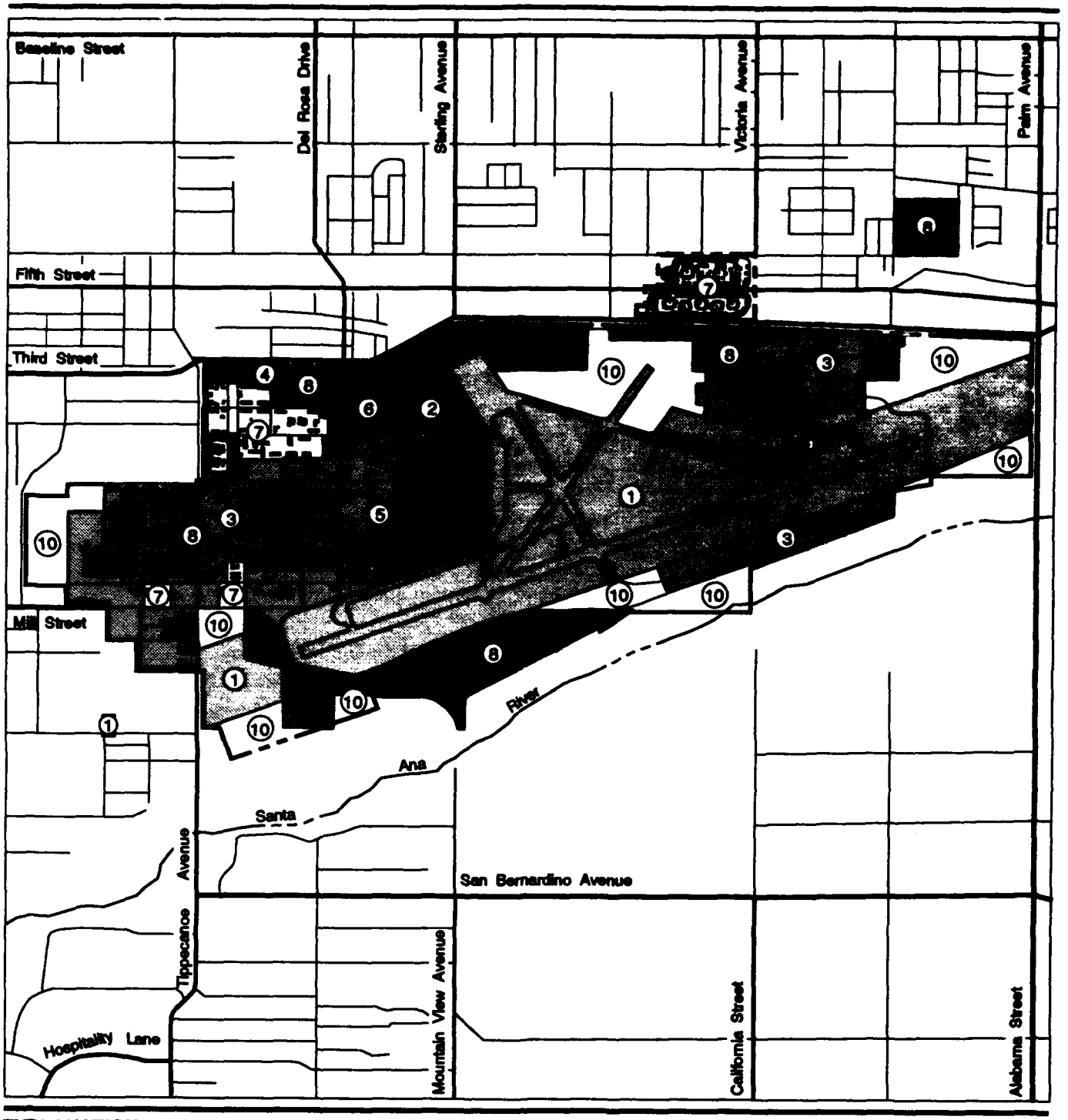
The airfield includes the main Runway 06/24, taxiways, and ramp areas. The concrete runway is 10,001 feet long and 200 feet wide. It has the bearing capacity to accommodate the largest aircraft in the Air Force

Table 3.2-1. Inventory of Real Estate Easements, Licenses, Permits, and Leases in Effect at Base Closure

Document Number	Expiration Date	Description/Location	Responsible Party
04-353-ENG-7331 Easement	In Perpetuity	Telephone/power line	A. & G. Leach
Tract A74 Easement	In Perpetuity	Ditch and ponding	M. Williams
Tract A75 Easement	In Perpetuity	Ditch and ponding	L. & M Berkovitz
Tract A76 Easement	In Perpetuity	Ditch and ponding	J. & M. Roesch
Tract A77 Easement	In Perpetuity	Ditch and ponding	F. McFariane
Tract C-4 Easement	In Perpetuity	Outfall Sewer	Southern California Edison Company
Tracts D-2, D-6, D-7 Easement	In Perpetuity	Outfall Sewer	P.J. & Nondis Reiger; Nort
Tract 125E Easement	01/18/1997	Restriction	San Bernardino Valley Municipal Water
Tract 127E Easement	In Perpetuity	Restriction	San Bernardino County Flood Control
Tract 129E Easement	In Perpetuity	Restriction	City of Riverside
Tract 130E Easement	01/03/1997	Restriction	City of Redlands
Tract 131E Easement	In Perpetuity	Restriction	San Bernardino County Flood Control
Tract 400E Easement	In Perpetuity	Sewer Line	San Bernardino County Flood Control
LA-2409 Lease	Indefinite	Skyland Peak, Crestline, CA	CSE Repeater Company
509-ENG-2276 License	Indefinite	Water Rates	City of San Bernardino
Tract A71 License	Indefinite	Railroad Spur	City of San Bernardino
04-193-ENG-4621 License	Indefinite	Outfall Sewer	Atchinson Topeka & Santa Fe
LA-2473 License	Indefinite	Instl Sign NAFB Entrance	City of San Bernardino
LA-2522 License	07/06/1996	Tele Cbl Tippecanoe	City of San Bernardino
LA-2538 License	Indefinite	Water Line, 3rd St.	City of San Bernardino
E2411-12 Permit	Indefinite	Relocate Meter	County of San Bernardino
E805-15 Permit	Indefinite	Instl Pole (12K Vlt)	County of San Bernardino
No Number Permit	Indefinite	2 light Stand/3rd St.	County of San Bernardino

Table 3.2-1. Inventory of Real Estate Easements, Licenses, Permits, and Leases in Effect at Base Closure
Page 2 of 2

Document Number	Expiration Date	Description/Location	Responsible Party
No Number Permit	Indefinite	Family Housing Area	County of San Bernardino
No Number Agreement	Indefinite	Joint Use of Office	AFGE Local 1485
Tract D-7 Agreement	In Perpetuity	Use of NAFB Sewer	San Bernardino County
04-353-ENG-6041 Easement	Indefinite	R/W Telephone Lines	General Telephone Company
04-353-ENG-6039	Indefinite	R/W Alabama/3rd	San Bernardino County
04-353-ENG-7834 Easement	Indefinite	R/W RD Tippe/3rd	County of San Bernardino
04-353-ENG-9721 Easement	In Perpetuity	Widen 3rd Street	County of San Bernardino
09-2-68-176 Easement	08/01/2004	For A 3" Pipeline	Southern California Gas Company
04-353-ENG-7760	Indefinite	36" Sewer Line	City of San Bernardino
04-353-ENG-9662 Easement	Indefinite	20" Water Line	San Bernardino Valley Municipal Water District
09-2-71-361 Easement	Indefinite	R/W Access Road	San Bernardino County Flood Control
09-2-82-328 Easement	08/31/2032	8" Sewer Line	City of San Bernardino
04-353-ENG-7993 Easement	Indefinite	R/W Access Comm Fac	San Bernardino County Flood Control
04-353-ENG-6944 Easement	Indefinite	R/W Road, Comm Fac	County of San Bernardino
09-2-74-49 Easement	In Perpetuity	Sewer Line @ Unit A012	City of San Bernardino
09-2-75-141 Easement	Indefinite	Lena Road	County of San Bernardino
09-2-78-51 Easement	In Perpetuity	Drainage	City of San Bernardino
09-2-80-440 Easement	In Perpetuity	Traff Signal 3rd & Victoria	County of San Bernardino
Book 5780-Page 229	Indefinite	Transmsn/Mill & Tippecanoe	Southern California Edison
09-1-81-294 Lease	07/20/2006	Credit Union Bldg. 21	Credit Union
09-4-90-1 Permit	12/31/1995	Defense Logistics Agency	Defense Contract Administration
No Number Permit	Indefinite	Vend Facil Bldg. 953	ST CA Business Enterprises



EXPLANATION

- 1 Airfield
- 2 Aviation Support
- 3 Industrial
- 4 Institutional (Medical)
- 5 Institutional (Education)
- 6 Commerical
- 7 Residential
- 8 Public/Recreation
- 9 Agriculture *
- 10 Vacant Land
- Base Boundary

0 650 1300 2600 Feet

* Not Applicable

Existing On-Base Land Use

Figure 3.2-4

inventory, including C-5 aircraft (and Boeing 747) with a gross weight of 772,000 pounds. The runway has high-intensity runway lights, sequenced flashers, centerline lighting, and visual approach slide indicator (VASI). There are standard approach lights on the northeast end (Runway 24) and high-intensity approach lights on the southwest end (Runway 06). The airfield has a Category II ILS, giving it an approach minimum visibility of 129 feet. Navigational aids include a nondirectional beacon and tactical air navigation (TACAN) system. An ILS middle-marker is situated on a small noncontiguous parcel of land southwest of the airfield. There is a large aircraft parking ramp on the west side of the airfield and a smaller ramp at the east end. Within the airfield area are the control tower, command post, and weather station facilities.

The aviation support area includes facilities associated with aircraft operations and maintenance. Facilities in this area include the existing fire station, passenger terminal, hangars, aircraft maintenance shops, aviation fuel pump house, pump station, and aircraft wash racks. Most of the buildings are in good condition. The largest hangar has four bays, each capable of holding wide-bodied aircraft. Two bays of this hangar are currently being used by Lockheed under an interim lease.

There are three industrial areas on base. The largest area extends to the west of the aviation support area. It includes several large warehouse buildings (many converted for office space), shops (carpentry, laboratory, automobile, electronics, and maintenance), utility plants (air conditioning, power generator, steam, and waste treatment), and the BMO facilities on the southwest end of the base. This area also includes the base day care and nursery facilities. The industrial area on the northeast side of the airfield is less densely developed. The largest structure is the Aerospace Audiovisual Service (AAVS) facility. Vehicle maintenance and base motor pool facilities are located along the flightline. A strip of industrial-use land on the south side of the runway contains munitions storage facilities.

The institutional (medical) facilities consisting of a clinic and supporting facilities are located within an 8-acre area surrounded by on-base roads, H Street, East Third Street, and Second Street, and the baseball fields to the east.

Several institutional (educational) facilities are located in the built-up portion of the base. These facilities include standard classrooms and an aircraft simulator facility.

The commercial area borders the north base boundary and contains the Base Exchange and Commissary, NCO mess, and youth center facilities.

Two of the residential areas of the base, the officer housing east of Tippecanoe Avenue (56 single-family units), and the enlisted housing north

of Third Street (208 units), will continue to be used as military housing after closure. East of the officer housing are dormitories, dining halls, a theater, post office, swimming pool, and various support buildings for storage and maintenance. Two small pockets of residential land use in the southwest portion of the base contain temporary lodging and officers' quarters.

Three public/recreation areas are defined. In the northwest portion of the main base is an area that encompasses three baseball fields, tennis courts, gymnasium, bowling center, and swimming pool. The stables and another area used for picnicking, baseball, and family camping are northeast of the airfield. The Palm Meadows Golf Course southwest of the airfield comprises the largest contiguous recreational land-use area on the base. The noncontiguous 30-acre parcel located in Highland, at Sixth Street and Grant Avenue, is used for public recreation.

Vacant lands on base include the crash test area and a "clean fill" (for construction debris) on the far west side of the base and an old landfill area on the northeast portion of the base. There are also vacant areas within both runway CZs.

Based on an evaluation conducted pursuant to the Farmland Protection Policy Act and implementing regulations, the U.S. Department of Agriculture, Soil Conservation Service, determined that the base does not contain any land that qualifies as prime, unique, or statewide or locally important farmland. The evaluation rating is provided in Appendix G.

Adjacent Land Use and Zoning. Land use trends in the Norton AFB area are related to regional growth and development patterns. The area lies within the region covered by the Southern California Association of Governments (SCAG). This region comprises highly urbanized areas of Los Angeles and Orange counties, the primary employment centers in the region; urbanizing subregions of Riverside and San Bernardino, the "bedroom" communities of the region; and mountain/desert areas of eastern San Bernardino, Riverside and Imperial counties. Based on current trends, 53 percent of the population growth in the region over the next 20 years is expected to reside in the urbanizing subregions, while 57 percent of new jobs will locate in highly urbanized areas (SCAG, 1989a).

These trends have created an imbalance in the distribution of employment and housing, which has led to extensive commuting and resulting transportation congestion and air quality problems. The imbalance in jobs/housing ratios is the primary regional growth management concern identified by the SCAG. In 1984, the average jobs/housing ratio was 1.40 in the urban areas, 1.06 in the urbanizing areas, and 0.63 in the mountain/desert areas (SCAG, 1989a). In the east San Bernardino Valley where Norton AFB is located, the jobs/housing ratio was 0.9. The projected jobs/housing ratio in 1994 is expected to be about the same as over the

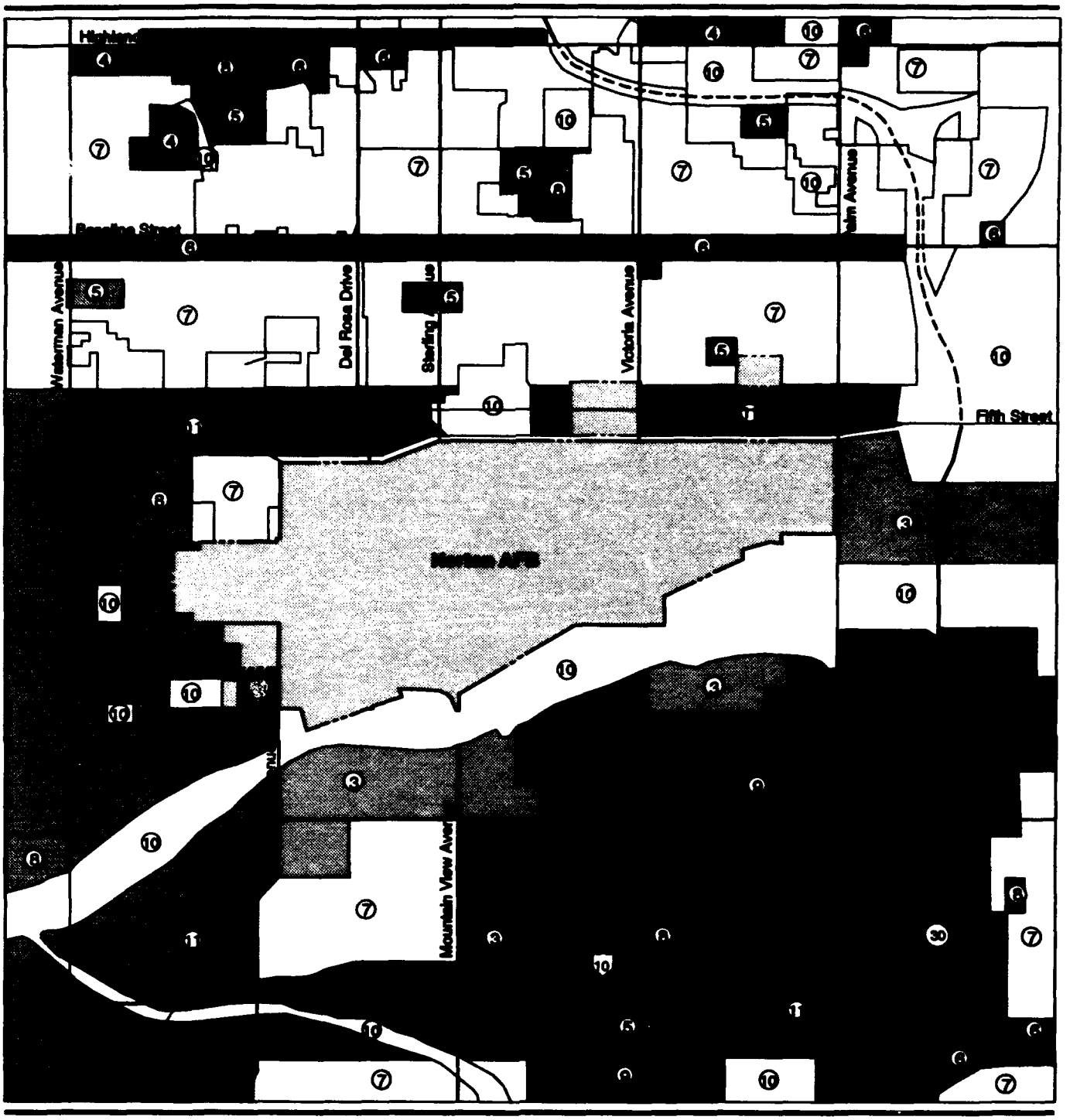
past decade. SCAG forecasts for 2010 predict little change in these trends, with an actual decrease in the jobs/housing ratio in the east San Bernardino Valley (SCAG, 1989a).

At the subregional level, land use patterns in the San Bernardino area are consistent with urbanizing trends. Historically, the area has consisted of established communities like Redlands and San Bernardino surrounded by unincorporated rural agricultural areas. As the subregion has grown, urban and suburban land uses have replaced agricultural uses, and developed areas have merged into one another. The cities have expanded and annexed previously unincorporated areas of the county. Through a series of annexations over the years, the city of San Bernardino increased from 1 square mile in 1866 (the year of incorporation) to 55 square miles by the end of 1987 (City of San Bernardino, 1989a). If past trends continue, the city can be expected to annex the remaining unincorporated pockets in its midst.

During transition from a rural to an urban environment, mixed land use patterns have predominated (Figure 3.2-5). Highly developed areas are interspersed with vacant parcels, residual rural/agricultural pockets (e.g., truck farms and orange groves), and traditionally non-urban industrial/ resource extraction activities (e.g., aggregate mining), which are experiencing urban encroachment on their once-remote locations. The transition has resulted in a prevalence of nonconforming and incompatible land uses, which are reflected in the spotty nature of local zoning (Figure 3.2-6). Most areas surrounding Norton AFB have a mixture of residential, commercial, and industrial land uses, often combined within a single block.

Projects such as the Tri-City Redevelopment Plan have sought to replace the somewhat haphazard land use patterns with more uniform and planned development, but the majority of the area still reflects the transitional land use patterns.

San Bernardino, typical of the subregion, includes very mixed land uses. Norton AFB is situated in an area of transition from residential to commercial and industrial uses (U.S. Air Force, 1988a). The San Bernardino County Jail and offices are west of the base, south of Third Street. The area south of Mill Street and west of the base has low-density, low-income housing and is zoned for light industrial (IL) use. There is heavy industrial (IH) zoned land just south of the airfield, near the base golf course. A pocket of land along Third Street just north of the base is zoned general commercial (CG-1) and IL primarily along Fifth Street. Much of this land is vacant with a few residences. The area surrounding this pocket is within the jurisdiction of the city of Highland. The Santa Ana Wash is designated as a Public Flood Control area and has no development. South of the Santa Ana Wash are IH, commercial regional (CR-3) development, and some residentially zoned land.



EXPLANATION

- ① Airfield*
- ② Aviation Support*
- ③ Industrial
- ④ Institutional (Medical)
- ⑤ Institutional (Education)
- ⑥ Commercial
- ⑦ Residential
- ⑧ Public/Recreation
- Base Boundary
- ⑨ Agriculture
- ⑩ Vacant Land
- ⑪ Mixed Use (Residential, Commercial, Industrial)
- On-Base Property
- Proposed Freeway Construction

0 1000 2000 4000 Feet

*Not Applicable

Existing Off-Base Land Use

Figure 3.2-5

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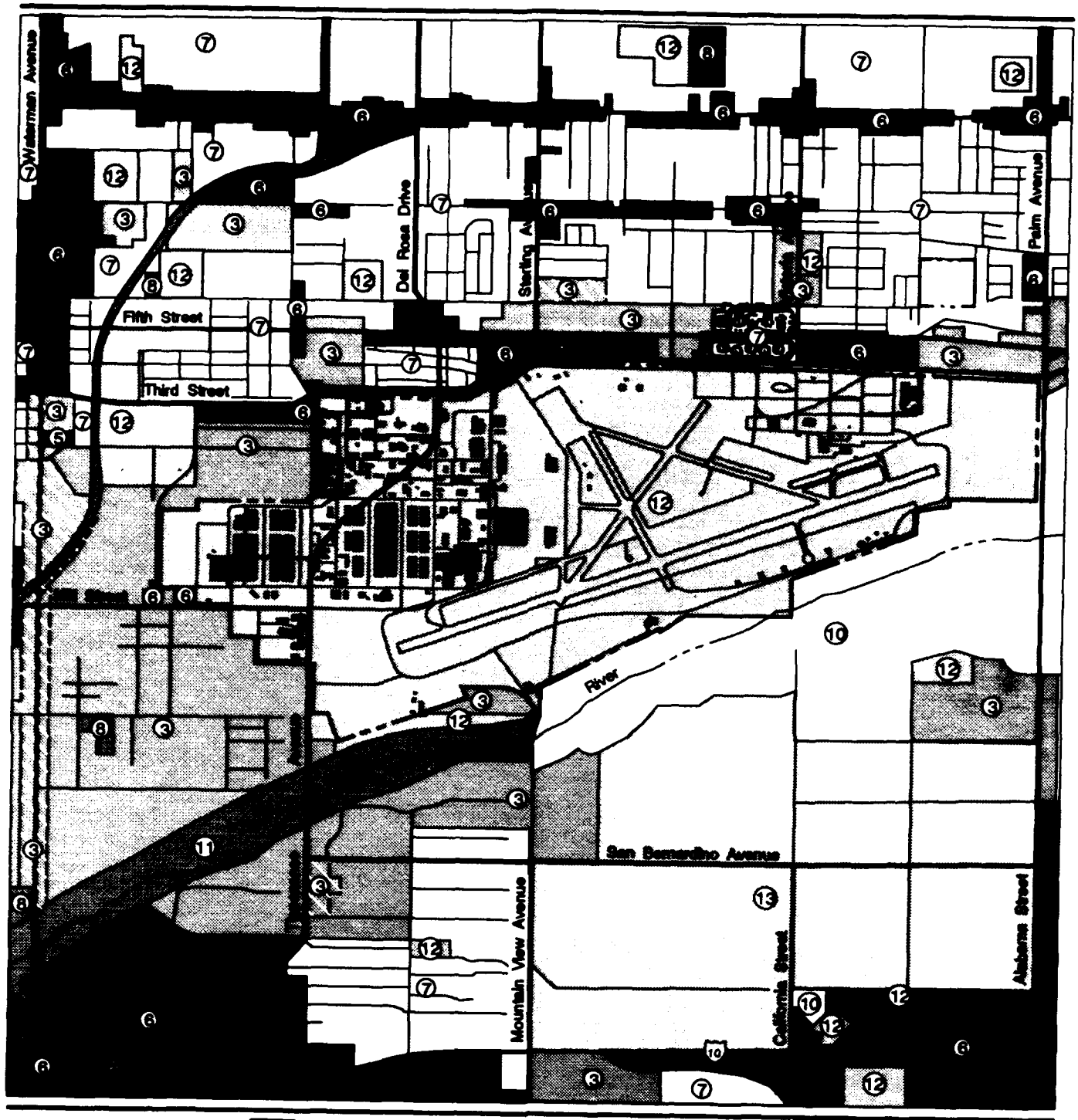


EXPLANATION

- ① Airfield*
- ② Aviation Support*
- ③ Industrial
- ③ Office/Industrial Park
- ④ Institutional (Medical)*
- ⑤ Institutional (Education)*
- ⑥ Commercial
- ⑦ Residential
- ⑧ Public/Park
- ⑨ Agriculture*
- ⑩ Open Space
- ⑪ Flood Control Area
- ⑫ Public Facility
- ⑬ Special Development
- Base Boundary

0 750 1500 3000 Feet

* Not Applicable

Local Zoning

Figure 3.2-6

The area east of Waterman Avenue on the south side of the Santa Ana Wash is designed for light and heavy industrial, commercial, and urban and medium-high density residential uses.

The city of Highland borders Norton AFB to the north and east. It is primarily a bedroom community with some limited government and retail and service industries. Almost the entire city is zoned for residential development except for pockets of commercial and some industrial (M-1) in the south. Fifth Street is the primary east-west arterial street through Highland close to the base. Along this road, there is a mixture of commercial, residential (low density), and light industrial uses. Much of the land is vacant. East of Alabama/Palm Avenue, along Fifth Street, there is open space reserved for the City Creek, followed by land zoned for light industrial and agriculture uses. Portions of the city in the Santa Ana Wash are zoned FP-1 (flood protection) and designated for open space. There are quarry operations within the Santa Ana Wash open space areas on the east side of Alabama/Palm Avenue.

Redlands lies to the southeast of the base. It is predominantly a residential community. About 2,600 acres are zoned for industrial uses, but most of this land is vacant (U.S. Air Force, 1988). Norton AFB is separated from Redlands by the Santa Ana Wash. This provides both a geographical edge and visual barrier. The portion of Redlands immediately south of the base is covered by the EVCDS and is primarily zoned for special use, commercial, light industrial, and some residential use. This area is presently distinguished by extensive orange groves and development along the major highway corridors. There is a pocket of unincorporated land in the middle of this area known as the Crown Jewel, which is zoned for special use development and industrial use.

There are several pockets of unincorporated lands within the ACS. These areas generally have lower population densities and fewer utilities and, hence, have not been absorbed into neighboring municipalities. Some of these areas have been developed and are under cooperative planning studies with surrounding communities (e.g., Slover Mountain area, Orange Grove/ Crown Jewel area). Four unincorporated areas are in the immediate vicinity of the base: the Crown Jewel area described above; an area east of Mountain View and south of the Santa Ana Wash, which is zoned for predominantly industrial and commercial uses; the area around Third Street between Waterman and Tippecanoe avenues, which has many vacant parcels, single-family residential, and institutional uses; and an area between Highland and Redlands in the Santa Ana Wash, which is an open space flood control area.

Land Use Plans and Regulations. SCAG has developed a Regional Growth Management Plan (SCAG, 1989a) which presents policies for dealing with anticipated growth in southern California between now and 2010. The

policies contained in the plan include achievement of SCAG's Regional Mobility Plan, Air Quality Management Plan (AQMP), Hazardous Waste Management Plan, and Regional Housing Needs Assessment. The primary growth management policy is to achieve better jobs/housing balance at the subregional level (SCAG, 1989a). The policies of SCAG are incorporated in the planning of the San Bernardino Associated Governments (SANBAG).

At the municipal level, land use policies in the vicinity of Norton AFB are defined by the General Plans of the cities of San Bernardino, Highland, and Redlands. The city of San Bernardino has annexed the base and zoned it "Public Facility" (PF). When base closure was announced, the mayor and common council approved an overall land use concept that would designate the base for commercial airport and OIP uses. This change has not been officially adopted into the zoning.

San Bernardino also has a Development Code that establishes zoning districts and regulates development in the city (Title 19 of the Municipal Code). The Development Code includes a number of special purpose and overlay districts to provide for public safety, recreation and open space, airport compatibility, scenic quality along freeway corridors, fire hazard zones, floodplain management, hillside management, and historic preservation. While federal facilities are not subject to the Development Code, the code would apply to base property conveyed to private ownership. Many of the buildings on base are 40 to 50 years old and fail to meet building standards of the City of San Bernardino Development Code because of deficiencies related to structural integrity, seismic design, and asbestos. Although they could be retained as nonconforming facilities, the code stipulates that if nonconforming buildings (except residences) are altered and costs of alterations would exceed one-half of the replacement cost, they must be upgraded to meet all provisions of the Development Code.

There are a number of redevelopment projects underway in the area around Norton AFB. Redevelopment projects usually fall within the policies and objectives of the General Plan and exist primarily as a funding vehicle for development in prescribed areas. Redevelopment areas in the city of San Bernardino include the Southeast Industrial Park (primarily industrial development south of the Santa Ana Wash), the Tri-City project (commercial development east of Waterman Avenue with Hospitality Lane as the primary spine), South Valley (industrial and commercial development southeast of the I-10/I-215 interchange), the Central City Project (downtown redevelopment area), and the Mount Vernon corridor (commercial use along I-215 and heavy industrial use areas around the railroad lines and public flood control areas). Other redevelopment areas farther north include State College and Northwest, both primarily residential, and Central City North, which has a mixture of commercial, residential, and public facility uses. Land use plans for the area south of the base are addressed in the EVCDS, a

cooperative effort including San Bernardino County, the cities of Loma Linda and Redlands, and private property owners.

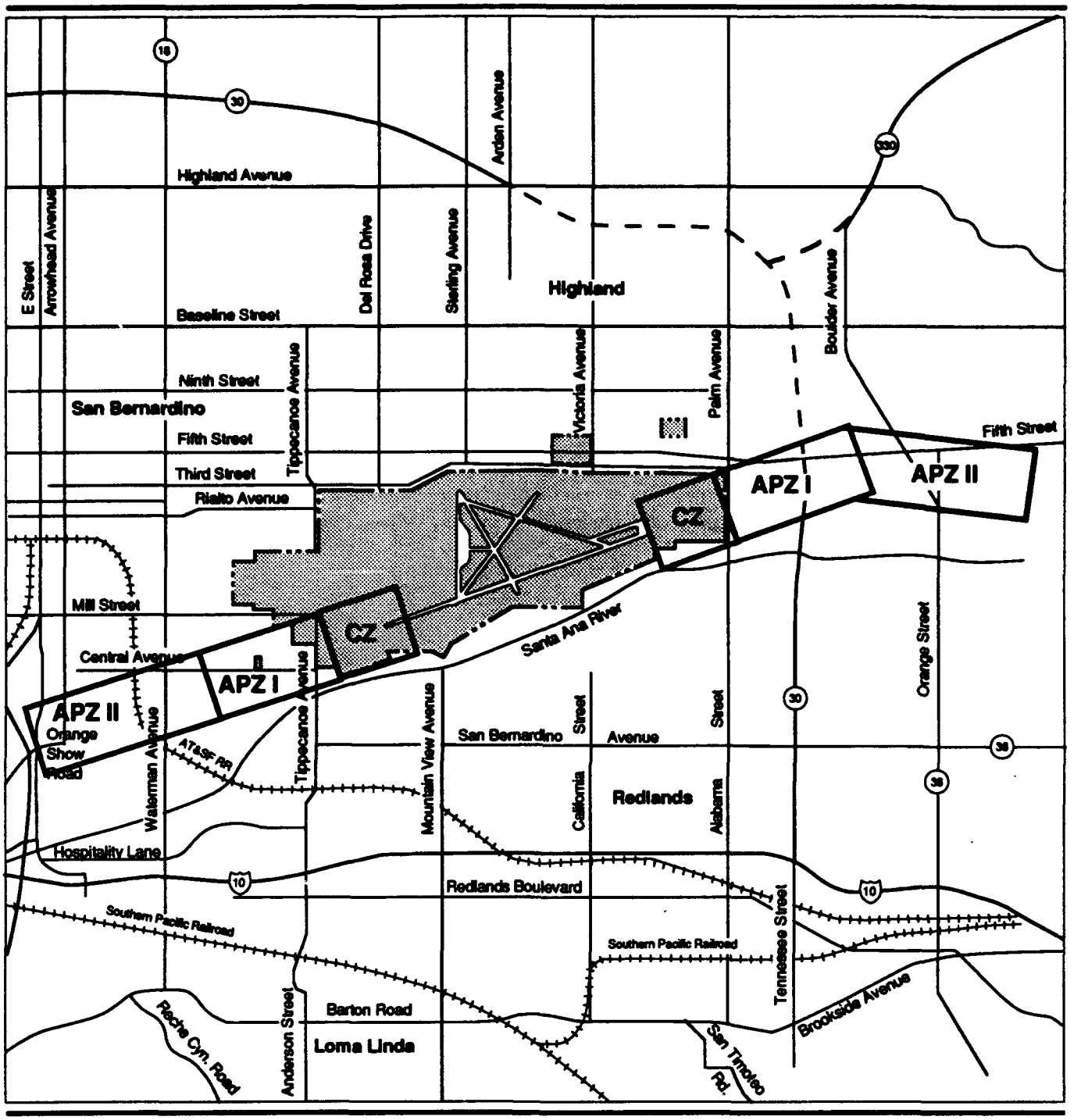
Air Force Policies Affecting Adjacent Land Uses. The Air Force developed the Air Installation Compatible Use Zone (AICUZ) program to minimize development that is incompatible with aviation operations in areas on and adjacent to military airfields. Municipalities that have land located within the AICUZ 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.

AICUZ noise contours are based on composite noise ratings that are calculated from flight patterns, numbers and types of aircraft, power settings, and times of operations (U.S. Air Force, 1988). A day-night weighted average sound level (DNL) is used to describe the noise environment. DNL noise contours for preclosure conditions at Norton AFB are depicted in Section 3.4.4. A total of 7,297 acres is exposed to noise levels of DNL 65 decibels (dB) and above.

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 is 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 Accident Potential Zones (APZs), APZ I and APZ II. The zones for Norton AFB are shown in Figure 3.2-7.

The area directly beyond either end of the runway is designated as CZ. The Air Force recommends no development in this area. The CZ at the southwest end of the runway at Norton AFB is primarily open land within the base boundaries but does include portions of the base golf course and the BMO facilities, as well as various other facilities. The northeast CZ is also mostly open land contained within the base boundaries. Off-base lands within this CZ include a small pocket of land within the city of Highland zoned for industrial use and pockets of land owned by the city of Redlands, designated for open space, with some quarry facilities. APZs are areas where the potential for mishap is less than in the CZ but still high enough to be incompatible with land uses that concentrate large numbers of people. The APZs for Norton AFB include the full spectrum of land uses, including



EXPLANATION

CZ	Clear Zone
APZ I	Accident Potential Zone I
APZ II	Accident Potential Zone II
— - - —	Base Boundary
— — —	Highway Under Construction

0 1/4 1/2 1 Mile

Clear Zones and Accident Potential Zones

Figure 3.2-7

residential, industrial, commercial, and community facilities, some of which are not compatible with AICUZ land use recommendations.

The City of San Bernardino Development Code establishes five Airport Overlay Districts, based on the Norton AFB AICUZ, which restrict development affected by accident potential and noise. Districts one and two correspond with AICUZ APZs I and II. Districts three, four, and five relate to areas outside districts one and two with DNL noise exposure levels above 75, 70, and 65 dB, respectively. Uses permitted in all districts include warehousing, agricultural, dairy farming, wholesale trade, furniture and building supply/lumber retail, golf course, and stables. Districts three, four, and five permit additional uses if noise level reduction (NLR) construction is used. When this is not applicable or possible, use is conditional and subject to approval of the zoning commission. The city has not yet initiated action to revise these overlay districts to reflect base closure, pending decisions on reuse. The Development Code is expected to be updated, however, once new noise and accident potential criteria have been determined, and restrictions on land use around Norton AFB may change affecting future development in the city.

The AICUZ program applies only to military airfields. After the closure of Norton AFB, FAA criteria will apply if airport activities are continued.

Closure Baseline. Base closure will result in the cessation of military airfield operations removing all land use conflicts and constraints associated with the AICUZ. Land use restrictions contained in the City of San Bernardino Development Code presumably would remain in effect, however, until repealed or revised to reflect reuse proposals.

3.2.2.2 Aesthetics. Visual resources include natural and man-made features that give a particular environment its aesthetic qualities. The ROI for aesthetics includes the base itself and off-base locations visible from the base. The analysis of visual resources considers visual sensitivity, which is the degree of public interest in a visual resource and concern over adverse changes in the quality of the resource. Visual sensitivity is categorized as high, medium, or low.

High sensitivity exists where views are rare, unique, or in other ways special, such as in remote or pristine areas. These areas include landscapes that have landforms, vegetative patterns, water bodies, and rock formations of unusual or outstanding quality. Man-made environments with visual integrity (e.g., historic districts) can also be highly sensitive. There are no areas at Norton AFB considered to be of high visual sensitivity. There are no areas that are rare, unique, or special or that are remote or pristine.

Medium visual sensitivity areas have aesthetic value, but are not rare or unique. The visual character of these areas is likely to be altered by roadways, vehicles, utility lines, and other structures that contrast with the surroundings. The areas at Norton AFB considered to be of medium sensitivity are the Palm Meadows Golf Course and the palm-lined parkway along Tippecanoe Avenue on base (Figure 3.2-8).

Low visual sensitivity areas are those not identified as high or medium sensitivity. These areas tend to have undistinguished landscape features, with little variety in form, line, color, and texture. Most of Norton AFB is considered to have low visual sensitivity.

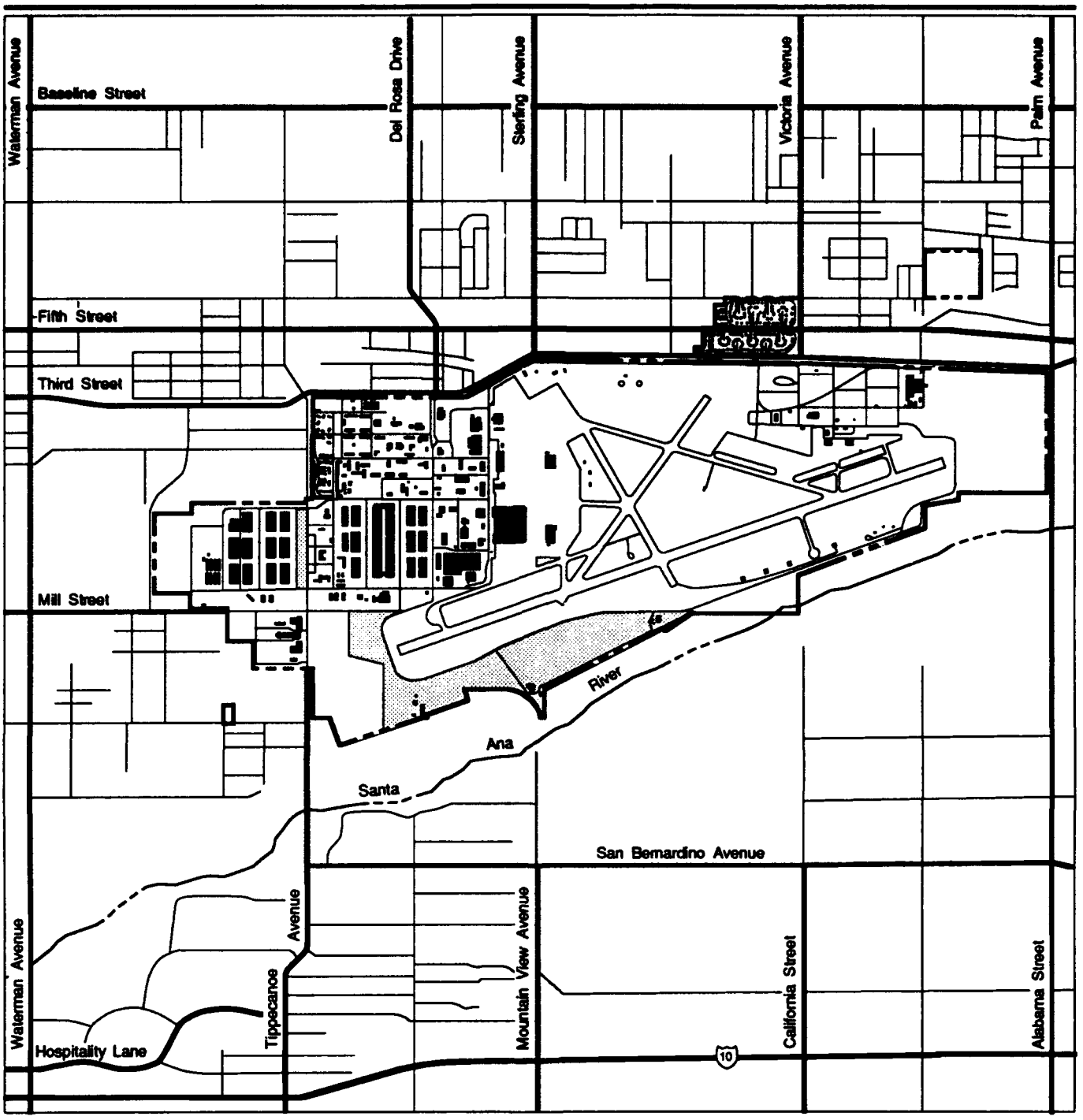
Norton AFB is located on an alluvial plain at the base of the San Bernardino Mountains and along the edge of the upper reaches of the Santa Ana Wash. The mountains to the north form the backdrop that establishes the broad visual setting of the base. Foothills to the south and southeast also provide a backdrop for the base.

The palm-lined parkway along Tippecanoe Avenue is visible after entering Norton AFB via the Main Gate. This parkway forms a visual buffer between the large warehouse structures to the west and the smaller office buildings bordering the administrative area on the east. The officer housing area in the northwest corner of the base is noteworthy for its mature vegetation and greenery. The smaller scale of many structures within the administrative/community services and officer housing areas contrasts with the industrial appearance and much larger scale of the warehouses, industrial and maintenance facilities, and hangars. The Commissary stands out due to its modern design and larger scale.

The area just northeast of the airfield was previously the location of airfield hangars but now contains a mixture of uses such as picnic areas, stables, a ballfield, other recreation facilities, maintenance, fire training, and AAVS facility. The AAVS building is visually dominant due to its size.

A perimeter road circles the airfield and provides some views of off-base areas to the north, east, and south. Vegetation partially screens views of the scattered businesses, low-density residential development, and vacant areas on the north side of Third Street. Some of these structures have a blighted or run-down appearance. The NCO housing area extends north of Third Street and borders the city of Highland.

The Redlands landfill and the dry Santa Ana River bed are visible southeast of the base, and an aggregate mining operation is visible to the east. The Crown Jewel area, noticeable due to its tall palm trees, is located in the distance southeast of the base and contains orange groves not visible from the base. The golf course located on the south side of the base partially blocks views to the southwest. An industrial park is located south of the



EXPLANATION

- Medium Visual Sensitivity
- Low Visual Sensitivity
- Base Boundary

0 750 1500 3000 Feet

Norton AFB Visually Sensitive Areas

Figure 3.2-8

river and east and west of Tippecanoe Avenue, but it is not visible from the base. Areas toward the east and southeast of the base are visually separated from the base. There is a much closer visual interface with areas north and west of the base, which are more developed and have an urban appearance.

Visual aesthetics issues and opportunities related to the Santa Ana River are also relevant to visual resources in the vicinity of the base. The river's floodplain provides visual open space and a visual separation between the base and the cities of Highland and Redlands. The eastern portion of the river corridor provides a peaceful natural setting, which would facilitate high quality rural and equestrian-oriented development in areas not subject to flooding, with the ability for reclamation of existing mineral extraction operations to repair scarring of scenic resources (Highland, 1991).

The 30-acre noncontiguous parcel north of the main base contains a ballfield with bleachers, lights, and a backstop. The parcel also has two eucalyptus trees and other non-native trees, and portions are sparsely vegetated or bare dirt.

Visual resources are recognized in the General Plans of the cities of San Bernardino and Redlands. The San Bernardino General Plan specifically addressed development and design standards for ensuring physical and visual compatibility in the redevelopment of Norton AFB property (Policy 1.39.30). The San Bernardino Development Code also contains *design standards related to aesthetics*. The Redlands General Plan addresses aesthetics in its Scenic Highway Element, Historic Preservation Element, and Open Space and Conservation Element. The Highland General Plan does not contain a separate element on scenic resources; however, it does include land use objectives for maintaining a positive community image, appropriate density/intensity of adjacent uses, buffering incompatible uses, and protecting the visual quality and character of natural areas.

3.2.3 Transportation

Transportation addresses, roadways, airspace and air transportation, and railroads. The ROI for the transportation analysis includes the existing principal road, air, and rail networks in the local communities of San Bernardino, Redlands, Highland, Colton, and Loma Linda, with emphasis on the immediate area surrounding Norton AFB. Within this geographic area, the analysis focuses on the segments of the transportation networks that serve as direct or key indirect linkages to the base and those that are commonly used by Norton AFB personnel.

3.2.3.1 Roadways. The evaluation of the existing roadway conditions focuses on capacity, which reflects the ability of the network to serve the traffic demand and volume. The capacity of a roadway depends mainly on

the street width, number of lanes, intersections control, and other physical factors. Traffic volumes typically are reported, depending on the project and data base available, as 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]) and/or the number of vehicular movements on a road segment during the average peak hour. The average peak-hour volume on urban arterials typically is about 10 percent of the AADT (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.

The performance of a roadway segment is generally expressed in terms of Level of Service (LOS). The LOS scale ranges from A to F with each level defined by a range of volume-to-capacity ratios. LOS A, B, and C are considered good operating conditions where minor or tolerable delays are experienced by motorists. LOS D represents below average conditions. LOS E corresponds to the maximum capacity of the roadway. LOS F represents a jammed situation. Table 3.2-2 describes the LOS as established for the city of San Bernardino. These levels are based primarily on the *Highway Capacity Manual* (Transportation Research Board, 1985), and are adjusted for local conditions. Along with the LOS definitions, the city has developed standards that relate to the local environment and has defined level C as an acceptable LOS for planning and design purposes. LOS D may be accepted in some critical locations and for a limited period of time.

Table 3.2-2. Descriptions of Conditions for Various Levels of Service for Arterials and Freeways

Level of Service	Volume/Capacity Ratio	Operating Conditions
A	0-.39	Free flow, speed controlled by driver's desires, speed limits, or physical roadway conditions
B	.40-.54	Stable flows; operating speeds beginning to be restricted; little or no restrictions on maneuverability from other vehicles
C	.55-.69	Stable flow; speeds and maneuverability more closely restricted
D	.70-.84	Approaches unstable flow; tolerable speeds can be maintained, but temporary restrictions to flow cause substantial drops in speed; little freedom to maneuver; comfort and convenience low
E	.85-.99	Volumes near capacity; flow unstable; stoppages of momentary duration; ability to maneuver severely limited
F	1.00+	Forced flow; low operating speeds; volumes above capacity, queues form

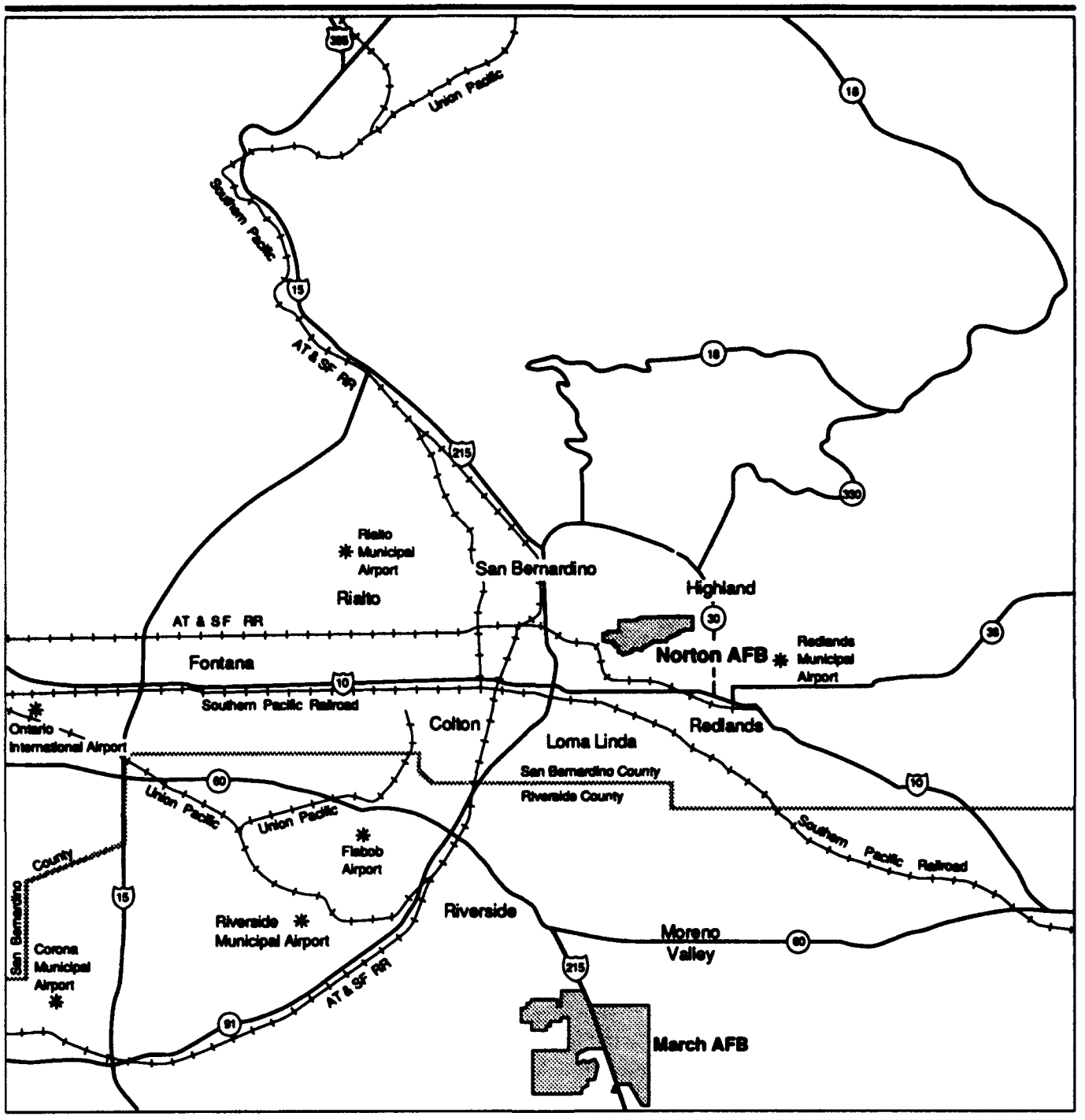
Source: City of San Bernardino, 1988.

Existing roadway conditions are described at three levels: (1) regional, representing the major links within the study area; (2) local, representing major streets; and (3) on-base roads.

Regional. Regional and inter-regional access for Norton AFB is provided by a system of freeways and highways (Figure 3.2-9). The San Bernardino Freeway (I-10) is the major east-west freeway providing access west to Los Angeles and east to Palm Springs and beyond. I-215 provides freeway access south to Riverside and San Diego and north to Las Vegas. SR-30 provides a link between I-10 and I-215, and freeway access for the northeastern part of the city of San Bernardino. SR-30 is currently under construction as a four-lane freeway from Highland Avenue to I-10 (two lanes each direction). Interchanges are under construction at Arden Avenue, Baseline Street, Fifth Street, and SR-330 in addition to the existing interchange at San Bernardino Avenue. Construction will be completed by the end of 1993. The Y interchange at the junction of SR-30 with I-10 has been completed. SR-18 and SR-330 are linked to this freeway loop and provide access to recreation areas in the San Bernardino Mountains north of Norton AFB.

Local. Figure 3.2-10 shows the general local road network now in place and projected to be in place at the time of closure in the Norton AFB vicinity. For the purpose of the analysis, ten roadway segments are analyzed as most important to providing access to the base area:

- Third Street is a four-lane arterial running between D Street and Alabama/Palm Avenue with a median lane for left turn movement existing between D Street and Sterling Avenue.
- Fifth Street is a major arterial with four through-traffic lanes west of Waterman Avenue and east of Victoria Avenue, with two through lanes between Waterman and Victoria avenues.
- Mill Street is a major arterial that extends from the base gate at Tippecanoe Avenue to the west where it intersects with I-215. Mill street has, in general, four through-traffic lanes; however, near the base, Mill Street has only two through lanes and a median lane for left turns.
- Tippecanoe Avenue is a four-lane major arterial, discontinuous at the base. It runs between I-10 and Mill Street and provides the primary access to Norton AFB from the south.
- Del Rosa Drive is a secondary arterial with a two-way left turn median lane extending north from Norton AFB to SR-30. It has four lanes; however, stretches between Fifth Street and Baseline Avenue and between Pacific Street and Highland Avenue have only two lanes.



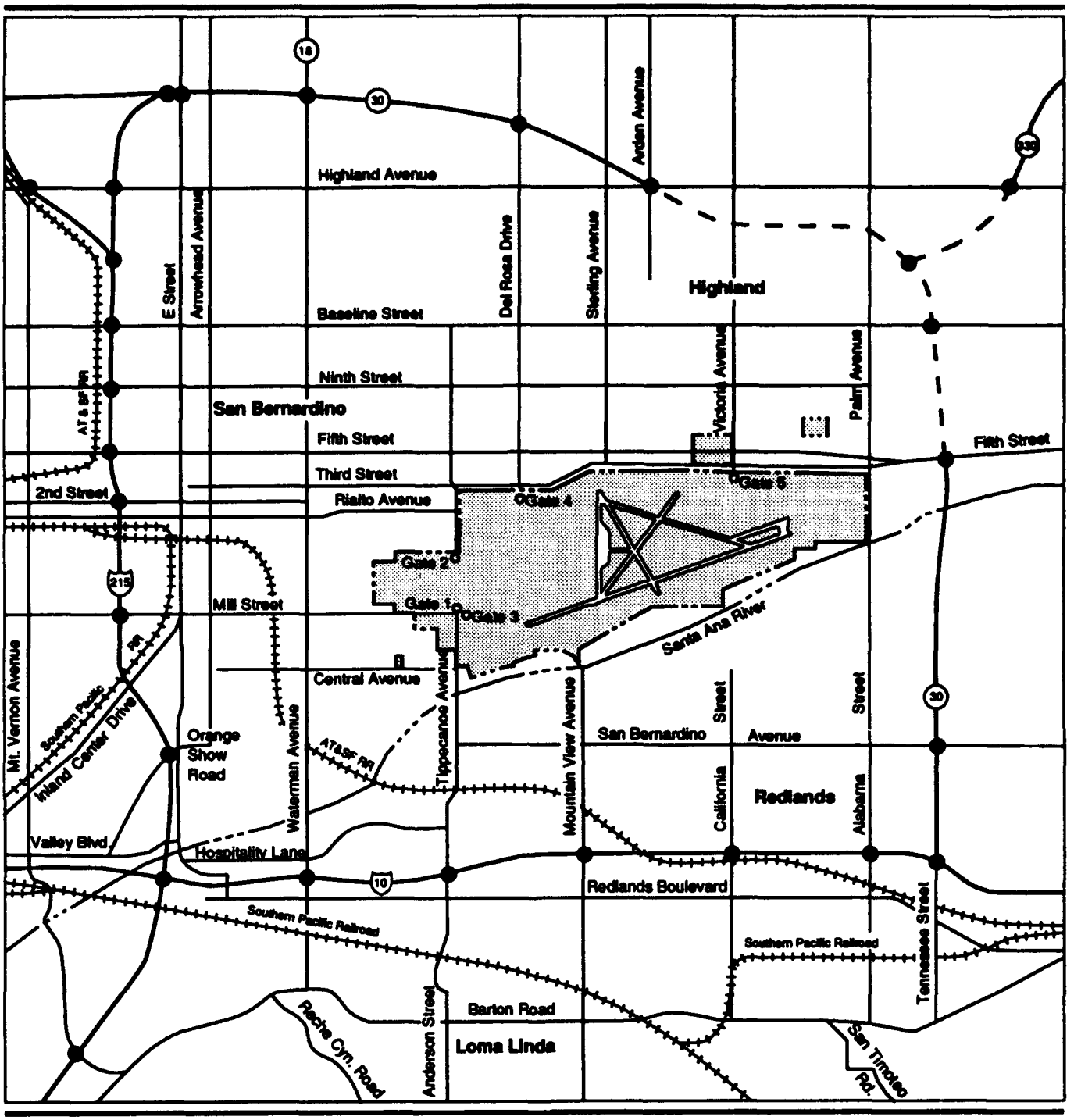
EXPLANATION

- Airports
- Highways
- Railroads
- Highway Under Construction
- Interstate Highways
- U.S. Highways
- State Highways

0 1.25 2.5 5 Miles

Regional Transportation System

Figure 3.2-9



EXPLANATION

- Highways
- Railroads
- Freeway Under Construction
- Interchanges
- Interstate Highways
- U.S. Highways
- State Highways
- Base Boundary

0 1/4 1/2 1 Mile

Local Transportation System

Figure 3.2-10

- Victoria Avenue is a secondary arterial. It has four lanes near the base and becomes two lanes north of Baseline Street.

- Alabama Street, which becomes Palm Avenue in Highland is a secondary arterial. It has four lanes between Third and Fifth streets and two lanes south of Third Street along the base boundary.

In the analysis, certain segments of these roadways are considered as key local roads. These segments provide direct access to the base and/or are most likely to be affected by land uses on the base. Other roads would have a complementary function in collecting and distributing traffic. The City of San Bernardino General Plan, as well as the San Bernardino County General Plan, recommends the improvement of Mill, Alabama/Palm, and Fifth, local collector streets, to the level of major arterials.

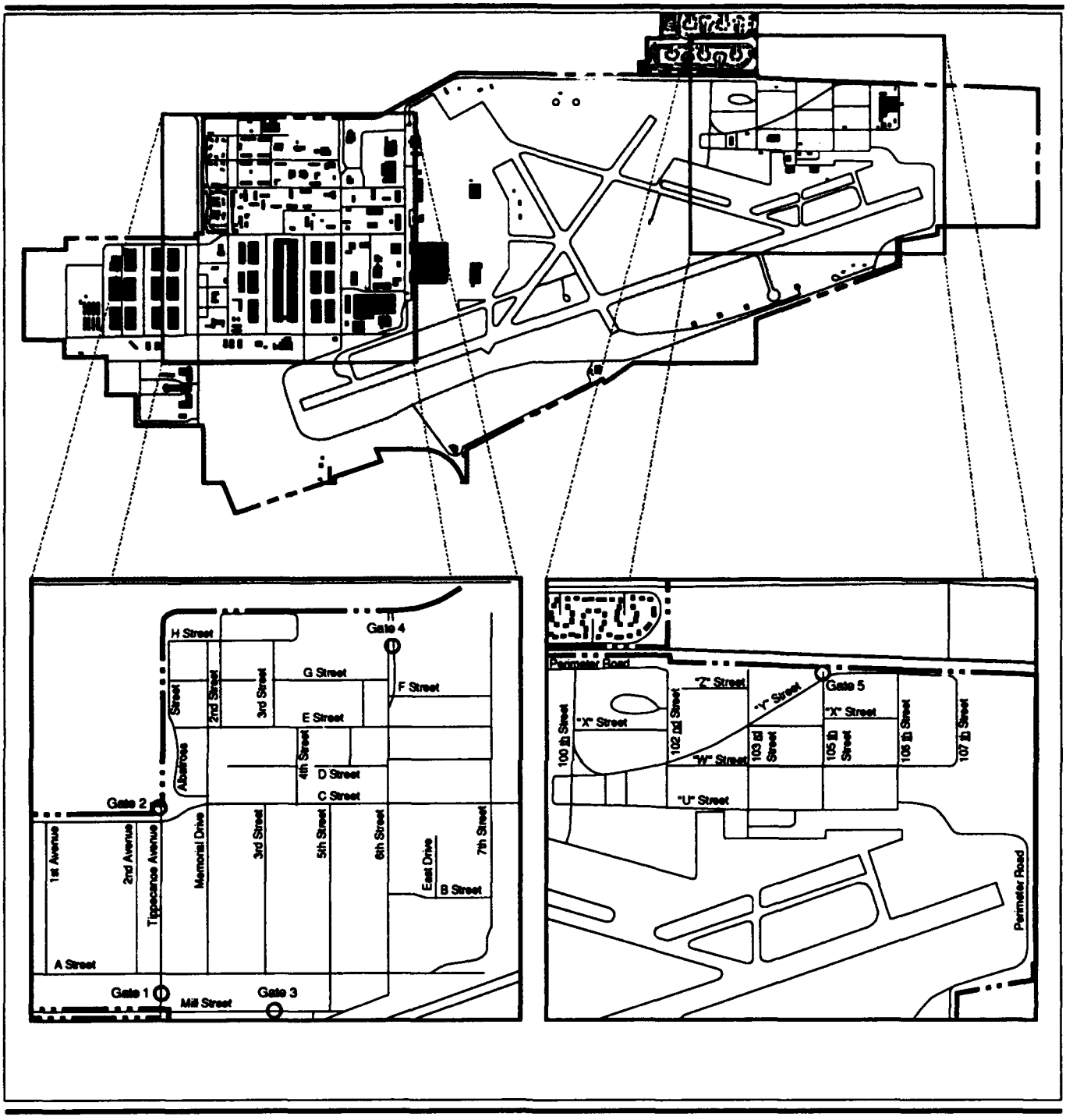
The City of San Bernardino Public Works Department has defined standards for each roadway class. A typical right-of-way of 100 feet is recommended for major highways, 88 feet for secondary highways, 60 feet for local streets, and 50 feet for noncontinuous streets.

Access to Norton AFB is currently provided through five gates (Figure 3.2-11), of which only two are open on a 24-hour basis. Gate 1, located at the signalized intersection of Tippecanoe Avenue/Mill Street, consists of two inbound lanes with a turnout for visitors, and two outbound lanes. Gate 4 (Main Gate), located at the signalized intersection of Third Street/Del Rosa Drive, consists of two inbound and three outbound lanes. Gates 3 and 5 offer limited service for they are open only for certain days and certain time periods. A fifth gate (Gate 2) at Tippecanoe/C Street is at present permanently closed.

On-Base. Figure 3.2-11 shows the street network on base. Although the network is basically a grid pattern, it has a limited number of through streets and offsets (T intersections) and does not constitute a functional hierarchy of collectors leading to arterials, which in turn lead to highways. The geometric design of the roads is below current standards used by the city of San Bernardino (in particular, pavement widths and turning radii at intersections are too low). This implies a limitation on the overall travel speed and traffic capacity of the base network and limitations on truck movement.

The key on-base roads that receive the heaviest traffic are C Street, Sixth Street, Tippecanoe Avenue, and A Street; each provides two through-traffic lanes. The only two signalized intersections on base are located on Sixth Street.

Preclosure Reference. AADT for key regional roadways is indicated for preclosure (1991) conditions in Table 3.2-3. Service levels on regional



EXPLANATION

Base Boundary

Norton AFB
On-Base Roads

0 1/8 1/4 1/2 Mile

Figure 3.2-11

Table 3.2-3. Preclosure and Baseline Traffic on Key Locations of Regional Roads

Roadway	Preclosure AADT (1991)	Closure Baseline AADT (1994)
I-10 (Mount Vernon)	151,700	163,400
I-10 (Waterman)	171,175	184,300
I-10 (Tippecanoe)	146,600	157,800
I-10 (Alabama)	123,000	132,500
I-215 (Inland Center Drive)	152,700	164,500
I-215 (Fifth)	133,200	143,500
I-215 (Mill)	144,500	155,600
SR-30 (SR-18)	59,500	64,000
SR-30 (Del Rosa)	49,700	53,500
SR-30 (Highland)	26,600	28,700
SR-330 (Highland)	9,250	10,400

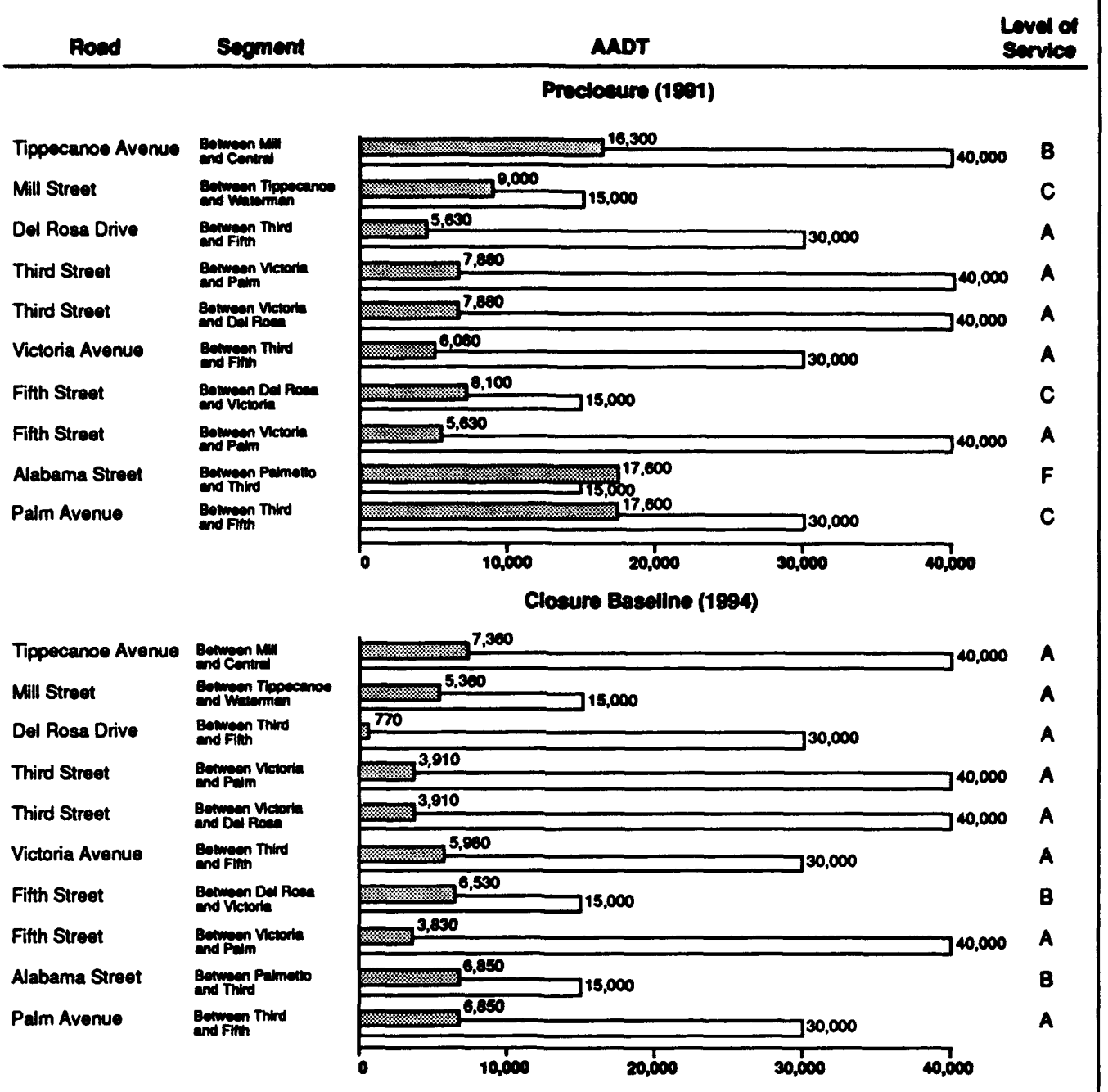
Note: Freeway traffic is assumed to increase at a rate of 2.5 percent annually between 1991 and 1994 (Caltrans, 1989b; 1990). Traffic on SR-330 is assumed to increase at a rate of 4 percent annually due to its rural character.

roads currently are comparatively poor (LOS E or below) on I-10 and I-215 at the following junctions: I-10 at Mount Vernon, Waterman, Tippecanoe, and Alabama; and I-215 at Fifth Street and Inland Center Drive.

A computer-based travel model (RIVSAN) is currently being developed by SANBAG in conjunction with SCAG to evaluate future traffic conditions and capacity deficiencies for urbanized areas in San Bernardino and Riverside counties, including the ROI. The results of this analysis will provide the best evaluation of the regional roadway system.

Preclosure (1991) AADT, capacities, and LOS on key local roads are shown in Figure 3.2-12. The ten roadway segments shown are identified for this study as key local roads because they would provide the most direct access to the Norton AFB area upon reuse. The key local road segments currently experiencing the most critical problem are Alabama Street, where the LOS is F due to limited capacity; Mill Street, where the LOS is C due to limited capacity; and Fifth Street between Del Rosa Drive and Victoria Avenue, which is also currently operating at LOS C. The current high traffic volumes on Tippecanoe, Mill, and Del Rosa are the result of base traffic.

A survey undertaken by Commuter Transportation Services (1989) reveals that about 75 percent of the employees of Norton AFB live within a 10-mile radius of the base. Of these commuters, 82 percent use their private cars, 9 percent use carpooling, and the remainder use public transport or other alternate modes of transportation. The distribution of these trips was: 19 percent originated at the base, 20 percent in San Bernardino, 16 percent



Source: Caltrans, 1990; City of San Bernardino, 1988; U.S. Air Force, 1974, 1988.

EXPLANATION

Daily Traffic Volume (passenger cars per day)

Daily Traffic Capacity (passenger cars per day)

Daily Vehicular Traffic on Key Local Roads

Figure 3.2-12

in Redlands, 11 percent in Highland, and the remaining 34 percent in other locations.

Traffic volumes on base roads have morning, noon, and afternoon peaks. Heaviest traffic volumes are experienced on Sixth Street, C Street, Tippecanoe Avenue, and A Street (see Figure 3.2-11). Sixth Street on base constitutes an extension to Gate 4 and accommodates the only two signalized intersections on base. Average daily traffic volume varies from about 15,500 near Gate 4 to 8,000 near C Street. C Street between Tippecanoe Avenue and Sixth Street has AADT in the order of 7,000 in both directions. Tippecanoe (which constitutes an extension to Gate 1) and A Street (east of Tippecanoe) also experienced heavy volumes. Truck traffic is heaviest on Sixth Street and sections of Seventh and A streets in the air cargo area. The two busiest intersections on base are signalized; that is, the intersection of Sixth Street/E Street (with about 1,700 vehicles during noon peak at all approaches), and the intersection of Sixth Street/C Street (noon peak hour accounts for about 1,200 vehicles at all approaches). These intersections currently operate near capacity.

Closure Baseline. Upon closure of Norton AFB, a reduction of traffic will be experienced in the vicinity of the base. Traffic generated by the base will be limited to the DMT. It is estimated that, with closure in 1994, traffic on I-10 at the Tippecanoe interchange will be reduced by 2.3 percent; traffic on I-215 at the Mill Street interchange will be reduced by less than 1 percent; and on SR-30, a reduction of 5 percent would result at the Del Rosa interchange. Portions of I-10 and I-215 are currently operating at LOS E or worse in the base vicinity; these reductions will not significantly improve traffic movement. The following freeway junctions would experience LOS E or worse with closure: I-10 at Mount Vernon, Waterman, Tippecanoe, and Alabama; and I-215 at Inland Center Drive and Fifth Street.

Ambient traffic on the major roads in the vicinity of the base is assumed to increase in proportion to the area's population (a 2.5-percent annual growth rate is assumed during the period [1991-1994] minus the traffic generated by the base by the time of closure). Figure 3.2-12 shows the 1994 closure baseline operating conditions on key local roads. Third Street will experience free flow conditions (LOS A) with relatively little traffic. Mill Street will operate at LOS A, as compared to LOS C in 1991. Fifth Street between Del Rosa Drive and Victoria Avenue will improve from LOS C to LOS B. Traffic on on-base roads will be reduced to the movement of the DMT which, when compared to preclosure conditions, will be minimal.

Public Transportation. Omnitrans provides the main public transportation service in the area. The base is currently serviced by three Omnitrans lines. Southern California Rapid Transit District provides express bus service from San Bernardino to Riverside and Los Angeles. Transit trips in San Bernardino account for less than 2 percent of the total home-work vehicle

trips. The transit capacity exceeds the current demand. Intercity bus service is provided by Greyhound from downtown San Bernardino. Upon closure of Norton AFB, there will be minimal change in bus traffic on key local roads, and no bus traffic on base roads. Taxi service is available but use is very limited.

Movement of Goods. Rail and trucks provide long haul shipments in the San Bernardino area, whereas trucks account for almost all short-or medium-haul movements. Large trucks have adverse impacts on city streets and encounter maneuvering difficulties on base roads and on city streets.

Upon closure of Norton AFB, daily truck traffic on key local roads will be minimal. Tippecanoe Avenue, Third Street, and Alabama Street will experience less truck traffic; however, this reduction is not expected to create a noticeable difference in existing truck traffic.

3.2.3.2 Airspace/Air Traffic. 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 utilized 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 different airspace designations that are designed to protect aircraft while operating in or out of an airport, transiting en route between airports, or operating within "special use" areas identified for defense-related purposes. Rules of flight and ATC procedures have been established, which govern how aircraft must operate within each type of designated airspace. All aircraft operate under either instrument flight rules (IFR) or visual flight rules (VFR). IFR aircraft (primarily commercial and military aviation) operate within controlled airspace and are tracked and separated by the ATC system. VFR aircraft (primarily general aviation) are not normally tracked by ATC but rather fly under a "see and be seen" concept in which pilots are responsible for their own separation from other air traffic. Airspace around the busier airports is more stringently controlled and may require that all aircraft (including VFR) be in contact with and monitored by an ATC agency while transiting through the area.

A given geographical region may encompass several different types of airspace that apply not only to normal IFR and VFR aircraft operations, but to military flight training operations as well. Military operations areas (MOAs) and restricted areas are the most prevalent types of airspace that have been designated for defense-related activities. MOAs contain nonhazardous air intercept flight training operations, which do not restrict transit of other air traffic. Restricted areas, however, normally contain aerial gunnery or air-to-ground bombing activities, and transit through these areas by any unauthorized aircraft is generally restricted while such hazardous activities are taking place.

The type and dimension of individual airspace areas established within a given region and their spatial and procedural relationship to each other are contingent upon the different aviation activities conducted in that region. When any significant change is planned for a region, such as airport expansion or a new military flight mission, the FAA will reassess the airspace configuration to determine if such changes will adversely affect (1) the airspace structure or ATC systems and/or facilities, (2) movement of other air traffic in the area, or (3) airspace already designated and used for other purposes (i.e., MOAs or restricted areas). Therefore, considering the limited availability of airspace for air traffic purposes, a given region may or may not be able to accommodate significant airport or airspace area expansion plans.

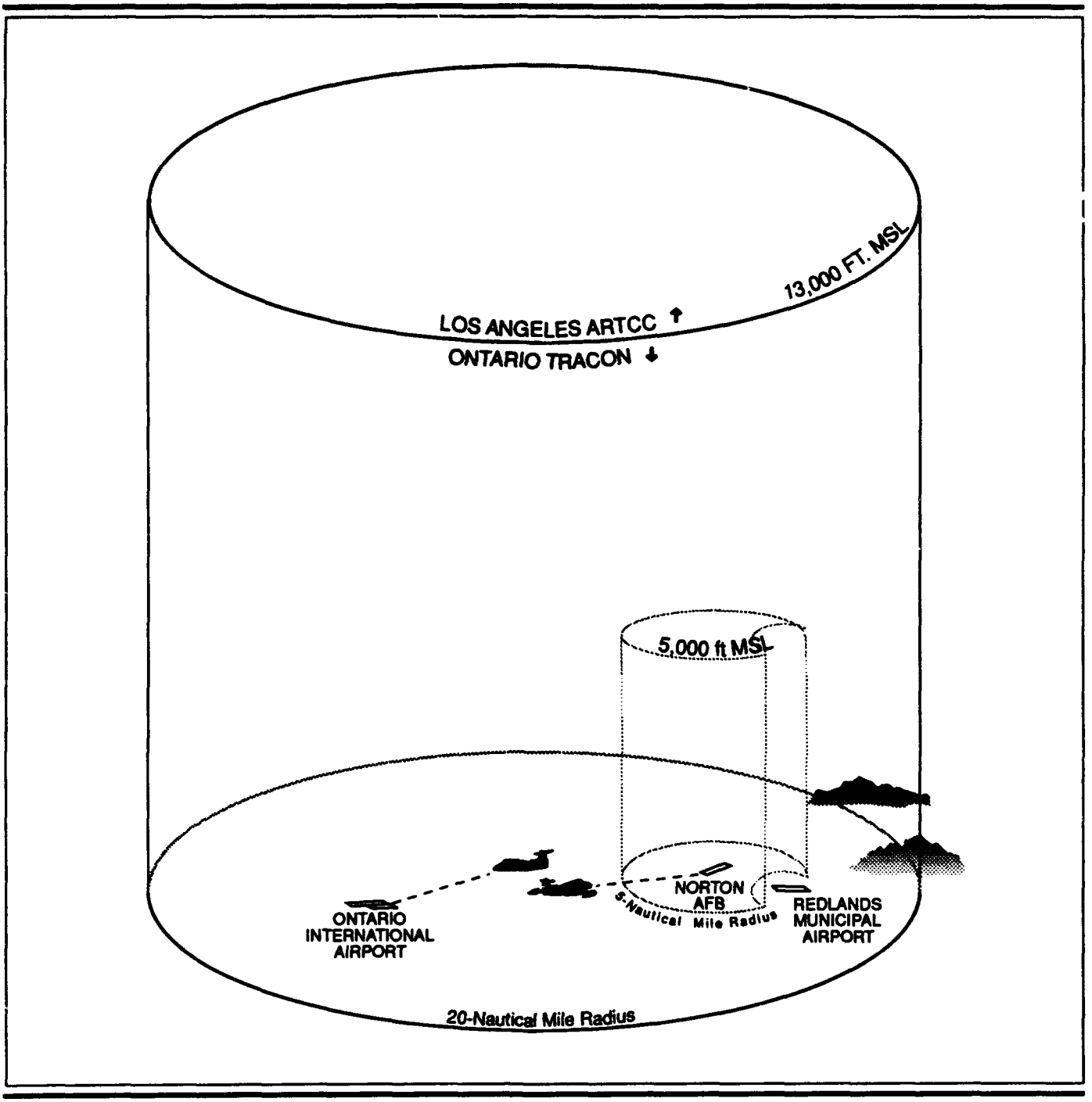
The ROI considered for the Norton AFB airspace analyses covers a 20-nautical mile (nm) radius area surrounding the base and Ontario International Airport and extends from the surface up to 13,000 feet mean sea level (MSL) (Figure 3.2-13). This area is within the control jurisdiction of the FAA TRACON at Ontario and focuses primarily on the terminal maneuvering airspace that had normally been required to accommodate flight operations at Norton AFB. Within the ROI, Norton AFB has an airport radar service area (ARSA) that extends 5 nm out and up to 5,000 feet MSL, with the exception of a 1.5-nm circle along the west side surrounding Redlands Municipal Airport. The airspace above 13,000 feet MSL is controlled by the Los Angeles Air Route Traffic Control Center (ARTCC).

Approximately 42,000 aircraft operations (landings and takeoffs) were conducted at Norton AFB in 1990, predominantly by air cargo-type aircraft (C-141s, C-5s, and C-130s); about 60 percent (25,400 operations) were IFR. Many of these operations also transitioned to and from the en route air traffic system.

Other airports in the ROI include Redlands Municipal, Rialto Municipal, Riverside Municipal, Flabob, Cable, Chino, and Corona Municipal, as well as March AFB (Figure 3.2-14). Aircraft operations at these airports do not affect and are not adversely affected by Norton AFB operations. IFR operations from any one of these airports are separated from Norton aircraft by the ATC system, and VFR aircraft either avoid the Norton control zone or ARSA, or contact the control tower to transit through this airspace. This is not considered a problem for VFR aircraft.

The current and projected annual operations for each of the civil airports are shown in Table 3.2-4. This information was obtained from airport managers, master plan updates, and FAA reports, which differ from forecasts in the California Aviation System Plan.

Aircraft operations within the ROI do not conflict with air traffic flows at George AFB due to geographical separation and the manner in which ATC

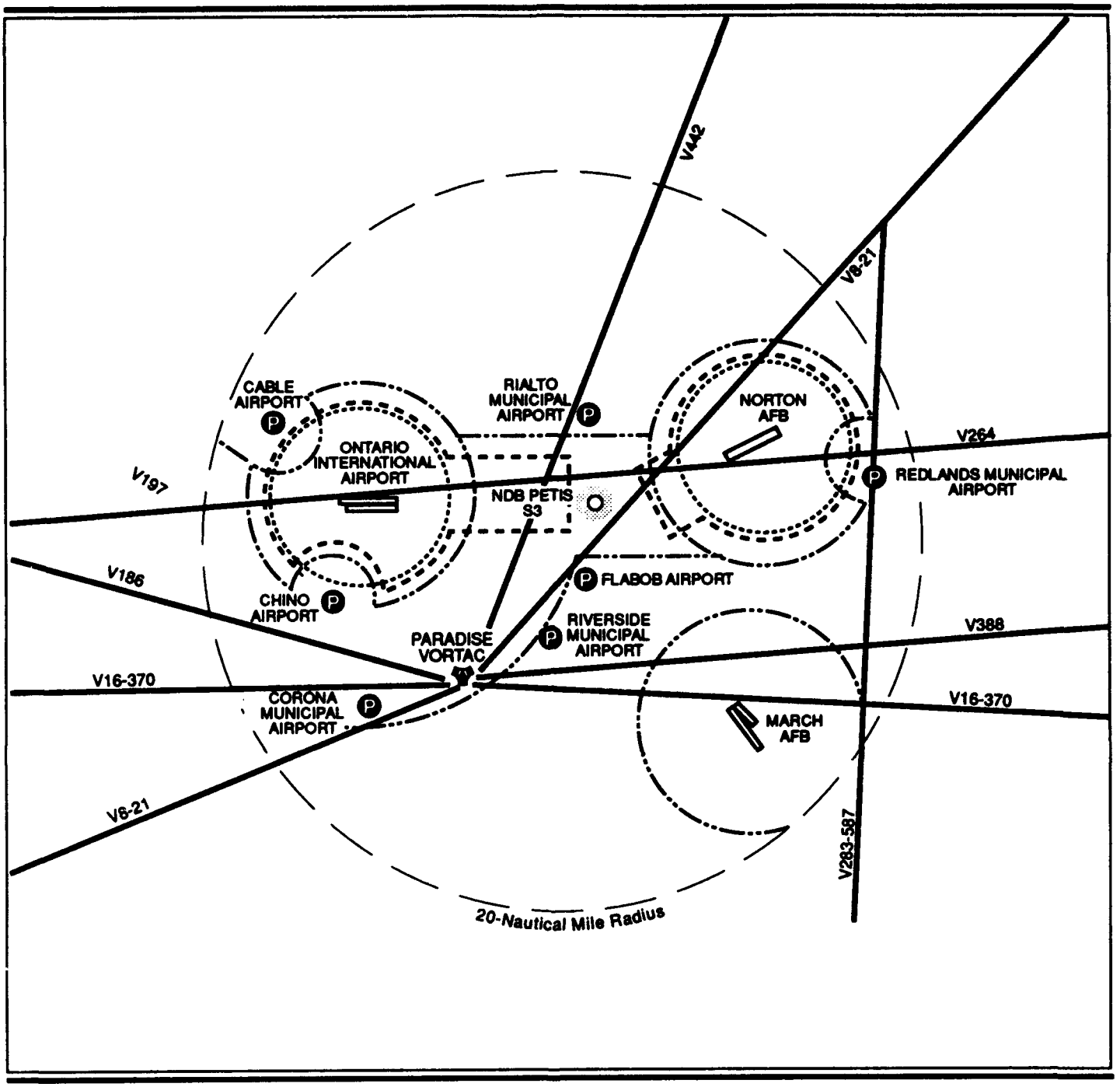


EXPLANATION

.....	Norton AFB Airport Radar Service Area
ARTCC	Air Route Traffic Control Center
TRACON	Terminal Radar Approach Control
MSL	Mean Sea Level

Norton AFB Airspace Region of Influence

Figure 3.2-13



EXPLANATION

- Airport Radar Service Area
- Control Zone
- Airport Traffic Area
- Federal Airways
- Public Use Airport
- Region of Influence
- NDB — Non-Directional Beacon

Regional Airports and Airspace

Figure 3.2-14

Table 3.2-4. Current and Projected Annual Aircraft Operations for Civil Airports in the Vicinity of Norton AFB

Airport	Annual Operations 1990	1994
Ontario International	151,000	196,000
Redlands Municipal	70,000	76,000
Rialto Municipal	190,000	206,000
Riverside Municipal	190,000	210,000
Flabob	7,000	8,200

Sources: Caltrans, 1989a; Flabob Airport Manager, 1991; Fischer, 1991; Lock, 1991; Murphy, 1991.

airspace and procedures have been segregated for the respective locations. The airspace above 13,000 feet MSL in the vicinity of George AFB is also controlled by the Los Angeles ARTCC, but it is not significantly affected by operations within the ROI. However, significant growth at one or more of the major airfields in the region could lead to potential airspace conflicts between the respective airport traffic flows and added congestion in the ARTCC's airspace.

Airspace designated for ATC purposes around Norton AFB consists primarily of a control zone, an airport traffic area (ATA), and the ARSA. While these designated areas appear to be almost coincidental in their dimensions, each one generally serves a specific purpose in regard to what ATC services and rules of flight must be followed by aircraft operators under different weather and air traffic conditions. The control zone is a 5-statute-mile radius of the airfield with an extension to the southwest, from the surface to 3,200 feet MSL, that provides protective airspace for instrument approach and departure flight paths at Norton. An ATA encircles the airfield by a 5-statute-mile radius from the surface to 3,200 feet MSL and defines an area in which the Norton AFB tower exercises control over local traffic patterns, as well as other air traffic passing through this airspace.

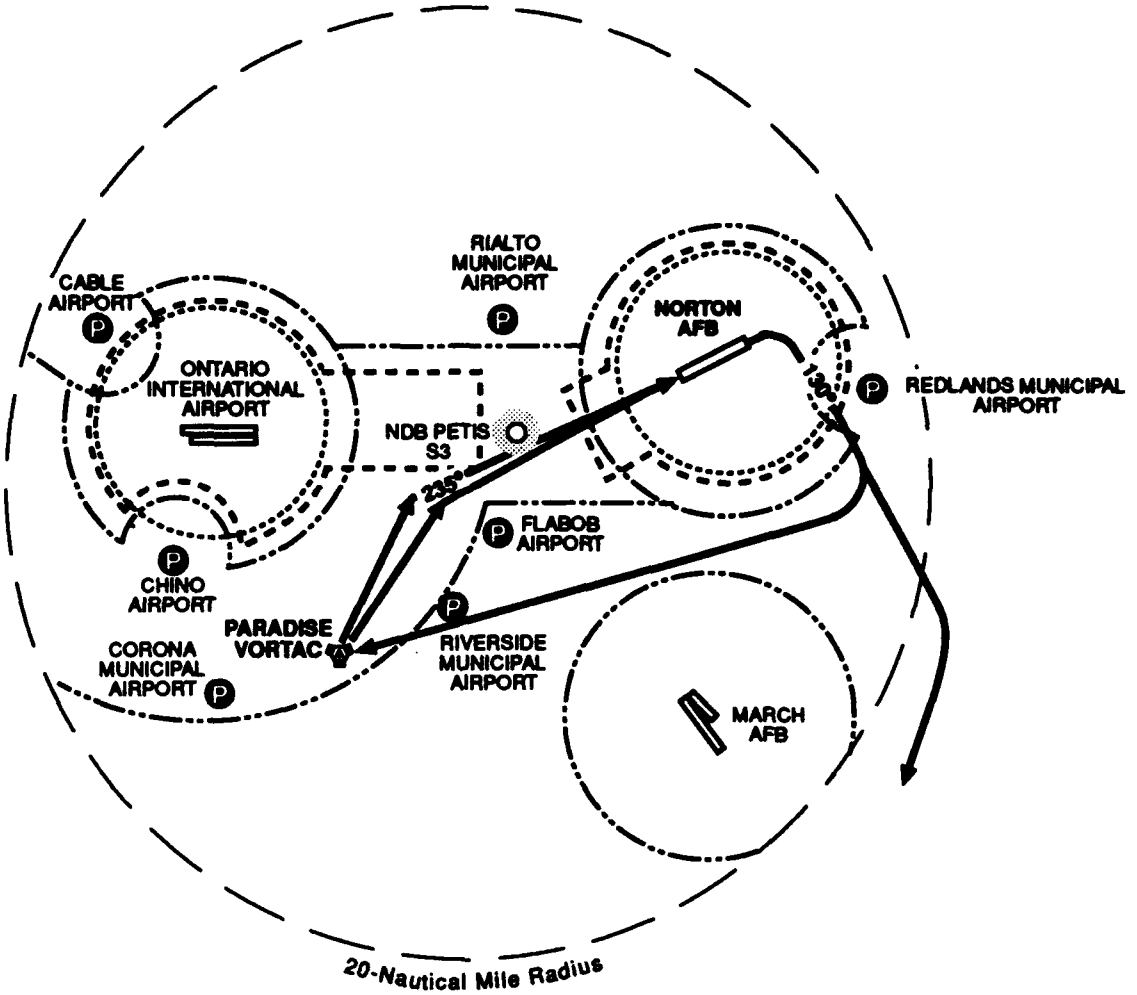
The Norton AFB ARSA is the most stringent of the airspace areas surrounding the base in regard to pilot and ATC requirements. All IFR and VFR aircraft transiting through this airspace must be in contact with the Norton AFB control tower, when at or below 3,200 feet MSL, or with the Ontario TRACON, when above 3,200 feet MSL. Aircraft operating at the Redlands Municipal Airport do not have to contact the Norton tower unless their route of flight enters the ARSA airspace. The outer portion of the Ontario ARSA joins the Norton ARSA and extends from 2,700 to 5,000 feet MSL. While VFR aircraft are not required to be in contact with ATC in this outer ARSA, it is strongly encouraged to further enhance flight safety and air traffic awareness in this highly congested area.

Navigational aid capabilities at Norton AFB include an ILS and a TACAN system. While the ILS can be used by both civil and military aircraft, the TACAN is normally only compatible with military aircraft navigation equipment. Instrument approach and standard instrument departure procedures for the base are supported by an ILS and TACAN. An instrument approach to Norton is also established off the Petis non-directional radio beacon located 6 nm west of the base. The Paradise very high frequency omnidirectional range tactical air navigation (VORTAC) aid located 19 nm southwest of the base can also be used for navigational guidance if the Norton TACAN is inoperative. The availability of the Petis and Paradise navigational aids, therefore, provide an instrument approach and departure capability for Norton AFB that can be independent of the base TACAN. The instrument flight tracks for Norton AFB are shown in Figure 3.2-15 to illustrate the different routes that have normally been flown at Norton AFB by the different types of air cargo and contracted air carrier aircraft. A surveillance radar system is also located on the base which provides the control tower with the coverage needed to monitor air traffic in the ARSA and immediate surrounding area. The Ontario TRACON's radar system provides coverage of the base down to about 2,200 feet MSL.

The general airspace and air traffic environment for Norton AFB is somewhat constrained by the surrounding terrain, the close proximity of the base to the Ontario International Airport, and the overall air traffic congestion in the Los Angeles Basin area. The San Bernardino and San Jacinto mountains to the north and east of the base essentially dictate the use of Runway 06 (landing and taking off to the east) for most aircraft operations. Due to these mountains, instrument approach procedures are presently only feasible for aircraft arrivals from the west. Aircraft departing to the east must make a climbing right turn within 1 nm of the runway to meet required obstacle clearance criteria. Departures from Runway 24 (taking off to the west) are not always possible due to aircraft arrivals to Runway 06 and the increased air traffic separation requirements associated with opposite direction operations.

The Ontario International Airport runways are oriented in the same general direction (east-west) as the runway at Norton AFB, with 450 to 550 operations (landings and takeoffs) being conducted daily on the airport's parallel runways. Nearly half of these are air carrier operations, which are expected to triple within 5 years after the planned airline terminal expansion has been completed. Due to air traffic routing and prevailing wind considerations, the majority of all arrivals approach the Norton AFB airport from the east for landing to the west on Runway 26.

The flight paths normally flown by these arrivals, as well as an instrument approach course to the Rialto Municipal Airport, overlap the same airspace used by aircraft on instrument approaches to Norton AFB. Aircraft turning onto a final approach to any one of the three airfields are initially funneled to



EXPLANATION

- Airport Radar Service Area
- Control Zone
- Airport Traffic Area
- Instrument Approach and Departure Flight Tracks
- Public Use Airport
- Region of Influence

NDB Non-Directional Beacon

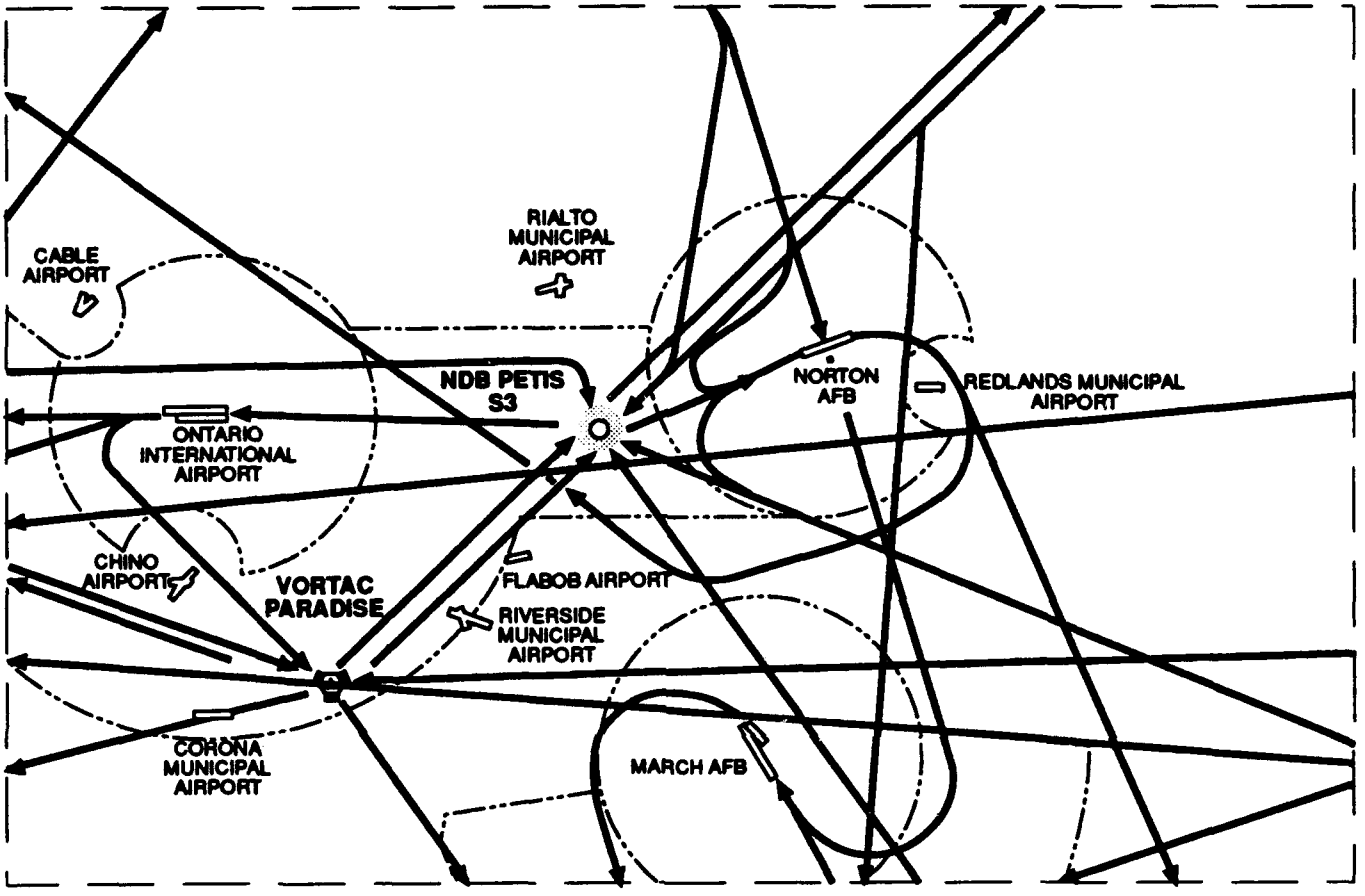
Instrument Approach and Departure Flight Tracks for Runway 06 at Norton AFB

Figure 3.2-15

the same general area with 1,000 feet vertical separation provided between the simultaneous arrivals. As aircraft arrivals to Ontario and Norton increase during the busier periods of the day, sequencing and separating aircraft through this overlapping airspace become more taxing for the Ontario TRACON sector controller. During such periods, aircraft flying successive practice approaches at Norton AFB are directed south to March AFB where these training flights can be conducted in less congested airspace. The March AFB approach and departure flight tracks do not conflict with those for Norton AFB or Ontario due to a different runway orientation and the lateral distance separating the respective airport traffic patterns. C-141s from Norton AFB constituted about 22 percent of the 41,000 IFR aircraft operations that were conducted at March AFB in 1990 (U.S. Air Force, 1991a).

The Los Angeles Basin area is recognized as one of the most congested air traffic environments in the country. Airspace and ATC responsibilities for this region are divided between the Los Angeles ARTCC and different TRACONs which feed air traffic into and out of the various airports within the southern California area. The Ontario TRACON controls much of the lower altitude en route traffic that is travelling across the Los Angeles Basin area. Ontario controllers handle 300 to 400 aircraft a day that are passing through their airspace to other airports, and 1,300 to 1,400 a day that are operating to or from airports within their airspace. The constant overflight traffic both within and above the ROI airspace limits the different options in which Ontario TRACON can route their traffic between Norton AFB and the en route airway/jet route structure. For instance, north or eastbound departures from Norton are initially routed south of the base (see Figure 3.2-15) where there is sufficient airspace to climb and integrate aircraft into the northern en route traffic flow. An overall view of the different arrival, departure, and transit routes in the Ontario-Norton area is shown in Figure 3.2-16 which illustrates the general complexity of airspace use in the ROI.

Closure Baseline. Upon base closure and assuming termination of flight operations at Norton AFB, all designated ATC airspace areas and published instrument procedures would be canceled and the area would remain under the general control of the Ontario TRACON. The surveillance radar system, control tower, and navigational aids (TACAN and ILS) would be removed from service, pending any reuse requirements for these facilities. It is not likely that the airspace would be readily used by the Ontario TRACON for new IFR transit routes to Ontario or other airports in the area. Base closure would, however, significantly reduce a source of air traffic congestion where the approach courses to Ontario and Norton overlap. VFR aircraft operating from the public and private airports in the area could transit freely through the airspace surrounding the closed airfield without any tower communications requirements or concerns with base military aircraft operations. The overall potential for aircraft mishaps in the ROI could be



EXPLANATION

Airport Radar Service Area Boundaries

Arrival, Departure, and Transit Flight Tracks

NDB — Non-Directional Beacon

Composite Arrival, Departure, and Transit Routes in Region

Figure 3.2-16

reduced with the base closure and subsequent reduction of air traffic in the area.

3.2.3.3 Air Transportation. Air transportation includes passenger travel by commercial airline and charter flights, business and recreational travel by private (general) aviation, and priority package and freight delivery by commercial and air carriers.

There are six airports in the vicinity of Norton AFB. The closest commercial airline service to Norton AFB is Ontario International Airport. The second closest air carrier airport is in Palm Springs, located about 50 miles southeast of Norton AFB. As noted above, other general aviation airports in the ROI included Rialto Municipal, Redlands Municipal, Riverside Municipal, and Flabob.

Air passenger volume at Ontario International Airport was 5.4 million passengers in 1990. The annual enplaned and deplaned cargo at Ontario airport recorded was 272,640 tons in 1990. The maximum capacity of Ontario airport is estimated to be 7.35 MAP (enplaned and deplaned). In terms of volume, Ontario ranks second after Los Angeles International Airport (43 MAP in 1990) in the Los Angeles Basin. John Wayne Airport in Orange County ranks third with 4.5 MAP in 1990. In 1990, 59.6 percent of aircraft movements at Ontario were air carrier movements, 23 percent general aviation, 17 percent air taxi, and the remaining 1 percent military and alternate movements.

Upon closure of Norton AFB, there will be a very small reduction in travel through Ontario airport resulting from the relocation of base personnel and dependents who currently use the airport. This insignificant loss of base-related air travel will be more than compensated in a short time period by projected population growth in the San Bernardino area. The transfer of Norton AFB personnel to March AFB may not affect base-related air travel at Ontario airport due to the proximity of March AFB to Ontario.

3.2.3.4 Railroads. At present, the area surrounding Norton AFB is serviced by four AMTRAK trains daily (two eastbound, two westbound). AMTRAK passenger departures and arrivals at San Bernardino Station totalled 40,600 in 1990, having increased by 150 percent during the period 1982 through 1990. The AT&SF and Southern Pacific railroads operate all rail freight service in the San Bernardino area and maintain service facilities and freight yards. The Southern Pacific has the largest classification yards in the western United States in Colton. AT&SF operates a one-track line south of Norton AFB. A rail link which once served the base connected with this line near Gate 1 (Tippecanoe/Mill). At present, this link is abandoned. Rail traffic movement amounts to about 50 trains per day along the Cajon Pass and 50 trains per day along the Colton main line. Most rail crossings are at grade.

Upon closure of Norton AFB, there would be some minor reduction in AMTRAK ridership in San Bernardino. The reduction would be quickly compensated by the projected rapid population growth in the San Bernardino area. Trackage between the San Bernardino terminal and the Los Angeles area is being developed as part of a commuter rail system. No change in local or regional rail service is expected to occur as a result of base closure.

3.2.4 Utilities

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

- Potable water pumping, treatment, and distribution
- Wastewater collection and treatment
- Solid waste collection and disposal
- Energy generation and distribution, including the provision of electricity, natural gas, and steam heat.

The major components of these utility systems include processing and distribution capability, storage capacity, average daily consumption, peak demand, and related factors required to determine the adequacy of the systems to provide service in the future.

The ROI for assessing utility systems is made up of the service areas of each utility purveyor servicing the base and communities most affected by the closure and reuse of Norton AFB, including the communities of San Bernardino, Redlands, Highland, Loma Linda, and Colton.

Population and projected demand for utilities through the year 1994 were obtained from the various utility purveyors for each of their respective service areas. Baseline utility demand through 1994 (Table 3.2-5) is based on estimated population changes in the five cities around Norton and the future rates of per-capita consumption either explicitly indicated by each purveyor's projections or derived from those projections. For each utility, the most recent comprehensive projections were made prior to the base closure announcement and do not take into account the decrease in demand from the base that would occur after closure. These projections were therefore adjusted to reflect the decrease in demand for the baseline projections.

Table 3.2-5. Estimated Average Per-Capita Utility Demand in the ROI

Utility	1990	1991	1992	1993	1994
Water consumption (gallons/day)	240.3	240.3	240.3	240.3	240.3
Wastewater treatment (gallons/day)	120.4	123.7	126.9	129.7	132.4
Solid waste disposal (cubic yards/year)	2.6	2.6	2.7	2.7	2.7
Electrical consumption (kilowatt hours/day)	20.0	20.0	20.0	20.0	21.0
Natural gas consumption (therms/day)	0.8	0.8	0.8	0.8	0.8

Sources: Projections based on Burns, 1991; California Energy Commission, 1990; Flum, 1991; City of San Bernardino Water Department, 1987; San Bernardino County Solid Waste Management Department, 1991; San Bernardino Valley Municipal Water District, 1990.

3.2.4.1 Water Supply

On-Base. Norton AFB currently derives its water from four wells on base (wells #2, 3, 5 and 11). All of the base wells have been upgraded within the past 5 years and are in good condition. Wells #2, 3, and 5 are located in the northwest portion of the base. Well #2 has a pumping capability of 590 gallons per minute (gpm) and is 817 feet deep; pump placement is 190 feet from the top of the well. Well #3 has a pumping capability of 2,500 gpm and is 990 feet deep; the pump is located at 261 feet from the top of the well. The water from this well is not chlorinated. Well #5 has a pumping capability of 2,260 gpm and is 817 feet deep; the pump is located at 190 feet from the top of the well. Wells #2, 3, and 5 fill the 500,000-gallon elevated tank that supplies the main base area.

Well #11 is located in the northeast corner of the base, and has a pumping capability of 1,774 gpm. The well is 733 feet deep and the pump is positioned at a depth of 213 feet. Water pumped from this well fills a 174,000-gallon, ground-level, steel tank and is retained there for chlorination. After retention time in this tank, the water is pumped to a 150-foot elevated storage tank, which has a 250,000-gallon capacity. Water from this elevated storage tank is used by facilities in the northeast portion of the base, including the NCO housing area north of Third Street.

The average age of the pumps and motors at these wells is 18 years. The pump motor for well #2 is in good condition, and the pump motors for wells #3 and 5 are in poor condition (U.S. Air Force, undated). The on-base storage tanks are all cathodically protected for corrosion. The 174,000-gallon chlorination tank is in poor condition. All other tanks are in good condition.

The distribution system on base was originally installed in the 1940s and was of thin-wall steel construction. There are approximately 14,800 linear feet of this type of pipe in the system. The steel piping is in poor condition.

There are also 19,200 linear feet of cast-iron piping of the same age in the system. Another 275,400 linear feet of piping is approximately 20 years old and is in good condition. Also, there is approximately 27,500 linear feet of new polyvinyl chloride (PVC) piping in the system that is in good condition. The base currently has 220 fire hydrants that are in good condition. Routine repairs and replacement are performed in parts of the system in an ongoing maintenance program.

Off-Base. There are seven water purveyors in the Norton area. They include Baseline Gardens, Cardiff Farms, Muscoy Farms, Victoria Farms, which are all agricultural purveyors, East Valley Water District, city of Redlands, and city of San Bernardino Water Department. East Valley Water District supplies the area northeast of the base, including the city of Highland. The city of Redlands supplies water from 25 potable water wells. San Bernardino Water Department serves the remaining areas around the base, and during emergencies and periods of high demand, supplies the base as well. A 20-inch main provides the base access to San Bernardino Water Department water at the northwest corner of the base bordering Third Street. The distribution systems for Redlands, San Bernardino Water Department, and East Valley Water District are in good condition; all purveyors are expanding to meet the needs of the population in their districts.

Preclosure Reference. For the past 5 years, Norton AFB has consumed an average of 2.3 MGD of water. Water demand in the ROI as forecast before the closure announcement are indicated in Table 3.2-6 for the years 1990 to 1994.

Closure Baseline. Water demand at Norton AFB will decrease as the drawdown of personnel occurs from 1991 to closure to an average of 0.3 MGD by 1994. The resulting baseline water demand within the ROI by 1994 would be 83 MGD. This is approximately 2.2 percent lower than the preclosure projections for 1994 (see Table 3.2-6).

3.2.4.2 Wastewater

On-Base. In 1987, the Department of the Air Force made an agreement with the city of San Bernardino to provide financial assistance in the construction of the SBRWTP in exchange for wastewater collection/treatment services provided by the city (City of San Bernardino, 1942; 1987).

The majority of the on-base wastewater collection system is constructed of clay piping, 8 to 15 inches in diameter. This system, which comprises approximately 140,100 linear feet, is 40 years old and in good condition. There is an additional 21,750 linear feet of clay pipe, which is approximately 12 years old and also in good condition. The sewer connection for Norton

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

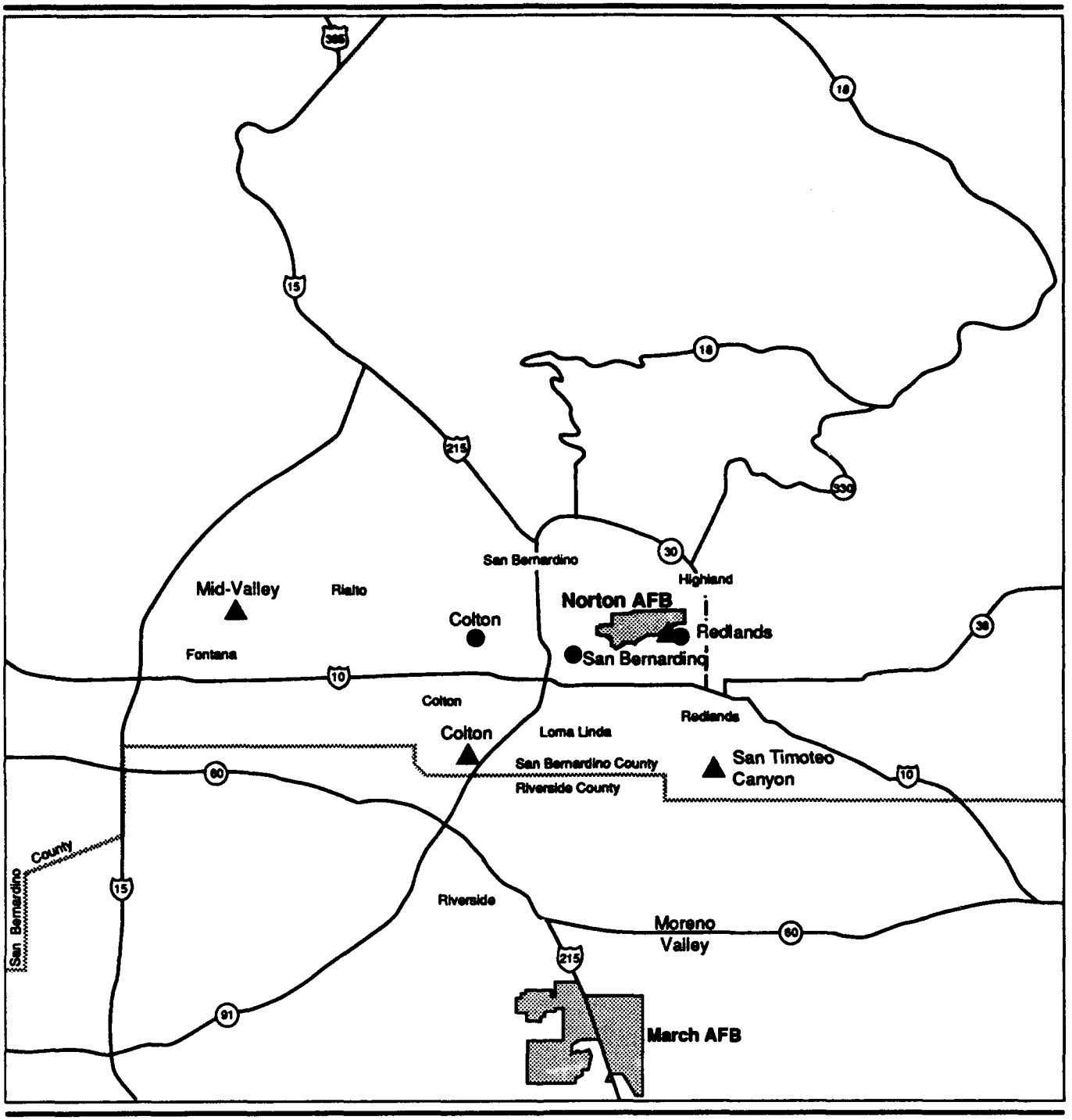
Utility	1990	1991	1992	1993	1994
Water Consumption (MGD)					
Preclosure Forecast	78.3	80.0	81.6	83.3	84.9
Closure Baseline	78.3	79.9	81.0	82.1	83.1
Wastewater Treatment (MGD)					
Preclosure Forecast	31.4	33.0	34.6	36.3	37.9
Closure Baseline	31.4	33.0	34.3	35.6	36.9
Solid Waste (million cubic yards/yr)					
Preclosure Forecast	2.63	2.75	2.86	2.98	3.10
Closure Baseline	2.63	2.74	2.85	2.96	3.07
Electrical Consumption (MWH/day)					
Preclosure Forecast	6,066	6,187	6,311	6,437	6,566
Closure Baseline	6,066	6,185	6,261	6,337	6,406
Natural Gas Consumption (thousand therms/day)					
Preclosure Forecast	1,474	1,537	1,600	1,663	1,726
Closure Baseline	1,474	1,537	1,597	1,657	1,716

Source: Projections based on Burns, 1991; California Energy Commission, 1990; Flum, 1991; Huffstutler, 1991; City of San Bernardino Water Department, 1987; County of San Bernardino Solid Waste Management, 1991; San Bernardino Valley Municipal Water District, 1990.

AFB is located at the northwest corner of the base. According to San Bernardino city engineers, this interceptor line is currently at capacity (Enna, 1991).

Off-Base. Wastewater treatment plants in the ROI are depicted on Figure 3.2-17. The cities of San Bernardino, Highland, and Loma Linda; Norton AFB; and various portions of the unincorporated county area are members of the San Bernardino regional wastewater treatment service area. The city of San Bernardino (Public Works Department) operates and maintains the sewage collection system that transports the sewage to the treatment plant (Enna, 1991).

These communities are serviced by the city collector system and SBRWTP. The collector system is in good condition and is maintained as needed. Expansion projects to modify the current collection system and meet demands of the region are ongoing (Moreno, 1991). The SBRWTP currently has a design capacity of 28 MGD. The plant receives 25 MGD of influent, treating 22 MGD to secondary standards using an activated sludge system and 3 MGD to tertiary standards (Roe, 1991). The SBRWTP is also undergoing modifications to the hydraulic systems and headworks to meet air quality standards. These modifications will not increase the treatment plant's capacity but will maintain the current capacity levels and deter the



EXPLANATION

- Highways
- Wastewater Treatment Plant
- Landfill

0 1.25 2.5 5 Miles

Wastewater Treatment Plants and Landfills in the ROI

Figure 3.2-17

possibility of losing discharge permits. Additional construction to meet future treatment needs generated by population growth is still in the planning stages (Roe, 1991).

The city of Redlands has its own wastewater treatment plant. This plant presently treats 6.8 MGD to secondary standards using an activated sludge system and discharges into the Santa Ana River. A planned expansion of the system will provide a 9 MGD capacity. The plant is expected to require upgrading to a tertiary treatment system to remove nitrites and nitrates in the wastewater (Huffstutler, 1991).

The city of Colton also has its own wastewater treatment plant. It has a capacity of 4.8 MGD and was expanded to a capacity of 5.8 MGD in 1992. The average inflow is 5.4 MGD or 93 percent of current capacity.

Preclosure Reference. Norton AFB currently produces approximately 0.68 MGD of sanitary wastewater. This constitutes slightly over 1 percent of the wastewater produced in the ROI. Table 3.2-6 provides wastewater production for the years 1990 to 1994, based on forecasts for the ROI prior to the closure announcement.

The base also produces approximately 0.25 million gallons (MG) per week of industrial wastewater, which is pretreated on base then discharged into an on-base evaporation pond.

Closure Baseline. Baseline wastewater flows in the ROI will decrease as the drawdown of personnel occurs to an average of 36.9 MGD by 1994. This is approximately 2.7 percent lower than the extrapolated preclosure SBRWTP projection for 1994 (see Table 3.2-6). It is anticipated that the base industrial wastewater treatment plant (IWTP) will be closed. An IWTP closure plan has been prepared and submitted to U.S. Environmental Protection Agency (EPA) Region IX and the state of California Department of Health Services (DHS). The closure plan requires the removal of all structures and contamination.

3.2.4.3 Solid Waste

On-Base. Solid waste from Norton AFB is currently disposed in the Colton, Mid-Valley, and San Timoteo Canyon landfills owned and operated by the County of San Bernardino (see Figure 3.2-17). There are no active sanitary landfills on base. There is a landfill in the northeast corner of the base that is no longer used. This facility is identified as an IRP site. Another former landfill, also an IRP site, is located in the southeastern portion of the base golf course. These sites are discussed in more detail in Section 3.3. Clean construction debris is disposed in a vacant area at the west end of the base.

Off-Base. The San Bernardino County facilities are designated as Class III landfills, suitable for the disposal of nonhazardous and general municipal waste. The Colton landfill, located approximately 10 miles southwest of the base near the city of Colton, has a permitted area of 94 acres. An average of 481,780 cubic yards per year of waste is disposed of at the Colton landfill. In 1990, total remaining capacity was approximately 3,560,000 cubic yards, with an expected closure date of 1997, based on present disposal rates at the site. The Mid-Valley landfill, located approximately 14 miles west of the base near the city of Fontana, has a permitted area of 140 acres. An average of 514,800 cubic yards per year are disposed of at this facility. Total remaining capacity was approximately 5,723,100 cubic yards in 1990, with an expected closure date of 2001, based on present disposal rates. The San Timoteo landfill, located approximately 7 miles southeast of the base near the city of Redlands, has a permitted area of 114 acres. An average of 301,080 cubic yards per year is disposed of at the San Timoteo site. Total remaining capacity was approximately 9,529,200 cubic yards in 1990, with an expected closure date of 2022 based on present disposal rates (San Bernardino County, 1990).

The Mid-Valley and San Timoteo landfills have expansion potential which is being actively pursued by the county. For the Mid-Valley landfill, the county indicates an expansion potential of 11,325,600 cubic yards, and the San Timoteo landfill has an expansion potential of 17,763,720 cubic yards (San Bernardino County, 1990). The county is presently encouraging composting, source reduction, and recycling programs which are expected to extend the life expectancy of the area's landfills as much as 5 to 10 years.

Because several county landfills in the ROI are nearing capacity, the San Bernardino County Solid Waste Management District (SWMD) is considering establishing transfer stations to facilitate the transfer of waste material to larger landfills in the region. The county is also considering the possibility of transferring waste to the desert regions, where current estimates indicate there is adequate landfill capacity through the year 2030. The feasibility of this approach is hindered by high costs of transporting the solid waste (San Bernardino County Solid Waste Management Department, 1991).

The city of Redlands has its own landfill, located across the Santa Ana Wash from Norton AFB. It accepts about 70,000 cubic yards per year, and has an expected closure date of 1993. The city has applied for a permit for an upward lift, which would extend the life of the landfill another 20 years. Solid waste from Norton AFB property would not be accepted at this facility, which is for exclusive use of Redlands.

Preclosure Reference. Cal Disposal provides private solid waste hauling for Norton AFB. The hauler collects an average annual total of approximately

7,000 cubic yards per year from the base. Norton AFB contributes less than 1 percent of the total waste received at these landfills. Medical wastes generated at Norton AFB are hauled off base by TCI Burning Service and incinerated.

JP-4 (aviation) fuel transfer recovery volatiles are disposed of in two natural gas fired Fuel Volatile Incinerators operated and maintained by base personnel. Base contaminated site remedial efforts and hazardous materials handling are discussed in Section 3.3.

Forecast solid waste generated in the ROI prior to consideration of base closure is shown in Table 3.2-6. The base contributed approximately 1.5 percent of the total waste material entering the three county landfills in 1990.

Closure Baseline. Upon base closure, it is estimated that minimal levels of solid waste associated with the maintenance of buildings and grounds will be generated. There may be a slight, temporary increase in per-capita solid waste generated due to remediation activities associated with closure, but generally, the amount of solid waste will decrease during the base drawdown. There are no plans to demolish any structures as part of base closure. The waste material created after base closure would be less than 1 percent lower than the preclosure county projection for 1994 (see Table 3.2-6).

3.2.4.4 Energy

Electricity

On-Base. Norton AFB electricity is supplied by Southern California Edison Company (SCE). The SCE line enters the base at E Substation, located at Tippecanoe Avenue and Mill Street. The on-base electrical distribution system was originally installed at Norton AFB in the 1940s. It consists of 12 kilovolt (kV) overhead and 34.5 kV underground lines. The overall system is in poor condition due to age. There are eight substations on base that feed electricity throughout the base. Three of the eight substations have been rebuilt because they have experienced mechanical failure, and one is out of service. A majority (75 percent) of the distribution cables on base are lead/oil filled and asbestos wrapped, and are in poor condition. Circuits 1 and 8 are relatively new neoprene cable (1.5 to 5 years old) and are in good condition. According to Norton AFB civil engineering personnel, electrical energy demand during the summertime and peak usage hours (a.m./p.m.) occasionally causes the system to overload.

Off-Base. The ROI is supplied by SCE's Inland District, which has a capacity of 19,000 megawatts (MW). The district draws on the SCE northwest grid system and the Pacific Intertie grid system from Oregon to supply electricity

needs. The all-time peak demand experienced by the Inland District was 15,685 MW.

Preclosure Reference. For the past 5 years, the base has consumed approximately 16.9 MW. Lockheed Corporation is leasing a hangar on base and has installed an independent supply line and electrical system to the building in lieu of tying into the base system.

The California Energy Commission (CEC) prepared a long-term forecast (through 2009) of electricity demand within the entire SCE service area (California Energy Commission, 1990). The forecast was used to obtain average per-capita electricity demand for future years within the service area. This factor was multiplied by the long-term forecast of population within the ROI to obtain projected future electricity demand for the area. Estimates for electrical energy demand in the ROI are depicted in Table 3.2-6.

Closure Baseline. Electrical demands from Norton AFB will decrease by 160 MW by 1994. At closure, an estimated 6,400 MWH/day will be used in the ROI. This represents a 2.4 percent reduction from preclosure forecasts for the ROI (see Table 3.2-6).

Natural Gas

On-Base. Southern California Gas Company (SCG) provides natural gas to Norton AFB and the surrounding region. The on-base system receives natural gas from SCG through seven meters at various locations along the perimeter fence lines on Tippecanoe Avenue and Third Street (Flum, 1991). The original distribution system on base was installed in the 1940s and consists of approximately 47,500 linear feet of steel pipe construction. The system has no known leakage or corrosion problems.

Off-Base. In December 1990, SCG served a total of approximately 609,000 meters in the entire Inland Division, an increase of over 26,400 from December 1989 (582,000). SCG anticipates being able to continue providing regional service with few limitations throughout the company's approximately 7,900 miles of existing baseline in the Inland Division.

Preclosure Reference. SCG provides Norton AFB housing areas a yearly average of over 186,000 therms. The main base required over 2,500,000 therms in 1990. In the past 5 years the base has consumed an average of approximately 7,500 therms each day (Flum, 1991).

The CEC (1990) prepared a long-term forecast (through 2009) of natural gas demand within the entire SCG service area. The forecast was used to obtain an average per-capita natural gas demand for future years within the region's service area. This factor was multiplied by the long-term forecast

of population within the ROI to obtain projected future natural gas demand for the area. Table 3.2-6 shows estimated natural gas demand in the ROI.

Closure Baseline. At base closure, demand in the ROI would be 1.7 million therms per day. Natural gas demands in the ROI would decrease by about 10,000 therms per day by 1994. This represents less than a 1 percent change over preclosure projections (see Table 3.2-6). Short-term decreases in natural gas demand associated with Norton AFB closure would be rapidly overcome by population increases.

Steam/Water Heating System

On Base. Boilers on Norton AFB are used for space and water heating systems. Up to the beginning of 1991 diesel oil was used to fuel these boilers. Due to Southern California Air Quality Management District (SCAQMD) regulations, these boilers are now fueled by natural gas. Boiler burners need to be retrofitted to meet SCAQMD standards for nitrogen oxides. Additional information on air quality can be found in Section 3.4 of this document.

Buildings 675 and 697 have water heating boilers used for cleaning aircraft. Buildings 249, 716, and 754 house steam heating system boilers. Building 249 services the AAVS area. These two boilers are in working condition despite their age (over 20 years old). Building 716 houses four boilers which provide steam to heat that area of the base not serviced by natural gas furnaces. Three feeder/distribution lines emanate from this building. Building 754 is out of service due to mechanical problems. The feeder/distribution (heat and condensate) lines range in size from 4 to 8 inches and are in extremely poor condition due to corrosion. Currently, a temporary system using smaller diameter pipes inserted into existing lines aids in maintaining the integrity/usefulness of the system.

Closure Baseline. The steam/water heating system would cease to be used at base closure.

3.3 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

Hazardous materials and hazardous waste management activities at Norton AFB are governed by specific environmental regulations. For the purpose of the 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. The state regulations, which must be at least as stringent as the federal regulations, are outlined in the California Code of Regulations (CCR), Title 22, Section 30.

Hazardous materials transportation is regulated by the U.S. Department of Transportation regulations within Chapter 49 of the CFR.

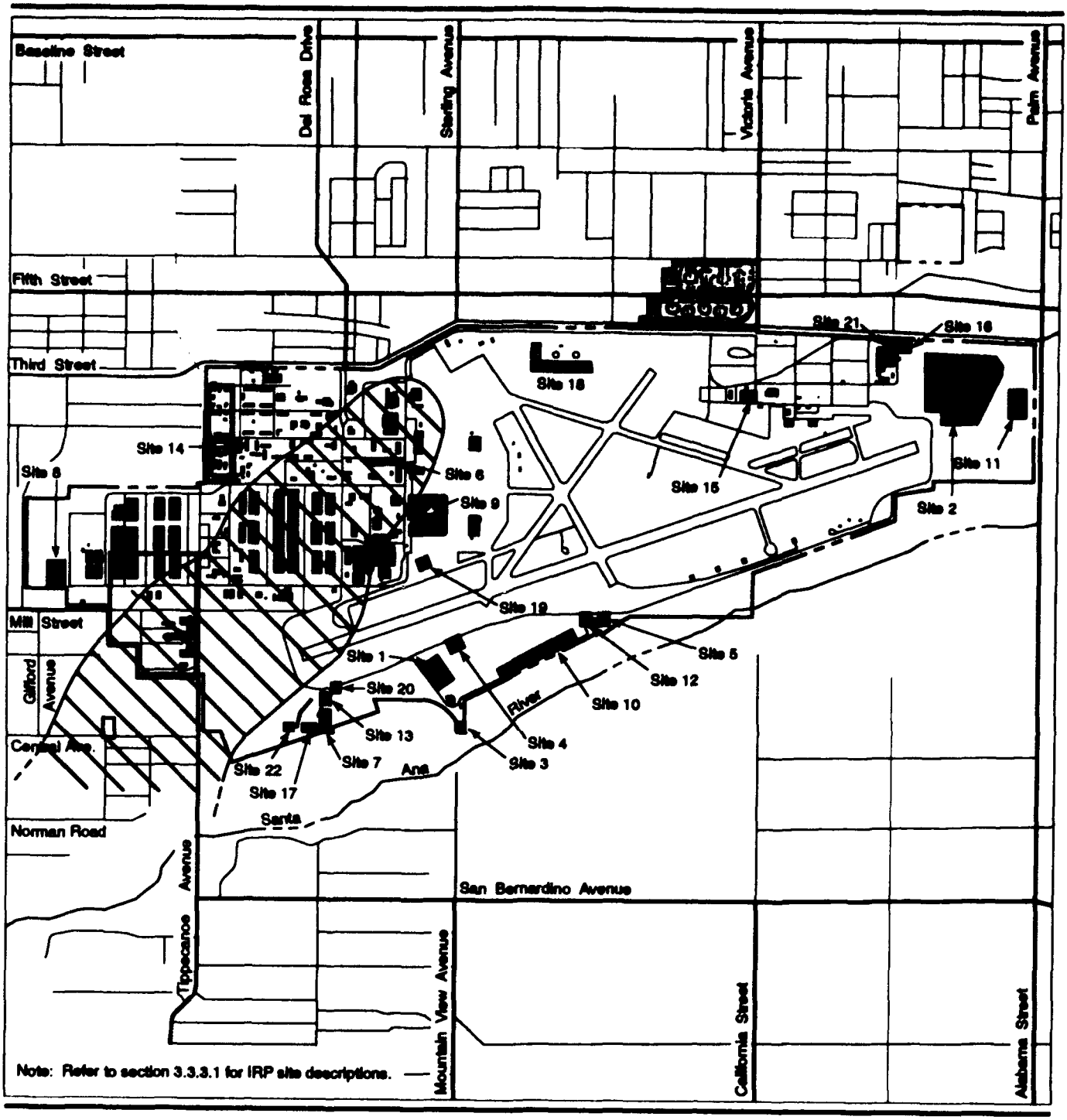
The ROI encompasses all geographic areas that are exposed to the possibility of a release of hazardous materials or hazardous wastes. Specific areas affected by past and present hazardous materials and hazardous waste operations are described in the following sections. IRP sites and the areas they affect are located within the base boundary (Figure 3.3-1). However, the ROI also includes an area of trichloroethylene (TCE) contaminated groundwater plume beneath the central base area, which extends beyond the southwest base boundary.

3.3.1 Hazardous Materials Management

Preclosure Reference. The most commonly used hazardous materials by the Air Force at Norton AFB include aviation and motor fuels, various types of petroleum products, hydraulic fluids, and solvents. These materials are delivered to base supply (Building 542) and from there distributed to the workplaces in which they are used with the exception of bulk or pipeline fuel deliveries.

Norton AFB has a Hazardous Waste Management Plan (U.S. Air Force, 1992a) which identifies responsibilities and procedures for managing hazardous waste, used petroleum products, and PCBs. Norton AFB also has an Oil and Hazardous Substance Spill Prevention and Response Plan (U.S. Air Force, 1991c) which includes a detailed description of each facility that houses a hazardous material and lists all hazardous materials on the premises. The Spill Prevention and Response Plan also provides spill prevention practices, site specific contingency plans in case of a spill, and Material Safety Data Sheets (MSDSs) for the hazardous materials stored on base.

Closure Baseline. At base closure, the DMT will handle hazardous materials in accordance with federal, state, and local regulations. Occupational Safety and Health Administration (OSHA) regulations under 29 CFR require that all parties protect their employees from potential occupational exposure to hazardous materials and establish a hazard communication program. Under Superfund Amendment and Reauthorization Act (SARA) Title III and Chapter 6.95 of the California Health and Safety Code (Title 19 CCR) for protecting employees from occupational exposures and for protecting the public health of the surrounding community from a release of a hazardous material, a hazardous materials business plan will be filed with the San Bernardino County Department of Environmental Health Services (DEHS).



EXPLANATION

IRP Site *

TCE Groundwater Plume (Exceeds 5 Parts Per Billion Maximum Contaminant Level) Dashed Line Indicates Undefined Plume Edge

Retained by Air Force

Base Boundary

0 650 1300 2600 Feet

* As of December 1992.

Installation Restoration Program Sites

Figure 3.3-1

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, and miscellaneous petroleum products associated with vehicle and machinery maintenance. These materials will be shipped by the DMT in compliance with the Hazardous Materials Transportation Act (HMTA) under 49 CFR. The DMT and regulatory authorities will have oversight to ensure compliance with all applicable regulations.

3.3.2 Hazardous Waste Management

Preclosure Reference. Normal operations at Norton AFB currently produce wastes defined as hazardous by RCRA, 40 CFR part 261-265, and CCR, Title 22, Division 4, Chapter 30.

Hazardous wastes generated on base are collected in drums at designated accumulation points which can store 55 gallons or more of hazardous waste for up to 90 days and satellite accumulation points which can store up to 55 gallons of hazardous waste for 1 year under California regulations (Table 3.3-1). Satellite accumulation points are usually located near hazardous waste generating operations. When a satellite accumulation point has accumulated 55 gallons of hazardous waste, the waste must be moved to a designated accumulation point or disposed of appropriately. Accumulation points are regularly inspected by the Base Environmental Planning Branch to assure compliance with all RCRA regulations. Waste is transferred from the accumulation points to the Defense Reutilization and Marketing Office (DRMO) storage facility (Buildings 964 and 970) for disposal. DRMO utilizes a permitted contractor for off-base disposal of these wastes. The DRMO facility currently operates under an interim permit (Part A application only) issued to the base by the DHS, which authorizes on-site hazardous waste storage for up to 1 year.

It is estimated that 35,000 gallons and 330,000 pounds of hazardous waste were turned into the DRMO facility during the calendar year 1990. Major waste categories include solvents; petroleum, oils, and lubricants (POLs); paint wastes; fuel wastes; photochemical wastes; batteries; asbestos; PCBs; and wastes generated from site remediation.

The base hazardous waste management plan calls for all personnel who manage or handle hazardous wastes to receive annual safety and documentation protocol training. The base development and implementation of Oil and Hazardous Substance Spill Prevention and Response Plan addresses all procedures and resources for preventing or remediating hazardous material/waste spills (U.S. Air Force, 1990e).

Closure Baseline. At the time of base closure, all hazardous waste generated by base operations will have been collected from all accumulation

Table 3.3-1. Hazardous Waste Accumulation Points and Satellite Accumulation Points (as of May 5, 1991)

Facility No.	Materials Stored
Accumulation Points*	
245	Photographic wastes
248	Photoprocessing chemicals
249	Waste oil
258	Segregated flammables and oxidizers
302	Waste oils
331	Waste oils
407	Pesticides
414	Pesticides
427	Muriatic acid
468	POL products/sulfuric acid
514	Various substances
525	Photochemicals
548	Various substances
620	POL products
650	POL products
705	Oils, MOGAS
719	Oils/antifreeze
749	Antifreeze/solvent
803	JP-4
804	JP-4
809	JP-4
823	JP-4
924	Pyrophoric liquid
938	Small flammables
939	Small flammables/hydraulic fluid
964	Various substance
970	PCB
976	Herbicides
2203	JP-4
2333	Contaminated JP-4
Gate 10 storage	Waste oils/antifreeze
Satellite Accumulation Points**	
341	POL products
675	POL products
726	JP-4
763 (5 different sites)	POL products
	Photo-processing chemistry
	Cadmium
	Waste paints/sludge
	JP-4

* Accumulation points can store 55 gallons or more of hazardous waste up to 90 days.

** Satellite accumulation points can store up to 55 gallons of hazardous waste for up to 1 year.

Source: U.S. Air Force, 1991c.

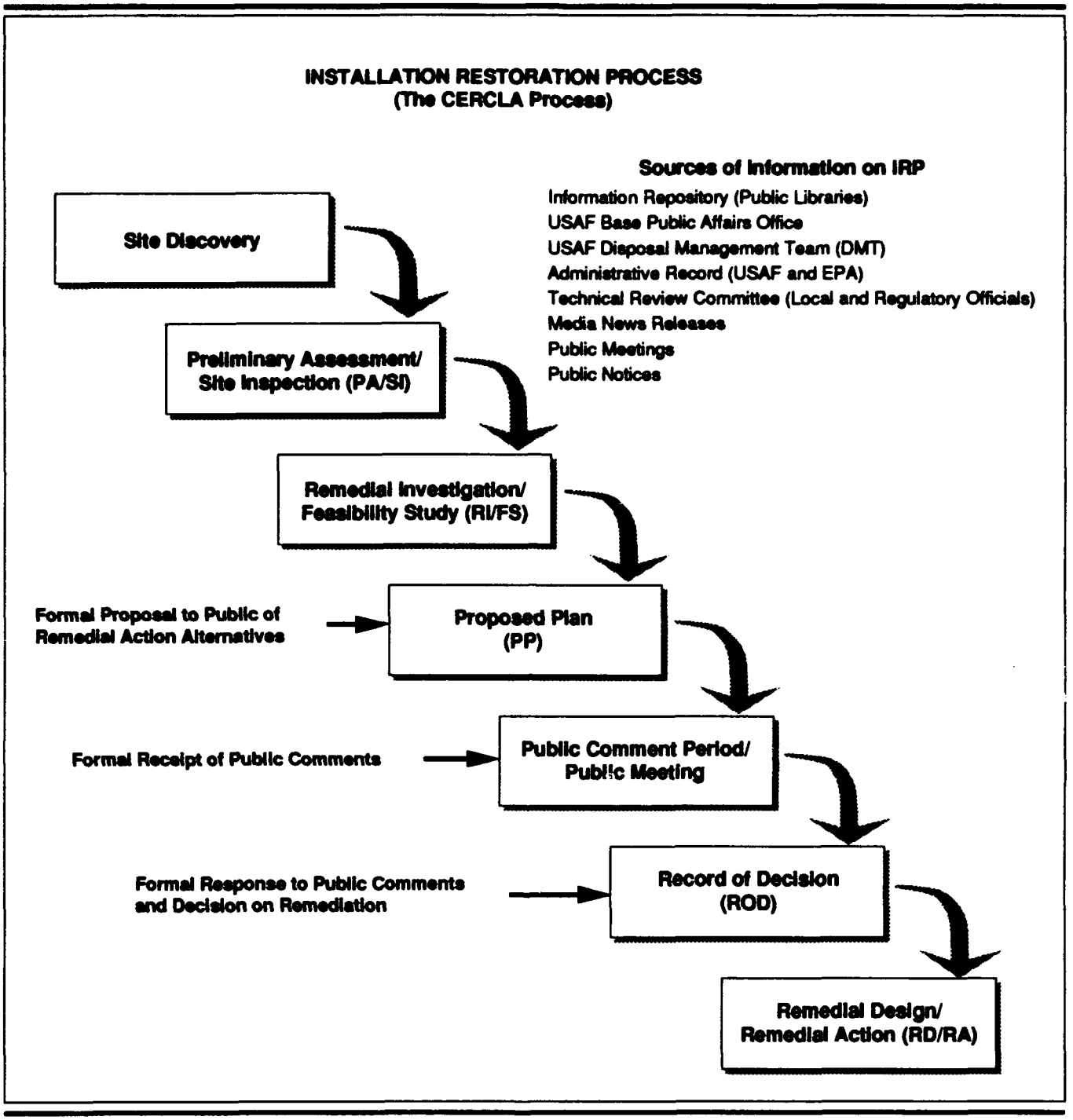
and satellite accumulation points, transferred to the DRMO storage facility, and disposed of off site, in accordance with RCRA. These wastes will be tracked to ensure proper identification, storage, transportation, and disposal. Upon base closure all accumulation points and satellite accumulation points will be closed. The DRMO storage facility will be relocated to March AFB (approximately 20 miles south of Norton AFB) while the existing facility at Norton AFB will undergo RCRA closure. A closure plan for the DRMO facility has been submitted to U.S. EPA and DHS for approval. A closure plan for the IWTP has also been submitted to U.S. EPA and DHS. The DMT will be responsible for management of hazardous waste generated after closure, as required by applicable regulations.

3.3.3 Installation Restoration Program Sites

The IRP is an Air Force program designed to identify, characterize, and remediate environmental contamination 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 IRP has 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 SARA codified the Defense Environmental Restoration Program (DERP), of which the Air Force IRP is a subset, gives DOD the authority to conduct its own environmental restoration program; while Executive Order (EO) 12580 provides to DOD the President's delegated authority for conducting remediation under CERCLA.

Prior to passage of SARA in 1986 and the establishment of the National Contingency Plan (NCP) for hazardous waste sites, Air Force IRP procedures followed DOD policy guidelines mirroring the U.S. EPA's Superfund program. Since SARA was passed, most federal facilities have been placed on a federal docket and the U.S. EPA has been evaluating the facilities' waste sites for possible inclusion on the NPL. Norton AFB was listed on the NPL in July 1987 due to extensive on-base TCE groundwater contamination.

On March 13, 1990, the U.S. Air Force entered into an Interagency Agreement, currently referred to as a Federal Facilities 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 Environmental Protection Agency (California EPA), Department of Toxic Substances Control (DTSC). This FFA 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 3.3-2.



Pictorial Presentation of IRP Process

Figure 3.3-2

Ongoing activities at identified IRP sites may delay or limit some land uses at or near those sites. Future land uses on a site-specific level may be, to a certain extent, limited by the severity of contamination or level of remediation effort at these IRP sites. Regulator review as required by the FFA and the Air Force programs will also ensure any site-specific land use limitations are identified and considered. The FFA and Air Force programs will also ensure sufficient opportunity for public involvement in this decisional process.

The original IRP was initiated prior to SARA and was divided into four phases:

- Phase 1: Problem Identification and Records Search
- Phase 2: Problem Confirmation and Quantification
- Phase 3: Technology Base Development
- Phase 4: Corrective Action.

After the passage of SARA in 1986, the IRP was realigned to incorporate the terminology used by the U.S. EPA and to integrate the new requirements in the NCP.

The Preliminary Assessment (PA) portion of the Preliminary Assessment/Site Inspection (PA/SI) under the NCP is comparable to the original IRP Phase 1 and consists of a records search and interviews to determine whether potential problems exist. A brief Site Investigation (SI) that may include soil and water sampling is to be performed to give an initial characterization of, or confirm the presence of, contamination at a potential site.

The Remedial Investigation (RI) portion of the Remedial Investigation/ Feasibility Study (RI/FS) is similar to the original Phase 2 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 Phase 4 has been replaced by the Feasibility Study (FS), Remedial Design (RD), and Remedial Action (RA). 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 remediation to assure future compliance with contaminant standards or achievement of remediation goals.

The Phase 3 portion of the original 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 U.S. EPA to find solutions to problems common to Air Force facilities.

The closure of Norton AFB will not affect the ongoing IRP activity. These IRP activities will continue in accordance with federal, state, and local regulations to protect human health and the environment, regardless of the alternative chosen for the reuse. The FFA between the U.S. Air Force, U.S. EPA Region IX, and state of California assures joint involvement in IRP.

The FFA established a procedural framework and schedule or deadlines for developing, implementing, and monitoring appropriate response actions at Norton AFB in accordance with CERCLA and applicable state regulations. The deadlines are binding on the Air Force subject to compliance by the other FFA parties to the agreed review periods. The parties to the FFA may request extensions for good cause, for example, identification of significant new site conditions. Table 3.3-2 presents the IRP schedule as of March 22, 1993.

Table 3.3-2. Norton AFB FFA Schedule (as of March 22, 1993)

Document Name	Final Deliverable Date to FFA Members
Site Characterization Plan	August 10, 1990
Site Characterization Plan Quality Assurance Project Plan	September 11, 1990
Site Characterization Plan Field Sampling Plan/Groundwater	September 11, 1990
Site Characterization Plan Field Sampling Plan/Trichloroethylene Source	April 20, 1991
Trichloroethylene Source Addendum	December 19,1991
Potential Receptor Study	September 1° 1990 (Draft)
Technical Screening Report	January 15, [illegible]91
Well Replacement	December 19,1991
Groundwater Monitoring Plan	February 19, 1993
CBA OU Remedial Investigation Study	Final Pending Data Validation
CBA OU Feasibility Study	February 5, 1993
CBA OU Proposed Plan	February 5, 1993
Remedial Investigation/Feasibility Study Work Plan	February 14, 1991
Quality Assurance Project Plan for Remedial Investigation/Feasibility Study	March 20, 1991
Field Sampling Plan for Remedial Investigation/Feasibility Study	March 20, 1991
CBA OU Record of Decision and Response Summary	July 30, 1993
IRP Site OU (15 Sites) Remedial Investigation Risk Assessment	March 18, 1993
IRP Site OU (15 Sites) Remedial Investigation Report	March 18, 1993
IRP Site OU (15 Sites) Feasibility Study and Proposed Plan	March 18, 1993
IRP Site OU (15 Sites) Remedial Investigation/Feasibility Study Record of Decision	December 31, 1993
Basewide Records Search Report	April 10, 1993

CBA OU = Central Base Area Operable Unit includes Site 9 and TCE groundwater contamination.
IRP Site OU (15 Sites) = Installation Restoration Program Site Operable Unit and includes IRP Sites 1, 2, 5, 6, 7, 8, 10, 11, 13, 14, 15, 17, 18, 19, and 22.

Source: U.S. Air Force, 1991c.

In addition to the mandates on the IRP, prior to the transfer of any property at Norton AFB, the Air Force must also comply with the provisions of CERCLA §120. CERCLA §120(h) specifically requires that, before federal property can be transferred from federal ownership, the United States must provide notice of specific hazardous substance 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."

The combination of the requirements on the Air Force to complete the IRP for the contaminated sites on Norton AFB and provide the assurances required by CERCLA §120(h) for all properties transferred may delay parcel transfer and/or conveyance and affect reuse. The Air Force is committed to the identification, assessment, and remediation of the contamination from hazardous substances at Norton AFB. This commitment will assure the protection of public health, as well as restoration of the environment. Additionally, the Air Force will work aggressively with the regulatory community to ensure that parcel transfer occurs at the earliest reasonable date so as not to impede the economic redevelopment of the area through reuse of Norton AFB. Quantification of those delays based on the conceptual plans for all redevelopment alternatives and what is currently known at this stage of the IRP is not practical.

The public may keep abreast of the IRP at Norton AFB through various sources of information (see Figure 3.3-2). Additionally, the IRP as mandated by CERCLA and the NCP has a public participatory program much like the one in the preparation of this 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.

Preclosure Reference. In June 1982 a Phase 1, Problem Identification/ Records Search was conducted at Norton AFB in an attempt to identify sites of potential contamination and their potential for migration. Twenty sites were identified, twelve of which were recommended for further examination during a Phase 2, Problem Confirmation Study. Subsequently an additional three sites were determined to require Phase 2 studies, for a total of fifteen sites.

The Phase 2 Problem Confirmation Study was conducted in 1985. The study was limited to the fifteen sites identified during Phase 1 as having a high to moderate potential environmental hazard. Study results indicated contamination at seven of the fifteen sites examined. Additional soil borings were taken and groundwater monitoring wells installed during this phase at those areas.

Quantification studies under Phase 2 were conducted in 1986, 1987, and 1988. Eleven sites were examined to further quantify contamination, while the remaining seven sites were studied to confirm contamination. Several areas of concern were identified, the most important being the TCE groundwater contamination in the Central Base Area (CBA). All twenty sites identified in the Phase 1 study, plus the additional two sites found during the Phase 2 Quantification Study have undergone an RI/FS as the terminology and procedure for waste remediation underwent change as described above.

Closure Baseline. The closure of Norton AFB will not affect the ongoing IRP activity. These IRP activities will continue in accordance with federal, state, and local regulations to protect human health and the environment, regardless of the alternative chosen for the reuse. The DMT will oversee the coordination of all IRP contractors and assure compliance with all federal, state, and local regulations. Funding for the restoration activities at closure installations was authorized by Congress in 1991 specifically for that purpose. It is anticipated that future authorization acts will continue to fund environmental restoration activities at closing installations. The current schedule for future IRP activities is provided in Table 3.3-2.

3.3.3.1 IRP Site Descriptions. Twenty-two IRP sites have been identified at Norton AFB (see Figure 3.3-1) under the FFA for inclusion in the remediation process. This section provides a brief description of each site including a general location, contaminants, site history, and current disposition of each site.

Site 1 - Industrial Waste Lagoons. Located south of South Perimeter Road and east of Golf Course Drive, these lagoons were used for the disposal of liquid industrial wastes from 1950 to 1960. Chromates, organic solvents, phenols, and waste oils are believed to have been disposed at these sites. Upon discontinued use of the lagoons, they were backfilled and regraded. Two golf course ponds currently exist at this site.

Site 2 - Landfill No. 2. Used for disposal of general refuse and industrial wastes from 1958 until 1980, this site is located in the northeast corner of the base. Industrial wastes include spent solvents, acids, refrigerants, paint wastes, waste oil, and sludge from the IWTP. Evaluation of the exact size and extent of contamination is currently underway.

Site 3 - Waste Pit No. 2. During 1957 and 1958 this pit was used to dispose of a variety of waste including possible waste oils, grease trap residues, metals, and sludge from IRP Site 1. The pit is located under the southern end of what is now the golf course clubhouse parking lot. The site is subject to occasional flooding due to its proximity to the Santa Ana River. The location of this site was not confirmed during the IRP Site RI.

Site 4 - Waste Pit No. 1. Believed to be used for disposal of drummed waste during the mid-1950s, this site is located in the northwest portion of the golf course. An irrigation pond now occupies this area. The location of this site was not confirmed during the IRP Site RI.

Site 5 - Fire Protection Training Area (FPTA) No. 1. This site is bound by the Santa Ana Wash on the south and east, the pistol range on the west and the perimeter road to the north. Fire control and abatement exercises began at this site during the mid-1950s and continued with varying frequency through the 1970s. Various waste fuels, waste oils, spent solvents, and JP-4 and JP-5 fuels were used at this site which did not provide for containment or collection of residual liquids.

Site 6 - Underground Waste Oil Storage Tank. This site, located in the central base area, once served as an industrial park and housed six underground storage tanks (USTs). These tanks were installed in the mid-1940s and removed in 1982. These tanks were used to store waste fuels, oil, hydraulic fluids, and spent solvents.

Site 7 - IWTP Sludge Drying Beds. These beds served the IWTP located in the southwest portion of the base. This site consists of twelve unlined beds. Sludge was occasionally removed and disposed of off site. In 1987, the IWTP stopped using these sludge beds; the remaining sludge in the beds was removed.

Site 8 - PCB Spill Area. Located at the west end of the base, the spill was cleaned up immediately. This site was used to store inactive transformers and drums of PCB.

Site 9 - Electroplating Shop Spill Area No. 5. This site was the location of the metal processing shop, which used electroplating batch tanks over an earthen floor. The earthen floor has since been covered by concrete.

Site 10 - Landfill No. 1. This site is located along the south-central portion of the base perimeter. Due to its proximity to the Santa Ana River, this site is subject to occasional flooding. The landfill is believed to be 15 acres in size (exact dimension unknown) and was used as a general refuse landfill between 1943 and 1958. There is no documentation of industrial wastes being disposed at this site.

Site 11 - Fuel Sludge Drying Area. This site is located in the northeast corner of the base adjacent to Landfill No. 2 (IRP Site 2). Between 1958 and the mid-1970s, sludge from jet fuel and aviation gas storage tanks and grease traps was spread over this area.

Site 12 - Waste Pit No. 3. Chemical waste and other miscellaneous waste was reported to have been disposed at this site. The dimensions of the pit are unknown, but it is believed to be approximately 15 feet deep. The site is believed to be located just west of the pistol range along the south-central portion of the base. The location of this site was not confirmed during the IRP Site RI.

Site 13 - IWTP Sludge Disposal Area. Between 1957 and 1966, the area just south of the golf course was used to dispose of sludge generated by the IWTP. Sludge has since been removed and replaced with soil.

Site 14 - Waste Pit No. 4. This site consists of two 10-foot diameter pits, each 10 feet deep. Waste paint, coatings, and thinners were the most common wastes disposed at Site 14 from the 1940s through the 1960s and diluted paint wash water from mid-1960s to mid-1980s. The north pit has been backfilled with gravel, and both pits have recently been covered by asphalt. The pits are located at the north end of the base maintenance shops between Buildings 412 and 404.

Site 15 - Oil Spill Area (S-290 Tank). Located on the corner of 102nd and "U" streets, this site consists of a former 12,000-gallon UST which stored POL wastes. The tank was in use for approximately 40 years as part of the original base service station. The UST was removed in 1986-1987.

Site 16 - AAVS Evaporation Basins. Located in the northeast portion of the base, this site consists of two basins constructed in 1971 and used to evaporate two solutions: an ammonium sulfate waste and a sodium thiosulfate photographic solution. Each basin was constructed with an asphaltic/concrete lining.

Site 17 - Drummed Waste Storage Area/Waste Fuel and Solvent Sumps. A portion of this site consists of two cement cells lined with brick. The cells were originally constructed for a chemical waste burn site (state regulations prohibited their use in 1961) and later converted to sumps used to contain skimming of bulk waste fuels from the IWTP and operated as an oil-water separator. Site 17 is located in the southwest corner of the base.

Site 18 - Aviation Gas Spill Area. Waste fuels and oils may have been spilled during aircraft maintenance activities in this area. Currently two 55,000-gallon aviation gas aboveground storage tanks occupy the area immediately to the north of this site which is located in the north-central portion of the base.

Site 19 - Waste Drum Storage Area No. 1. Located just south of the main hangar, this site was operated from 1943 to 1960. Electroplating and corrosion control operations are believed to have generated the majority of the waste stored at this site.

Site 20 - Low-Level Radioactive Waste Burial Site. Exact location of this site is unknown but believed to be in close proximity to the IWTP. During the 1960s radium paint was used on aircraft instrument dials; the low-level radioactive wastes from this use are thought to have been placed in a concrete containers and buried. A future survey will determine the existence and exact location of this site.

Site 21 - Underground Ferricyanide Tank. Located next to the AAVS in the northeast portion of the base, this metal sump was used to collect ferricyanide waste generated in a former motion picture laboratory.

Site 22 - IWTP Discharge Ditch and Outfall Area. Located in the southwest portion of the base, this site was identified as a potential contaminant source during the stage 2 investigations. This site was the location of an historic IWTP discharge ditch from 1960 to 1987. Treated water was discharged and collected in the outfall area, eventually draining into the Santa Ana Wash.

In the fall of 1990 a study was conducted to determine the type and nature of radionuclides found in groundwater from certain wells near the base. The study showed that no man-made radionuclides were present in test wells and that isotopes were of a natural origin.

An additional basewide records search was performed in the latter part of 1992. This records search resulted in the identification of approximately 60 areas of concern (Table 3.3-3), which may require additional investigations to determine if contamination exists at these areas.

3.3.3.2 Operable Unit Description. Designation as an operable unit (OU) allows sites with similar contaminants or sources, adjacent locations, or other similar characteristics to be grouped together to enable separate or accelerated remediation activities. In 1990, the CBA groundwater TCE plume and sources of the plume were identified as an OU. The CBA OU has now been defined as consisting of the TCE-contaminated groundwater plume and four source areas along 7th Street: the Monitoring Well 90 area (Passenger Terminal), Building 658, Building 763, and IRP Site 9 (electroplating shop). IRP Site 9 is in Building 763 but is considered a separate source. A CBA OU RI report and the FS report were finalized in February 1993. The CBA OU Proposed Plan (PP) was issued for public comment on February 16, 1993. A pilot scale groundwater pump and treat system is currently in place and will determine the feasibility of such a

Table 3.3-3. Areas of Concerns Identified during 1992 Basewide Records Search
Page 1 of 3

Location	Area	General Description (Summary)
Building 109	CBA	Former Air Force Exchange Service Station (1950s; included a wash rack and USTs)
Building 169	CBA	Former service station containing gasoline and waste oil USTs (1960s/1970s)
Building 292	NBA	Former paint, oil, and lubricant storage facility (1940s-1960s)
Building 295	NBA	Former automotive repair and wash rack facility (1940s-1960s)
Building 301	NBA	Equipment and vehicle washing facility, formerly a paint spraying facility, includes wash drains and a separator, and a dosing chamber
Building 302	NBA	Aircraft and vehicle maintenance; also hobby, printing, and woodworking shops. Oldest building on base
Building 308	NBA	Maintenance shop (1960s), and a paint spray booth (1970s, 1980s)
Building 313	NBA	Automotive Maintenance facility (1960s to present). Wastes may have been disposed of onto asphalt
Building 320	NBA	Grease inspection rack (1950s-1960s)
Building 330	NBA	Auto body and paint shop (1970s to the present). Wastes were reportedly disposed of on the ground outside of the building
Buildings 332, 333, 337, 341	NBA	Aircraft and automotive maintenance facilities (1940s to present). Includes 2 maintenance hangars, a washing facility, oil/water separator, and USTs
Building 336	NBA	Former vehicle washing facility (1970s-1980s). Facility contained a sand/grease trap
Building 338	NBA	Battery repair shop until 1991
Building 344	NBA	Former dry cleaning facility (1960s-1970s[?])
Building 345	NBA	Civilian vehicle washing facility (1980s to present). Contains wash drains and a sand/grease trap
Building 403	CBA	Carpenter and paint shop (1940s to present)
Building 404	CBA	Storage shed for paints, oils, and lubricant. Adjacent to the site 14 waste pits (1950s to present)
Building 405/408	CBA	Former motor pool shed and gas storage facility (UST) (1950s-1960s)
Building 412	CBA	Storage facility for paints and other materials from the 1940s to present
Buildings 432, 435, 440, 441, 450, 451	CBA	Former automotive maintenance and washing facilities (1940s to 1960s/1970s). Included garages, service stations, washing facilities, grease inspection racks, USTs
Building 505	CBA	Chemical warehouse depot in the 1940s
Building 514	CBA	Chemical storage warehouse (inside and outside) from the 1940s to the present
Building 575	CBA	Former paint, oil, and lubricant storage facility (1940s-1950s)

Notes: AGE = Aerospace Ground Equipment
CBA = Central Base Area
GCA = Golf Course Area
IWTP = Industrial Wastewater Treatment Plant
NBA = Northeast Base Area

Table 3.3-3. Areas of Concerns Identified during 1992 Basewide Records Search
Page 2 of 3

Location	Area	General Description (Summary)
Building 576/578	CBA	Former automotive repair shop and wash rack facility (1943-1960s/1970s)
Building 620	CBA	Civilian Service Station (1972 to present). Includes USTs, separator, and washing facility (sand/grease trap)
Building 635	CBA	Chemical and salvage warehouse (1942-1968), and automotive maintenance facility (1968-1990). Building contained as waste pit and sump; Drum Storage Area No. 2 was adjacent to the building (1942-1958)
Building 638	CBA	Radio electronics, and armament repair facility (1940s to present)
Building 655	CBA	Aircraft reclamation facility and repair shop (1940s-1960s). The facility was connected to the industrial waste facility and had two sumps
Building 658	CBA	Equipment and engineering facility (1942-1960s) and a printing and reproduction facility. Facility contained a waste collection system and an equipment wash rack
Building 669	CBA	Former paint, oil, and dope storage shed (1942-1960s)
Building 670	CBA	Former AGE facility (1942-1970s/1980s)
Building 671, 672, 674	CBA	Current aircraft washing facility (1960s to the present). Includes wash drains, former USTs, etc.
Building 675	CBA	Current AGE facility and fueling station. Facility contains wash drain, separator, waste line, and USTs (1980s to present)
Building 678	CBA	Former armament repair facility (1943-1960s)
Building 680	CBA	Current Fire Station, containing an oil/water separator and UST (1980s to present)
Building 694	CBA	Former fire and crash truck station (1944-1980s)
Building 695	CBA	Maintenance fuels hangar (1940s to the present). The facility contains a waste collection system, oil/water separator, and USTs
Building 701	CBA	Precision measurement equipment laboratory (1963 to present), prior function-armament and repair facility
Building 705	CBA	Engine processing facility (1940s-1960s) and motor pool repair (1960s to present). Facility contained USTs, oil/water separator, wash drains, and waste collection system
Building 707	CBA	Rubber reclamation and repair facility (1944 to 1960s) and printing and reproduction shop (1950s to 1980s)
Building 723	CBA	Engine testing facility (1942 to 1980s), removed 1980s. Connected to underground fuel and waste lines
Building 726	CBA	Engine testing facility (1950s to present). Facility contains USTs, sumps, waste pits, and fuel lines
Building 730	CBA	Former accessories overhaul building (1950s-1960s). Solvent storage area adjacent or near this facility

Notes:
AGE = Aerospace Ground Equipment
CBA = Central Base Area
GCA = Golf Course Area
IWTP = Industrial Wastewater Treatment Plant
NBA = Northeast Base Area

Table 3.3-3. Areas of Concerns Identified during 1992 Basewide Records Search
Page 3 of 3

Location	Area	General Description (Summary)
Building 736	CBA	Former hazardous test and fuels facility (1950s-1960s). Currently a plastics, electronics, and battery shop. Facility contained USTs, fuel and solvent collection system, and an industrial waste sump and disposal lines
Building 741	CBA	Former dry cleaning plant and electronics overhaul facility (1940s-1960s/1970s)
Building 743/744	CBA	Former phenol plant and pretreatment facility (1950s-1960s). Facility included clarifiers, wet well, batch treatment tanks, lift station, waste lines, and waste (drum) accumulation point
Building 747	CBA	Former engine overhaul and repair facility (1942-1960s). Facility contained USTs, waste collection pits, sump, trenches and drains, intercepting chambers, industrial waste lines, etc. Primary repair facility at Norton AFB during the 1940s, 1950s, and early 1960s
Building 749	CBA	Former engine overhaul and repair facility (1940s-1960s). Facility contained USTs, sump, waste pits, industrial waste and fuel lines
Building 752	CBA	Equipment repair facility (1940s-1980s). Facility contained the luminous dial painting shop where low-level radioactive waste was generated
Building 755	CBA	Former blacksmith and foundry shop (1940s-1960s). Plating operations were performed at this facility
Building 795	CBA	Aircraft maintenance hangar from 1942 to the present. Contains a waste collection system (similar to Building 655)
Building 820	CBA	This facility contains an oil/water separator connected to a waste fuel UST
Building 825	CBA	This facility contains an oil/water separator (2 years old) connected to a 5,000-gallons waste fuel tank
Building 922, 942, 945	CBA	Titan missile repair facility for Air Logistic Command (1968 to present). No drains or reported spills; small use of chemicals
Aerospace Audiovisual Services (AAVS)		The AAVS facility area has been used as a radar installation and as an audiovisual services facility. The facility contains USTs, a hazardous storage shed (with sumps), a waste collection system, and a waste treatment plant. Portions of the AAVS IWTP have been investigation as IRP sites (sites 16 and 21)
Refuse Dump Area	CBA	At the west end of "C" Street exists a dump area for refuse. It is unknown what has been disposed of here
"C" storm Drain Outfall Area	CBA	The "C" Street storm drain outfall area is the end point for the storm drain collection system in the CBA and parts of the flight/line area
Golf Course Storm Drain Outfall Area	CBA	The golf course storm drain outfall area is the end point for part of the flightline storm drain collection system
GCA Pesticide, Herbicide, and Fungicide Program	IWTP	Pesticides, herbicides, and fungicides have been stored and mixed in the IWTP for years. There have reportedly been spills related to mixing and storage of these materials in the IWTP compound
Current Firing Training Facility	NBA	The NBA fire training facility was constructed in 1980 and contains exercise area, UST, and an oil/water separator
Current Pistol Firing Range	CBA	The pistol range has been in operation since the 1960s

Notes: AGE = Aerospace Ground Equipment
CBA = Central Base Area
GCA = Golf Course Area
IWTP = Industrial Wastewater Treatment Plant
NBA = Northeast Base Area
Source: CDM FPC, 1993

system to remediate the elevated concentrations (100 to 500 parts per billion) of TCE found beneath the CBA.

In June 1991, an RI was initiated for 21 of the 22 sites. IRP Site 8 (PCB spill site) did not require additional investigation since it had been subject to an early removal action. Four of the IRP site locations were not confirmed during the RI either because of the absence of contamination at the site, the removal of the site contaminants, or errors in the early records report. Norton AFB will continue to investigate three of these sites (IRP Site 3, 4, 12) as part of a new OU. IRP Site 20, which was identified in the original 1982 Records Search on suspected low-level radioactive waste burial site based on verbal reports, was not found. This site will be addressed as part of a basewide investigation into possible low-level radioactive contamination. IRP Site 9 has been transferred to the CBA OU. Two IRP sites (Site 16, AAVS Evaporation Basins, and Site 21, AAVS Underground Ferricyanide Tank) may be closed as part of the closure of the AAVS facility or included in a new OU.

The IRP Site RI and FS reports address the remaining 15 IRP sites including Site 8, the PCB spill site. Remedial action is being proposed for nine of the IRP sites (1, 2, 5, 6, 10, 13, 14, 19, 22) and no further action is being recommended for six of the IRP sites (7, 8, 11, 15, 17, 18).

A new OU is being proposed to address the sites not found in previous investigations and the new areas of concern identified during the recent basewide records search. A work plan will be prepared to describe the areas to be investigated and the methods to be used. The work plan will be reviewed by U.S. EPA and California EPA prior to implementation.

Further information on IRP activities at Norton AFB is available for public review at the Norman Feldheym Central Library in San Bernardino, California. A bibliography of this data available is included as Appendix L.

3.3.4 Storage Tanks

USTs are subject to federal regulations of 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 under Title 23, Chapter 3 of the CCR. California regulations are more stringent than the federal regulations and require secondary containment on both the tank and piping systems installed after January 1, 1984. San Bernardino County DEHS administers the state regulations for USTs at Norton 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, and are enforced by the base Fire Department.

Preclosure Reference. USTs at Norton AFB are currently removed as they are deactivated; temporary tank closure which is allowable by law is not being exercised by base environmental personnel. In 1991, the base operated under a waiver obtained from DEHS which allows the base to postpone compliance with leak detection, spill and overspill prevention, and cathodic protection until 1998. Norton AFB presently has 78 USTs: 58 active (Table 3.3-4) and 20 inactive (Table 3.3-5).

The locations of a number of USTs previously removed have not yet undergone a complete investigation for identifying contamination. If contamination is found after further investigation, these locations will be remediated in accordance with applicable regulations.

Forty-four aboveground storage tanks existed at Norton AFB in 1991 (Table 3.3-6). The two largest tanks (each of a 2,310,000-gallon capacity) store JP-4 jet fuel and are maintained by the Fuels Management Group. These bulk storage tanks are supplied by an off-base CAL-NEV pipeline and located adjacent to the liquid fuel pump station and associated USTs which supply the flightline fuel distribution system.

Closure Baseline. All USTs at the base that do not meet current regulations will be deactivated and removed. The USTs and pumphouses associated with the fuel hydrant system will be removed and the distribution lines will be tied in directly to the aboveground storage tanks. Any aboveground storage tanks will be administered by the San Bernardino City Fire Department under Article 79 (Storage of Flammable Liquids) of the Uniform Fire Code.

3.3.5 Asbestos

Asbestos is regulated by the U.S. EPA, OSHA, and California EPA. Asbestos emissions into ambient air are controlled according to Section 112 of the Clean Air Act (CAA), which establishes the National Emissions Standard for Hazardous Air Pollutants (NESHAP). NESHAP regulates the demolition or renovation of buildings with asbestos-containing material (ACM). The Asbestos Hazard Emergency Response Act (AHERA) addresses the management of asbestos in schools from kindergarten through grade 12.

Friable asbestos material is any material containing more than 1 percent asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Asbestos fibers can be emitted from various ACM. ACM is commonly found in pipe and boiler wrap, acoustic ceilings, and other sound-proofing and insulating materials. U.S. EPA has a policy that addresses leaving asbestos that does not pose a risk in place and not disturbing the material.

Table 3.3-4. Inventory of Active USTs (as of November 1991)

Location (Facility No.)	No. of Tanks	Capacity (gallons)	Contents	Date of Installation
100	1	550	Diesel oil No. 2	1967
249	1	30,000	Heating fuel No. 2	Unk
333	1	550	Waste oil	1943
427	1	10,000	Diesel oil No. 2	1966
620	1	550	Waste oil	1974
620	5	10,000	Regular/regular unleaded/super unleaded gasoline	1974
650	2	25,000	Regular unleaded gasoline	1984
650	1	25,000	Diesel fuel No. 2	Unk
675	1	10,000	Regular unleaded gasoline	1942
675	1	2,000	JP-4	1960
675	2	12,000	Diesel oil No. 2	1980
680	2	550	Waste oil	1986
716	2	25,000	Heating fuel No. 2	1954
716	3	50,000	Heating fuel No. 2	1954
726	1	500	Waste fuel	1951
795	1	750	Diesel fuel No. 2	1963
803	1	2,000	Waste fuel	1967
803	6	50,000	JP-4	1967
804	1	2,000	Waste fuel	1969
804	8	50,000	JP-4	1969
805	1	2,000	JP-4	1971
809	1	2,000	Waste fuel	1969
809	8	50,000	JP-4	1969
809	1	Unk	JP-4	Unk
818	1	2,000	Heating fuel No. 2	1982
819	1	1,000	Waste fuel	1983
820	1	281	Waste fuel	1970
823	1	5,000	Waste fuel	1971
2333	1	10,000	JP-4	1982
Total	58			

Unk = unknown
Source: U.S. Air Force, 1991c.

Table 3.3-5. Inventory of Inactive USTs (as of November 1991)

Location (Facility No.)	No. of Tanks	Capacity (gallons)	Contents	Date of Installation
S-6	1	350	Heating fuel No. 2	1943
228	1	8,000	Heating fuel No. 2	1950
249	1	550	Waste oil	1964
249	2	30,000	Heating fuel No. 2	1960
468	2	10,000	Diesel oil No. 2	1966
694	1	1,000	Heating fuel No. 2	1943
695	1	1,000	Waste oil	Unknown
697	2	10,000	Heating fuel No. 2	1957
757	2	500	Waste oil/not used	Unknown
763	1	1,000	Waste oil	Unknown
763	1	1,000	Aviation fuel	Unknown
794	1	500	Not used	1987
811	1	500	Diesel oil No. 2	1954
844	1	1,000	Diesel oil No. 2	1954
863	1	300	Diesel oil No. 2	1963
984	2	550	Heating fuel No. 2	1950
3101	1	550	Diesel oil No. 2	1962
Total	20			

Source: U.S. Air Force, 1991c.

Preclosure Reference. The current Air Force practice is to remove or abate asbestos in active facilities only when it poses a threat of release from friable ACM.

An asbestos survey has been completed for all facilities scheduled for disposal. The survey identified, sampled, and documented the presence of ACM, performed an exposure assessment, ranked hazards, and developed recommendations for control and/or abatement. Current base practice adheres to Air Force policy which calls for removal or management of ACM which poses a threat of release.

Closure Baseline. The Air Force policy on the management of asbestos for base closures can be found in Appendix F.

3.3.6 Pesticide Usage

The federal regulations that control the use of pesticides are contained within the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 40 CFR 162, 165, 166, 170 and 171. Implementation of the Federal regulations by the state fall under the CCR Title 3, Chapter 4.

Preclosure Reference. The Norton AFB Pest Management Program is conducted in accordance with DOD guidelines. The Air Mobility Command's (AMC) Entomologist provides professional oversight for the Norton AFB

Table 3.3-6. Inventory of Aboveground Storage Tanks (as of November 1991)

Location (Facility No.)	No. of Tanks	Capacity (gallons)	Contents	Date of Installation
187	1	500	Diesel fuel No. 2	1982
233	1	275	Heating fuel No. 2	1943
289	1	55	Regular gasoline	Unk
407	2	300	Gasoline(s)	1990
471	2	55	Gasoline	Unk
477	1	120	Diesel fuel No. 2	Unk
545	3	55	Heating fuel No. 2	Unk
548	2	275	Heating fuel No. 2	Unk
548	2	55	Heating fuel No. 2	Unk
558	7	55	Heating fuel No. 2	Unk
657	1	275	Heating fuel No. 2	Unk
671	1	5,000	Solvents	Unk
705	1	2,000	Regular unleaded gasoline	1981
726	1	2,500	JP-4	1951
795	1	150	Diesel fuel No. 2	Unk
811	1	120	Diesel fuel No. 2	1990
830	1	285	Diesel fuel No. 2	1991
844	1	120	Diesel fuel No. 2	1991
863	1	120	Diesel fuel. 2	1991
935	1	55	Heating fuel No. 2	Unk
942	1	275	Heating fuel No. 2	Unk
948	6	55	Heating fuel No. 2	Unk
965	1	55	Heating fuel No. 2	Unk
1264	1	28,000	Waste fuel	1985
1264	1	300	Diesel fuel No. 2	1990
3101	1	55	Diesel fuel No. 2	1990
55001	1	2,310,000	JP-4	1970
55002	1	2,310,000	JP-4	1987
Total	44			

Unk = Unknown
Source: U.S. Air Force, 1991c.

program through biennial on-site pest management reviews, annual approvals of base pesticide products listed in the Pest Management Plan, and quarterly reviews of actual pesticide use. The base pest management program is conducted under the day-to-day supervision of DOD-certified pesticide applicators (U.S. Air Force, 1990e). Table 3.3-7 provides an inventory of pesticides in use at Norton AFB in 1991. Pesticides are stored at the base entomology shop (Building 414) and golf course (Building 814) and are purchased, as needed, every 3 months; thus, the quantity on hand at any one time is relatively small.

The golf course is the only base operation which utilizes pesticides. The base Land Management Plan emphasizes use of biological and cultural controls with chemical controls to be used as a last resort.

Closure Baseline. At the time of closure, pesticides will continue to be utilized for pest management and grounds maintenance. The DMT will ensure that contractors applying these chemicals are qualified to carry out such activities.

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.

The disposal of these compounds is regulated under the federal Toxic Substances Control Act (TSCA), which banned the manufacture and distribution of PCBs with the exception of PCBs used in enclosed systems.

PCB equipment contains 500 parts per million (ppm) PCBs or more, whereas PCB-contaminated equipment contains PCB concentrations 50 ppm or greater but less than 500 ppm, and PCB items contain from 5 to 49 ppm PCBs. The U.S. 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. The state regulates the disposition of PCB items.

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. Table 3.3-8 provides an inventory of transformers with 50 ppm or more PCBs. These are planned to be replaced with PCB-

Table 3.3-7. Pesticides in Use at Norton AFB (as of September 9, 1991)

Chemical Name	Trade Name	Storage Location (Facility No.)
Simazine	Simazine 80W Her	414
Cyfluthrin	Tempo 20 WP	414
Pyrethrins	Uld BP-100 Insec	414
Pyrethrins	Uld BP-300 Insec	414
Propoxur	Whitmire PT 250	414
Diazinon	Whitmire PT 260	414
Chloropyrifos	Whitmire PT 270	414
D-Phenotnrin	Whitmire PT 515	414
Strychnine	0.35% Strychnine	414
Propoxur	Baygon 2% Bait I	414
Hydramethylnon	Combat roach con	414
D-Phenothrin	D-Phenothrin 2%	414
Diazinon	D.Z.N. Diazinon	414
Phostoxin	Degesch Phostoxi	414
Chloropyrifos	Dow Dursban L.O.	414
Chloropyrifos	Dursban 4E Insec	414
Chloropyrifos	Dursban 2.0	814
Chloropyrifos	Division Scotts Granular	814
Diphacinone	Eaton's All-Weat	414
Bendiocarb	Ficam W	414
Methomyl	Flytek Fly Bait	414
Bromadiolone	Maki Paraffinize	414
Thiophonate	Scotts Control Fungicide	814
2,4-Dichlorophenoxyacetic Acid	Scotts Fertilizer Plus Fungicide	814
Metolaxyl	Scotts Pythium Control	814
Etridiazole	Kobon 30	814
Oryzalin	Elanco Surflan AS	814
Pendimethalin	Scotts Fertilizer and pre-emergent	814
Pentachloronitrobenzene (PCNB)	Scotts FF2	814
Chloroneb	Scotts Fertilizer Plus Fungicide 2	814
Beylorton	Scotts Fertilizer Plus Fungicide 7	814
Bensulfide (Betoson)	Scotts weed gross prevention	814
Rubigan	DOW/Elanco	814
Chlorothalonil	Daconil-27,28 Fungicide	814
Melfuidide	3-M Embark Growth	814
Glyphosate	Monsanto Aquatic Herbicide	814
Glyphosate	Monsanto Round-Up	814/414
Dicamba	KOG Weed Control	814
2,4-Dichlorophenoxyacetic Acid	Trimack Turf Herbicide	814
Oust (sufometvron)	Dupont Oust Herb	414

Source: U.S. Air Force, 1991c.

Table 3.3-8. Transformers Containing 50 ppm or More PCBs (as of May 5, 1991)

Location	Trade Name	Rating (kVA)	Gallons	Comments
P-105	South Bend	RCOC	10	Retrofill
248WS	General Elec	500	110	Retrofill
P-1201	ITE	1,500	500	Retrofill
E-Sub	General Elec	OCB	265	Retrofill
C-Sub	General Elec	OCB	16	Retrofill
D-Sub	Westinghouse	5,000	600	Retrofill
P-754	General Elec	750	354	Retrofill
G-Sub	General Elec	7,500	650	Retrofill
B-Sub	General Elec	2,875	500	Retrofill
P-108	General Elec	50	39	Replacement
P-103	General Elec	50	39	Replacement
P-118	Westinghouse	150	80	Replacement
P-108	Westinghouse	112.5	75	Replacement
P-2-24	General Elec	75	50	Replacement
V-303	General Elec	75	50	Replacement
V-402	General Elec	3	5	Replacement
V-301	General Elec	3	5	Replacement
P-102	Larkin	50	40	Replacement
P-101	General Elec	75	50	Replacement
P-209	Esco	25	16	Replacement
P-202	General Elec	25	16	Replacement
P-203	General Elec	25	16	Replacement
P-809	Wagner	100	53	Replacement
P-703	Larkin (3)		39	Replacement
P-701	General Elec	50	50	Replacement
P-701	General Elec	50	39	Replacement
P-807	General Elec	75	50	Replacement
P-810	Niagara	100	55	Replacement
P-810	Niagara	100	55	Replacement
P-210	Sierra	250	160	Replacement
2P-212	Westinghouse (3)	255	160	Replacement
P-910	Westinghouse		86	Replacement
P-129	Westinghouse	300	170	Replacement
P-822	Sierra (3)		86	Replacement
P-802	General Elec (3)	3/37.5	21	Replacement

kVA = kilovolt amperes
P = pole mount
V = vault
RCOC = Remote control oil capacitor
OCB = Oil circuit breaker
(3) = Number of transformers

Source: U.S. Air Force, 1991c.

free equipment or retrofilled (PCB-contaminated oil replaced by PCB free oil) to bring the PCB concentration below 50 ppm by the end of fiscal year 1992. PCB-contaminated transformers awaiting disposal were stored in Building 970, which is managed by DRMO.

Closure Baseline. At the time of base closure, there will be approximately 65 transformers and other pieces of equipment containing greater than 5 ppm but less than 50 ppm PCBs on base. These will be regulated under California law.

3.3.8 Radon

Radon is a colorless and odorless radioactive gas that is produced by radioactive decay of naturally occurring uranium to radium. Radium, of which radon gas is a by-product, is found in high concentration in rocks containing uranium, granite, shale, phosphate, and pitchblende. Atmospheric radon is diluted to insignificant concentrations. Radon that is present in soil, however, can enter a building through small spaces and openings, accumulating in enclosed areas, such as basements. The cancer risk caused by exposure, through the inhalation of radon, is currently a topic of concern.

There are no federal or state standards regulating radon exposure at the present time. 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. The U.S. 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.

Preclosure Reference. With the development of the RAMP, the Air Force conducted initial screen surveys to identify the probability of elevated indoor radon concentrations in habitable structures on all Air Force installations. Results of the initial screen survey would then place each installation into one of three probability categories: "Low," "Medium," or "High." The initial screen survey at Norton AFB was conducted in May 1988 by the base Bioenvironmental Engineering Group. The survey consisted of 26 samples taken from military housing units and the old child care center. All samples resulted in radon levels below the U.S. EPA's recommended mitigation level of 4 pCi/1, and placed Norton AFB in the category of low probability. Therefore, no detailed assessment survey is needed and mitigation activities are not necessary or advised. (Ecology and Environment, Inc., 1989.)

Closure Baseline. Based on radon survey results, no mitigation actions are necessary at Norton AFB.

3.3.9 Medical/Biohazardous Waste

Current federal regulations do not provide for the specific regulation of medical wastes; the state regulates medical waste under the Medical Waste Management Act, Chapter 6.1 of the California Health and Safety code. The act provides for treatment of such wastes prior to disposal by all generators of medical wastes regardless of the amount generated. Article 9 of this act details the approved treatment methods briefly described below:

- Incineration in a controlled-air multi-chambered incinerator which provides complete combustion of the waste to carbonized or mineralized ash, rendering infectious waste, noninfectious and disposable as nonhazardous waste
- Discharge to the sewage system if the waste is liquid or semiliquid
- Sterilization by heating in a steam sterilizer (autoclave)
- Other sterilization techniques approved by the DHS, which result in the destruction of pathogenic organisms.

All medical/biohazardous waste disposal meth[illegible]s fall under state regulations but are administered by the San Bernardino County DEHS.

Preclosure Reference. Norton AFB operates a clinic which provides only out-patient care to active military and their dependents, as well as retirees and their dependents. In 1991, the clinic produced approximately 200 to 300 pounds of medical/biohazardous waste per month. The waste is collected weekly by a permitted contractor and disposed off base. Waste generation will decline with the approach of base closure as patient groups are phased out, beginning with retiree dependents, until only active military personnel will be treated at the time of closure. The clinic does not dispense any chemotherapeutic drugs or engage in radiation treatment activities. A small amount of medical/biohazardous waste is generated by the on-base veterinary clinic; this amount is included as part of the monthly total and disposed of by the same contractor.

Medical and dental x-ray operations, as well as other on-base x-ray and photographic operations, produce photochemical wastes and utilize silver recovery units. The silver recovery units treat photochemical wastes prior to discharge to the local sewage system.

Closure Baseline. At closure, the clinic will be inactive and no medical/biohazardous wastes will be generated at the time of base closure.

Existing medical/biohazardous wastes will be properly disposed. All photochemicals will be processed prior to closure.

3.4 NATURAL ENVIRONMENT

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

3.4.1 Soils and Geology

Soils, geology, mineral resources, and seismic issues are addressed in this section. The ROI for soils is localized and limited to the Norton AFB vicinity. Sediment transfer associated with erosion is minimal on the base except in those areas within the Santa Ana Wash. The ROI for geology includes the general tectonic framework of the San Bernardino area.

3.4.1.1 Soils. In general, soils at Norton AFB have formed on alluvial fan deposits from nearby mountains. Soils generally consist of loamy sands and sandy loams. The Soil Conservation Service (Woodruff and Brock, 1980) has mapped soils on Norton AFB. The soils at Norton AFB are classified primarily as the Tujunga-Soboba Association.

Most of the base soils consist of Tujunga gravelly loamy sand and Soboba stony loamy sand. The sands are very permeable with little runoff; therefore, susceptibility to water erosion is low. Wind erosion potential is moderate in unprotected areas. The shrink-swell potential and overall strength of the soils are moderate.

Small areas of Grangeville and Hanford sandy loams occur along the western boundary of the base. The Grangeville and Hanford sandy loam, when irrigated, meets the criteria for prime farmland; however, the area is not currently irrigated and, therefore, does not currently qualify. (See Form AD-1006, Appendix G.)

Contaminated soils have been identified on Norton AFB and are discussed in Section 3.3.3, Installation Restoration Program Sites.

3.4.1.2 Physiography and Geology

Physiography. Norton AFB is located in the northern part of the Peninsular Ranges physiographic province of southern California, bordering the Transverse Ranges physiographic province to the north. The base is situated within the Upper Santa Ana River Valley that is bounded to the northwest by the San Gabriel Mountains; to the northeast by the San Bernardino Mountains; to the south by the Crafton Hills, the Badlands, and

Box Springs Mountains; and to the southwest by a low escarpment along the San Jacinto fault.

The base is located on an alluvial plain sloping to the southwest at approximately 30 to 50 feet per mile. The topographical elevation on base varies from a maximum of 1,200 feet above MSL along the eastern boundary to 1,040 feet above MSL along the western boundary.

Geology. Norton AFB is underlain by a 4,500- to 5,000-foot-thick deposit of Pleistocene and Recent age alluvium (CDM Federal Programs Corporation [CDMFPC], 1991). The alluvium consists of thick, discontinuous, and poorly sorted unconsolidated deposits formed by the deposition of sediments in alluvial fans and subsequent erosion and redistribution of sediment by streams. Within the region, older alluvium is moderately weathered and slightly folded, and younger alluvium is structurally undisturbed (CDMFPC, 1991). Recent river-channel deposits occur along the southern border of the base in the Santa Ana Wash and along the northern boundary of the base.

Mineral Resources. Mineral resources in the region of Norton AFB consist of construction aggregates (sand and gravel) derived from the alluvial fan deposits. The Norton AFB vicinity was classified by the California Division of Mines and Geology as having a high likelihood of containing significant construction aggregate resources (Miller, 1987). The quality and quantity of these materials as construction aggregate have not been evaluated. C.L. Pharris and Robertson's, along the Santa Ana Wash adjacent to the eastern base boundary, are active producers of aggregate.

In 1987, aggregate resources in the 25 square miles of nonurbanized area along the Santa Ana River between the San Bernardino Mountains and the city of Riverside were estimated at 5,230 million short tons. This amounts to 50 percent of the 10,450 million short tons of aggregate resources estimated for the greater San Bernardino-Riverside region. However, only 430 million of the 10,450 million short tons were permitted for development in 1987, and at the annual per-capita consumption rate of 8.4 tons estimated for the region, these permitted reserves would be depleted by the year 2025 (Miller, 1987). Increased growth and urbanization in the region may deplete these resources sooner than anticipated.

Other sources of aggregate for the San Bernardino area include resources in other regions, other Holocene alluvial deposits, some older tertiary sedimentary deposits, and limited areas of exposed crystalline rock.

Seismicity. Norton AFB is located in an active seismic area. The base is located on the San Bernardino fault block, bounded by the San Andreas and San Jacinto faults. The San Bernardino fault block has been downthrown relative to adjacent areas along both faults, with vertical movement of many

thousands of feet along the San Andreas fault, creating the escarpment of the San Bernardino Mountains (CDMFPC, 1991).

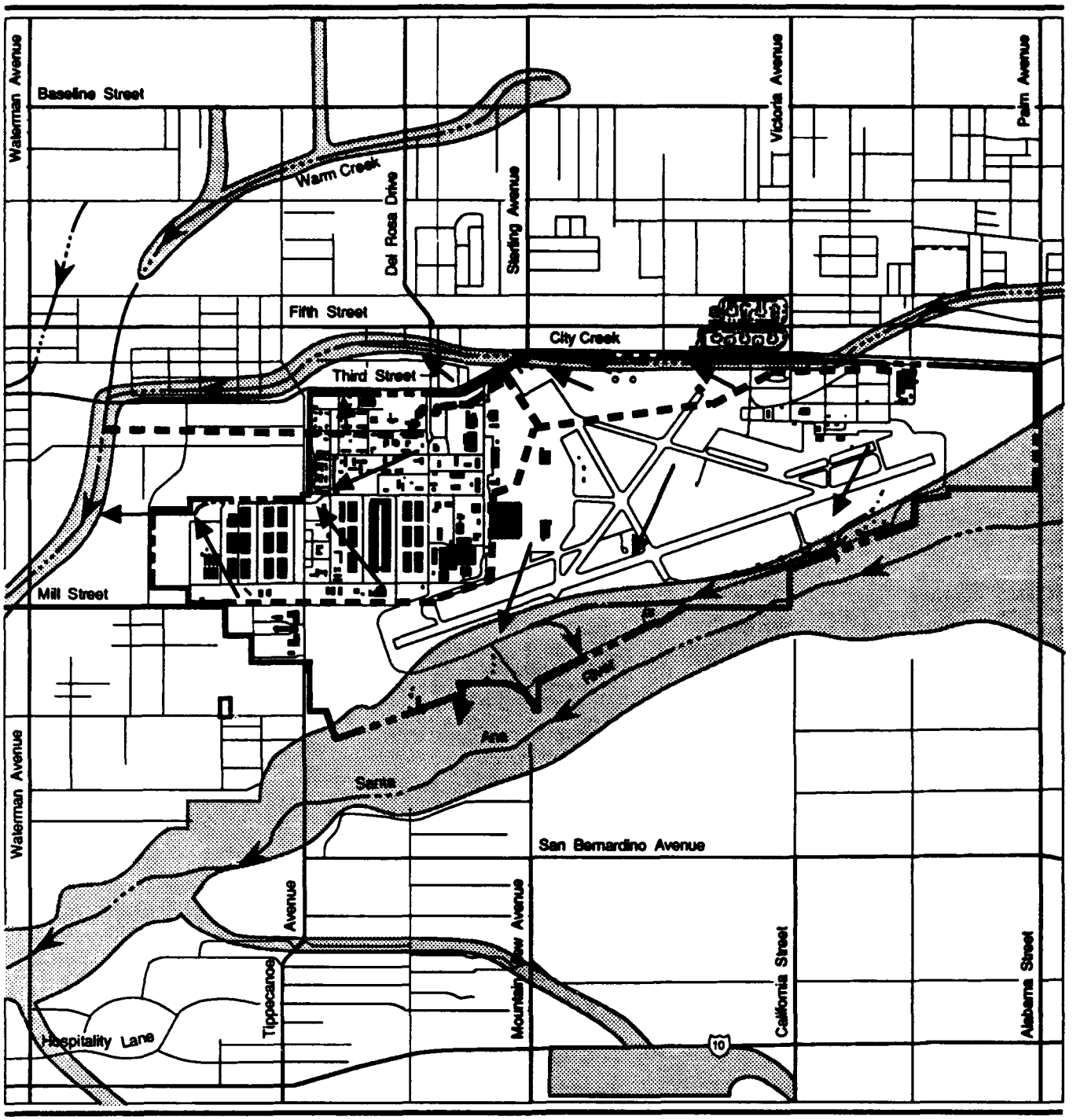
Although there are no faults on base, the San Andreas and San Jacinto faults are located approximately 2.5 miles to the northeast and 2.0 miles to the southwest, respectively. These faults have a maximum credible earthquake magnitude of 7.5 and 8.5, respectively. Damaging earthquakes could also occur on many other faults in the region. A 20 to 30 percent probability of a major earthquake (7.0 magnitude or greater) is estimated within the next 30 years in the San Bernardino region (U.S. Geological Survey, 1988).

The base is situated within Seismic Hazard Zone IV, as defined by the Uniform Building Code. The seismic zone is determined by the proximity to main fault systems. Seismic Hazard Zone IV is characterized by areas likely to sustain major damage from earthquakes, and corresponds to intensities of VIII or higher on the modified Mercalli Scale. Structures on base are not only subject to the effects of ground shaking, but are also subject to potential subsidence and liquefaction caused by ground accelerations in areas with groundwater levels 50 feet or less below the surface (Matti and Carson, 1986). Areas susceptible to liquefaction are likely in the western and southern portions of the base. Section 8875.1 of the CCR requires all cities within Seismic Hazard Zone IV to identify and mitigate unsafe buildings. In accordance with this code, the city of San Bernardino has enacted ordinances requiring all nonreinforced masonry buildings be upgraded to current engineering standards and submittal of liquefaction reports for proposed projects in areas susceptible to liquefaction (City of San Bernardino, 1989b and 1990).

3.4.2 Water Resources

Water resources include surface and groundwater resources and addresses water quality, supply, and drainage considerations. The ROI for water resources includes the base and surrounding areas that would be affected by changes in water usage. The ROI for groundwater includes a 230-square mile area within the SBVMWD, which includes the San Bernardino basin and several other groundwater basins in the San Bernardino Valley. The SBVMWD obtains most of its water from groundwater resources but also has rights to state surface water and runoff from the Big Bear Lake area to supplement groundwater supplies. There are no coastal areas or wild and scenic rivers within the ROI.

3.4.2.1 Surface Water. The base is within the upper Santa Ana River drainage. The headwaters are in the San Bernardino Mountains, and the river passes along the southern portion of the base (Figure 3.4-1). Water diversions and infiltration cause the streambed to be dry most of the year in the vicinity of the base. Storm control embankments (levees) along the



EXPLANATION

- Intermittent Stream or Ditch
- Surface Drainage Divide
- Overland Surface Drainage Direction
- Base Boundary
- 100 Year Flood Plain

Surface Drainage and Flood Zone

0 750 1500 3000 Feet

Sources: Ecology and Environment, 1989.
Engineering Science 1982; FEMA, 1983;
and City of San Bernardino, 1988.

Figure 3.4-1

southern portion of the base protect the base from occasional heavy surface runoff and potential floodwaters. Two tributaries of the Santa Ana River pass along the northern part of the base. City Creek flows westward along the northern base boundary into Warm Creek, which flows south into the Santa Ana River.

EO 11988 (Floodplain Management) establishes procedures for federal actions involving floodplains. The majority of Norton AFB is above the 100-year flood zone of the Santa Ana River; however, the entire golf course area, open areas along the southern base boundary, and the IWTP are within this flood zone (see Figure 3.4-1). In addition, the majority of the base could be subject to flooding and erosion from major storm events that would exceed the 100-year floodplain level (U.S. Army Corps of Engineers, 1988).

The Santa Ana River drainage acts as the principal source of recharge to the Bunker Hill groundwater basin. There are several artificial infiltration basins upstream of Norton AFB which collect surface water for groundwater recharge.

Big Bear Lake is the only significant body of water upstream of the base. It has a storage capacity of 73,370 acre-feet, and it is located 24 miles upstream from the base. Any flooding resulting from failure of the dam at the lake would be contained within the 100-year flood zone (Bethel, 1991).

Wetlands have been identified on Norton AFB and are discussed under Section 4.3.5.4, Sensitive Habitats.

Surface Water Quality. The quality of surface water in the upper Santa Ana River basin from the crystalline terrain of the San Bernardino Mountains is generally excellent (Ecology and Environment, 1989). Testing of on-base effluents during periods of storm runoff has shown the water quality to be generally good. Occasionally, traces of oils and solvents have been identified during testing; however, these rarely exceed water quality standards.

Surface Drainage. Controlled storm water drainage of the land area on Norton AFB generally consists of surface flow to diversion structures and collection pipes to local surface streams. There are eleven points for storm water drainage discharge around the boundary of the base (U.S. Air Force, 1990e). The point discharge that includes storm water runoff from the runway and support areas is regulated under National Pollutant Discharge Elimination System (NPDES) permit CA0002062. The IWTP discharge is regulated by the Regional Water Quality Control Board. In general, the northern portion of the base drains into City Creek, the western portion drains to Warm Creek, while the eastern and southern sections of the base drain directly to the Santa Ana River (see Figure 3.4-1).

3.4.2.2 Groundwater. The base is within the San Bernardino Groundwater Basin, comprising approximately 110 square miles in the northwest part of the San Bernardino fault block. The San Bernardino Basin can be divided into three water-bearing zones (aquifers) separated by three confining members. The middle and lower water-bearing zones are separated by the lower confining member. These two zones are hydraulically connected and are considered a single aquifer 500 to 700 feet thick (Hardt and Hutchinson, 1978). This aquifer is separated from the upper water-bearing zone by a 200- to 300-foot thick, low permeability confining member. The upper water-bearing zone is approximately 200 feet thick. It is overlain by the upper confining member at a depth of 60 to 90 feet. Borings indicate there are discontiguous perched water zones above the upper confining member (Ecology and Environment, 1989). Perched water tables are present between 50 and 70 feet below the ground surface under much of Norton AFB (CDMFPC, 1991). Groundwater levels in the eastern portion of the base range from 70 to 120 feet below the surface.

Regional groundwater flow in the upper water-bearing zone on Norton AFB is generally toward the southwest. The average horizontal gradient across the base is about 0.5 percent, and the average groundwater velocity is 1 foot/day. The vertical gradient at all locations across the base is downward.

Groundwater recharge occurs predominantly in the San Bernardino Basin by infiltration in the coarse, permeable sediments near the base of the San Bernardino Mountains and the Santa Ana River drainage. Artificial recharge began early in the century using spreading basins in the foothills. Use of imported water from northern California for recharging the basin began in the early 1970s (Hardt and Hutchinson, 1978). Recharge also occurs by groundwater flowing in from the San Timoteo Basin to the southeast (Ecology and Environment, 1989). Discharge of groundwater from the basin occurs as: (1) extraction from water wells, (2) underflow across the San Jacinto fault at the Colton Narrows, and (3) flow to the Rialto-Colton groundwater basin to the southeast.

Safe yield of the groundwater within the ROI is dependent on various hydrologic and adjudicatory factors. Based on established safe yields and/or historic sustained extraction levels, the groundwater basins in the SBVMWD are potentially able to sustain a supply of between 250,000 and 300,000 acre-feet per year (af/yr) (Camp Dresser and McKee, 1990). For this analysis, it is assumed that the safe yield is 275,000 acre-feet per year. The San Bernardino Basin represents about 85 percent of this groundwater supply.

In 1989, approximately 249,000 acre-feet, or 83 percent of the water supply in the ROI, was extracted from groundwater basins. The remaining 17 percent was supplied from supplemental sources such as surface water

and the State Water Project. At the time of base closure, it is estimated that water demand in the ROI will be about 306,000 af/yr. Based on current practice, a portion of that demand will be met through groundwater sources and a portion through supplemental sources. Assuming the percentages will be comparable to the percentages experienced in 1989, it can be expected that the groundwater extraction levels in 1994 will be approximately 254,000 af/yr, which is still below the safe yield of the basins in the SBVMWD.

Groundwater wells supply a large percentage of the water to the base. The base has a system of four production wells (see Section 3.2.4.1). Wells #5 and 11 are the two highest producers with a combined production of 3,700 gpm. Wells #2, 3, and 5 draw water from the lower water-bearing zone. Well #11 draws from the middle and lower water-bearing zones (CDMFPC, 1991).

Groundwater Quality. Water derived from the deep water-bearing zones is generally of good quality (Ecology and Environment, 1989). In the shallow upper aquifer, TCE and tetrachloroethylene (PCE) have been identified as groundwater contaminants not only on Norton AFB, but in areas upgradient to the base (Ecology and Environment, 1989). Other contaminants within this aquifer include benzene, dichlorobenzene, toluene, and dichloroethane. A TCE plume which originated on base and is primarily located in the central base area has been detected in the subsurface and is migrating through the shallow upper aquifer in the general direction of groundwater movement, to the southwest. No contamination above acceptable levels has been detected in potable water supply wells on the base. A work plan has been prepared to assess these issues and evaluate mitigations by conducting an RI/FS (CDMFPC, 1991).

3.4.3 Air Quality

Air quality in a given location is described by the concentration of various pollutants in the atmosphere, generally expressed in units of 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 state ambient air quality standards. These standards represent the maximum allowable atmospheric concentrations that may occur and still protect public health and welfare, with a reasonable margin of safety. The federal standards are established by the U.S. EPA and termed the National Ambient Air Quality Standards (NAAQS). The state standards are established by the California Air Resources Board (CARB) and are termed the California Ambient Air Quality Standards (CAAQS). The NAAQS and CAAQS are presented in Table 3.4-1. The main pollutants of concern in the area are ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_x), nitrogen

Table 3.4-1. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California Standard[a,c]	National Standards[b]	
			Primary[c,d]	Secondary[c,e]
Ozone	1-hour	0.09 ppm (180 μg/m³)	0.12 ppm (235 μg/m³)	Same as primary standard
Carbon monoxide	8-hour	9 ppm (10,000 μg/m³)	9 ppm (10,000 μg/m³)	--
	1-hour	20 ppm (23,000 μg/m³)	35 ppm (40,000 μg/m³)	--
Nitrogen dioxide	Annual average	--	0.053 ppm (100 μg/m³)	Same as primary standard
	1-hour	0.25 ppm (470 μg/m³)	--	--
Sulfur dioxide	Annual average	--	0.03 ppm (80 μg/m³)	--
	24-hour	0.04 ppm (105 μg/m³)	0.14 ppm (365 μg/m³)	--
	3-hour	--	--	0.5 ppm
	1-hour	0.25 ppm (655 μg/m³)	--	(1,300 μ/m³)
PM_{10}	Annual	30 μg/m³ [f]	50 μg/m³ [g]	Same as primary standard
	24-hour	50 μg/m³	150 μg/m³	
Sulfates	24-hour	25 μg/m³	--	--
Lead	30-day	1.5 μg/m³	--	--
	Quarterly	--	1.5 μg/m³	Same as primary standard
Hydrogen sulfide	1-hour	0.03 ppm (42 μg/m³)	--	--
Vinyl chloride	24-hour	0.010 ppm (26 μg/m³)	--	--
Visibility[h]	8-hour (10 a.m. to 6 p.m., 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%. CARB Method V.	--	--

Notes:
(a) California standards for ozone, carbon monoxide, sulfur dioxide (1 hour and 24-hour), nitrogen dioxide, particulate matter (PM_{10}), and visibility reducing particles are values that are not to be exceeded. The sulfates, lead, hydrogen sulfide, and vinyl chloride, 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 calendar year, with maximum hourly average concentrations above the standards, is equal to or less than one.
(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 milliber); ppm in this table refers to parts per million 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.
(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 U.S. EPA.
(f) Calculated as geometric mean.
(g) Calculated as arithmetic mean.
(h) 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.

Source: California Air Resources Board, 1992.

dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter less than 10 microns in diameter (PM_{10}). NO_x include all oxide species of nitrogen. NO_x are of concern because of their potential contribution to ozone formation. Only that portion of total NO_x that is measurable as NO_2 is subject to the NAAQS and CAAQS. The previous NAAQS for particulate matter were based upon total suspended particulate (TSP) levels and were replaced in 1987 by an ambient standard based only on the PM_{10} fraction of TSP.

Lead is not addressed in this EIS because there are no known lead emission sources in the region nor included in the reuse alternatives. Lead concentrations are monitored in a number of high population density areas throughout the state and all sites meet the quarterly and monthly standard of 1.5 $\mu g/m^3$.

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 SCAQMD. Information on pollutant concentrations measured for short-term (24 hours or less) and long-term (annual) averaging periods is extracted from the monitoring station data in order to characterize the existing air quality background of the area. Emission inventory information for the affected environment was obtained from the CARB and from Norton AFB. Inventory data are separated by pollutant and reported in pounds per day or tons per day in order to describe the baseline conditions of pollutant emissions in the area.

Identifying the ROI for 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, its precursors, and NO_2), the ROI is generally limited to an area within a few miles downwind from a source.

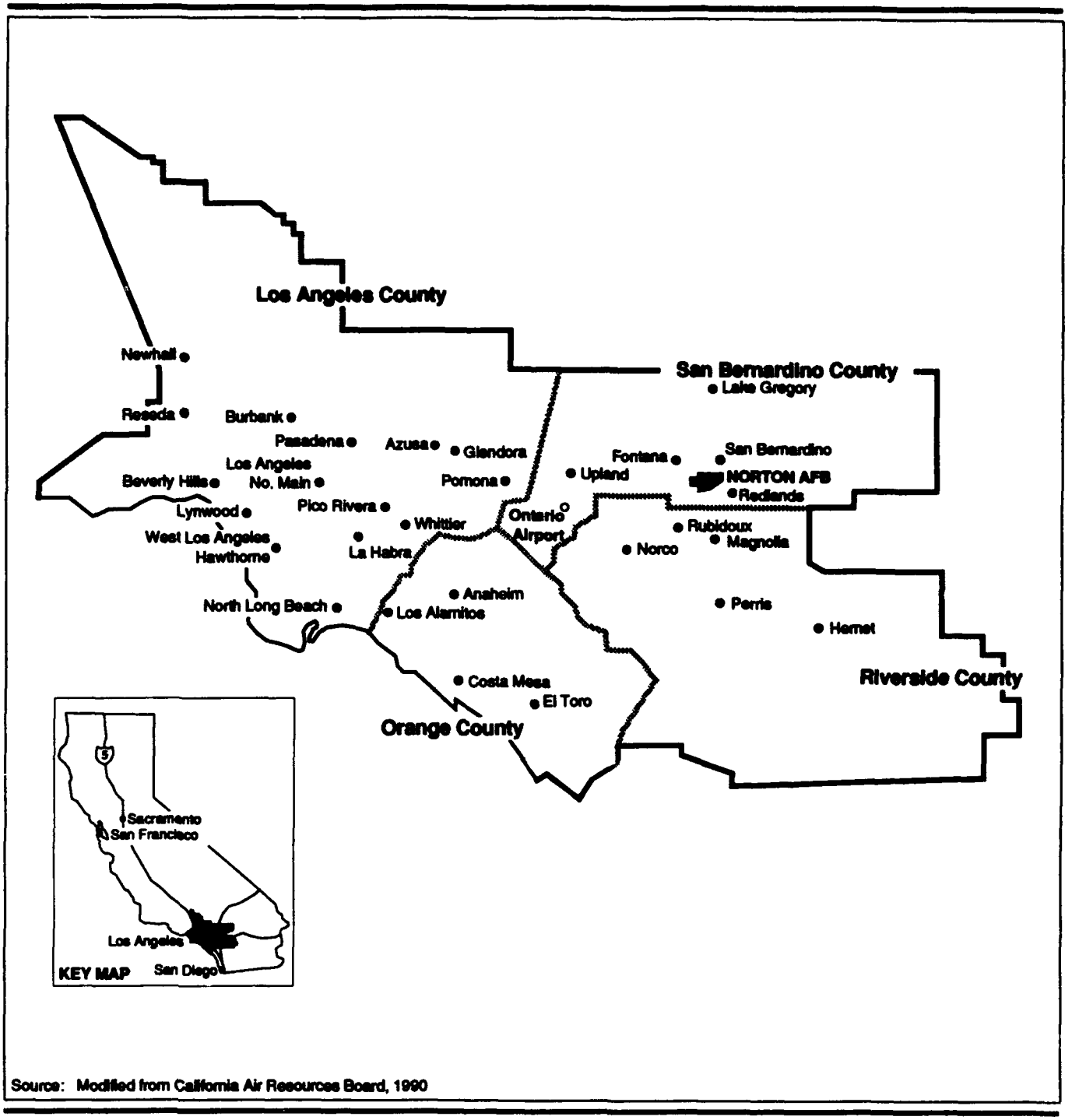
Ozone is a secondary pollutant formed in the atmosphere by photochemical reactions of previously emitted pollutants, or precursors. Ozone precursors are mainly reactive organic gases (ROGs) in the form of hydrocarbons and NO_x. ROGs are a subset of the group of volatile organic compounds (VOCs) which are compounds containing carbon, excluding CO, carbonic acid, metallic carbides, metallic carbonates, and ammonium carbonate. ROGs are gaseous forms of VOCs, and do not include methane or other nonreactive methane and ethane derivatives. NO_x is the designation given to the group of all oxygenated nitrogen species, including nitrous oxide (N_2O), nitric oxide (NO), NO_2, nitrogen trioxide (NO_3), nitrogen tetroxide (N_2O_4), nitric anhydride (N_2O_5), and nitrous anhydride (N_2O_3). These compounds can exist in air. However, only three, N_2O, NO, and NO_2, are found in any appreciable quantities.

The ROI for ozone may extend much farther downwind than the ROI for inert pollutants. In the presence of solar radiation, the maximum effect of precursor emissions on ozone levels usually occurs several hours after they are emitted and, therefore, many 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 periods of maximum solar radiation. Maximum ozone concentrations tend to be regionally distributed because precursor emissions are homogeneously dispersed in the atmosphere.

Like ozone, NO_2 emissions related to the Proposed Action and alternatives are also regionally distributed. NO_2 is formed primarily by the conversion of NO to NO_2 in the presence of oxygen (either during combustion or in the atmosphere). NO is produced by fuel combustion in both stationary and mobile sources such as automobiles and aircraft. The amount of NO production is dependent upon the combustion temperature and the rate of exhaust gas cooling. Higher temperatures and rapid cooling rates produce greater quantities of NO. Where higher NO concentrations and temperatures exist, some of the NO is immediately oxidized to NO_2. The amount of immediate NO_2 combustion generation generally varies from 0.5 to 10 percent of the NO present (U.S. Environmental Protection Agency, 1971). The remaining unconverted NO is oxidized to NO_2 in the atmosphere primarily through photochemical secondary reactions initiated by the presence of sunlight. These photochemical reactions may take place hours after the initial NO release and many miles from the original source, dependent upon the prevailing meteorological conditions.

For the purpose of this air quality analysis, the ROI for emissions of ozone precursors and NO_2 from the reuse-related construction and operational activities would be the existing airshed surrounding Norton AFB, the South Coast Air Basin (SCAB).

The SCAB consists of the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County. The SCAB is bounded on the west by the Pacific Ocean; on the north and east by the San Gabriel, San Bernardino, and San Jacinto mountains; and on the south by the San Diego County line. Reuse-related emissions of ROG, NO_x, and NO_2 are compared to emissions generated within the SCAB. The ROI for emissions of the inert pollutants (CO, SO_2, and PM_{10}) is limited to the more immediate area of Norton AFB. Reuse-related emissions of inert pollutants are compared to the San Bernardino County portion of the total SCAB emissions as a means of assessing potential changes in air quality. Outlines of the SCAB and the San Bernardino County portion of the SCAB are shown in Figure 3.4-2.



Source: Modified from California Air Resources Board, 1990

EXPLANATION

- ● Gaseous pollutant or multipollutant monitoring site
- ○ Particulate sampling only

South Coast Air Basin

0 10 20 30 Miles

Figure 3.4-2

The CAA, 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 local 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.

3.4.3.1 Regional Air Quality. The air quality of the SCAB is greatly influenced by three major meteorological conditions: wind, inversion layer height, and temperature. Winds play a vital role in determining air quality conditions by dispersing air pollutants. Due to light average windspeeds (less than 5.7 miles per hour), the SCAB has a limited capacity to effectively disperse air contaminants horizontally (SCAQMD, 1987). The predominant daily wind pattern is a daytime sea breeze and a nighttime land breeze. Coupled with light winds, the repeating pattern of on-shore/off-shore winds can at times produce a sloshing of pollutants between the ocean and land areas, and lead to a subsequent buildup of pollutant concentrations throughout the basin.

Like horizontal dispersion, vertical dispersion is also generally limited in the SCAB. The presence of a persistent temperature inversion in the layer of the atmosphere near the surface of the earth hampers the vertical dispersion of pollutants. This inversion layer produces a "ceiling" that traps air pollutants and inhibits mixing with the air above. As a result, trapped air pollutants become more and more concentrated until the inversion layer lifts, is broken up, or strong surface winds disperse the pollutants horizontally. The basinwide average occurrences of inversions with a height of 3,500 feet above sea level or less is 191 days each year (SCAQMD, 1987). Temperature affects the air quality of the SCAB in two ways: the first is its effect on the height of the inversion layer, and the second is its effect on the temperature of operation of automobile exhaust control systems. Lower winter temperatures reduce the probability that the air nearest the surface will heat sufficiently to break through the inversion layer. Lower winter temperatures also cause automobile exhaust systems to run in colder mode for a longer period of time; consequently, catalytic converters may not heat up adequately to allow efficient conversion of CO exhaust to carbon dioxide (CO_2).

According to U.S. 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 U.S. EPA to form a basis of attainment status. The CARB 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. Currently the SCAB is designated by both U.S. EPA and CARB as being in attainment of the NAAQS for SO_2 but nonattainment for O_3, CO, NO_2, and PM_{10} (SCAQMD, 1991).

According to the federal classification, the SCAB is designated as being in the "extreme" ozone nonattainment category (ozone concentrations greater than 0.28 ppm). An area designated as "extreme" is subject to a number of special requirements, including provisions for use of Reasonable Available Control Technology on all major sources, vapor recovery and motor vehicle inspection and maintenance programs, offsets, transportation control measures, and reductions in VOCs. Areas with classifications other than "extreme" are subject to less stringent requirements. Attainment for extreme ozone classification areas must be achieved by November 15, 2010.

SCAB is also designated as "serious" nonattainment for the federal CO (greater than 16.4 ppm) and PM_{10} standards. An area designated as "serious" for CO must implement various special requirements, including use of oxygenated fuels, employing enhanced motor vehicle inspection and maintenance program, providing attainment demonstrations, and implementation of transportation control measures. Attainment of the CO NAAQS is required by the year 2000.

SCAB was designated "serious" PM_{10} nonattainment because the proposed SIP for SCAB projects nonattainment of the 24-hour PM_{10} NAAQS until the year 2000 and nonattainment of the annual PM_{10} NAAQS until year 2006. These projections exceed the "moderate" PM_{10} attainment deadline of December 31, 1994. The basinwide emissions inventory indicates 91 percent of primary PM_{10} emissions result from area sources, primarily reentrained road dust. The projected increases in population and vehicle miles traveled will result in an expected increase of PM_{10} emissions from 663 tons/day in 1987 to 1,025 tons/day in 2010. In addition to the widespread sources of primary PM_{10} emissions, source contribution estimates indicate secondarily formed particles (nitrates and sulfates) can contribute as much as 52 percent of the 24-hour PM_{10} mass and as much as 37 percent of the annual PM_{10} mass. The success of SCAB's attainment strategy depends on the control of important precursors to PM_{10} including NO_x, SO_x, and VOCs.

The SCAB is also designated by the CARB as an "extreme" nonattainment area for the O_3 CAAQS. The designation "extreme" is given to an area if its ozone design day value concentration is greater than 0.20 ppm. The design day value is defined as the fourth highest pollutant concentration recorded in a 3-year period. Extreme nonattainment areas such as the SCAB are required by the California Clean Air Act (CCAA) to implement new control measures. These control measures include indirect and area source control

programs, application of Best Available Retrofit Control Technology (BARCT) to existing stationary sources, a modification of the permitting program to achieve no net increase of emissions from new or modified stationary sources, consideration of transportation control measures, and significant use of low-emission motor vehicles by operators of motor vehicle fleets.

The CCAA also includes some additional requirements that can significantly affect control strategy selection. These additional requirements are: reducing pollutants contributing to nonattainment by 5 percent per year (an exception to the 5 percent per year reduction requirement is allowed if all feasible measures to control emissions are considered in the attainment planning process); achieving an average commuter ridership of 1.5 persons per vehicle by 1999; no net increase in mobile source emissions after 1997; substantial decrease in growth of vehicle miles traveled (VMT) and vehicle trips; public education programs; reducing population exposure to severe nonattainment pollutants according to a prescribed schedule; and ranking control measures by cost effectiveness and implementation priority.

The SCAQMD has developed the Final 1991 AQMP to meet the requirements of the CCAA. Upon approval by the U.S. EPA, the AQMP will be incorporated into the State Implementation Plan (SIP) and also used to satisfy a number of the requirements of the federal CAA.

The 1991 AQMP, as previously submitted by CARB to U.S. EPA as SCAB's portion of the SIP, did not fulfill all of the requirements of the federal CAA. As a result, the 1991 AQMP was revised by SCAQMD in July 1992.

As part of its revisions to the 1991 AQMP, SCAQMD proposed a novel concept of combining all emission sources at the facility level and requiring the entire facility to meet prescribed annual emissions targets (a concept known as "bubbling" of emission sources). This plan, Regional Clean Air Incentives Market (RECLAIM), represents a significant departure from the current traditional "command and control" regulatory approach. The AQMP revisions incorporating RECLAIM replaced numerous control measures originally developed for the 1991 AQMP. Under RECLAIM, each facility would be allowed to achieve required emissions reductions of certain pollutants (ROGs, NO_x, and SO_x) through a choice of add-on controls, use of reformulated products, and/or purchasing excess emission reductions from other facilities. However, CARB indicated that RECLAIM would not be forwarded to U.S. EPA as part of the revised South Coast portion of the SIP. Instead, CARB will enforce RECLAIM under the CCAA. In February 1993, SCAQMD released a new version of its RECLAIM rule. SCAQMD cautioned that the rules for RECLAIM may not be in place by the July 1993 deadline imposed by CARB for SCAQMD to have RECLAIM in place. CARB indicated that if the deadline is not met, SCAQMD will be required to revert to "command and control" regulations.

In addition to being subject to control measures contained in the approved SIP, new or modified major stationary sources in the area of Norton AFB would be subject to Prevention of Significant Deterioration (PSD) review to ensure that these sources are constructed without significant adverse deterioration of the clean air in the area. Emissions of attainment or unclassifiable pollutants from any new or modified source must be controlled using Best Available Control Technology (BACT). Since SO_2 is the only attainment pollutant in the area of Norton AFB, the SO_2 air quality impacts in combination with other PSD sources in the area must not exceed the maximum allowable incremental increases identified in Table 3.4-2. Certain national parks and wilderness areas are designated as Class I areas, where any appreciable deterioration in air quality is considered significant. Class II areas are those where moderate, well-controlled industrial growth could be permitted. Class III areas allow for greater industrial development. The area surrounding Norton AFB is designated by the U.S. EPA as Class II.

Table 3.4-2. Maximum Allowable Pollutant Concentration Increases under PSD Regulations

		Maximum Allowable Increment (μg/m3)		
Pollutant	Averaging Time	Class I	Class II	Class III
SO_2	Annual	2	20	40
	24-hour	5	91	182
	3-hour	25	512	700

Notes: Class I areas are regions in which the air quality is intended to be kept pristine, such as national parks and wilderness areas. All other lands are initially designated Class II. Individual states have the authority to redesignate Class II lands to Class III to allow for maximum industrial use.

Source: 40 CFR Part 52.21.

The SCAQMD currently operates air quality monitoring stations throughout the SCAB (see Figure 3.4-2). However, ambient air quality is not measured within the boundary of Norton AFB. The nearest monitoring stations are located in the cities of San Bernardino (approximately 2 miles west of Norton AFB), Redlands (approximately 6 miles southeast), Fontana (approximately 13 miles west), and two stations in Riverside (Rubidoux, approximately 12 miles west-southwest and Magnolia, approximately 13 miles southwest). The San Bernardino and Riverside stations monitor levels of CO, NO_2, O_3, SO_2, PM_{10}, and lead. The Fontana station measures all criteria pollutants except lead. The Redlands station measures only O_3 concentrations.

The SCAB is in nonattainment for O_3, CO, NO_2, and PM_{10}. However, only the 1-hour ozone standard, the 8-hour CO standard, and the annual and 24-hour PM_{10} standards have been exceeded at the three monitoring stations in the vicinity of Norton AFB during the time period 1989 through 1991 (Table 3.4-3). The federal O_3 standard was exceeded an average of 93 days per year during the 1989-1991 period, while the state standard was exceeded an average of 143 days. The federal and state 8-hour CO standards were exceeded on one day in 1989. Annual and 24-hour state and federal PM_{10} standards were exceeded in each of the years 1989 through 1991.

Preclosure Reference. Preclosure pollutant concentrations due to aircraft emissions in the immediate area of the base runways were estimated with the Emissions and Dispersions Modeling System (EDMS). The results of the EDMS modeling for preclosure conditions are provided in Table 3.4-4. The values in Table 3.4-4 represent the maximum concentrations that occurred as a result of aircraft operations at receptors located near the property line downwind from the ends of the runway.

Closure Baseline. It can be reasonably assumed that pollutant concentrations in the area of Norton AFB after base closure would be less than concentrations experienced under preclosure conditions due to the implementation of regional air emission control measures. Pollutant concentrations in the area of the base itself would be less than preclosure levels due to the reduction or elimination of numerous emission sources associated with normal base activities (e.g., all current aircraft and aerospace ground activities would be eliminated). The closure would also reduce the number of motor vehicles operating in the surrounding area. Emissions associated with vehicles assigned to the base, military and civilian employee commuting, military retiree visits to Norton AFB facilities, and truck traffic associated with base operations would all be eliminated. These reductions in motor vehicle emissions would be offset somewhat by increases associated with commuting by local employees transferred to March AFB and by travel of local retirees to use facilities at March AFB. However, the net change would be a reduction in vehicle emissions in the Norton AFB area.

3.4.3.2 Air Pollutant Emission Sources

Preclosure Reference. The most recent emission inventories for Norton AFB, the SCAB, and the San Bernardino County portion of the SCAB are presented in Table 3.4-5. The emission inventory of stationary sources and mobile sources on Norton AFB is representative of direct preclosure emissions in 1987-1988. The inventories for the SCAB and the San Bernardino County portion of the SCAB represent 1987 data. The primary emission sources from the base include base-related flying operations, engine maintenance, motor vehicles, fire training exercises, boilers,

Table 3.4-3. Existing Air Quality in the Area of Norton AFB
Page 1 of 3

Pollutant/Monitoring Station	Averaging Time	Unit of Measure	Maximum Concentration by Year			Number of Days: Federal Standards Exceeded[a]			Number of Days: State Standards Exceeded[a]		
			1989	1990	1991	1989	1990	1991	1989	1990	1991
Ozone											
Fontana	1-hour	ppm	0.32	0.27	0.29	113	92	74	155	132	120
		($\mu g/m^3$)	(637)	(537)	(577)						
Riverside (Rubidoux)			0.27	0.29	0.24	113	90	79	172	142	139
			(537)	(577)	(478)						
Redlands			0.27	0.30	0.25	116	81	91	164	131	145
			(537)	(597)	(498)						
San Bernardino			0.30	0.29	0.25	115	78	79	159	129	127
			(597)	(577)	(498)						
Nitrogen Dioxide											
Fontana	Annual	ppm	.036	.034	0.38	0	0	0	NA	NA	NA
		($\mu g/m^3$)	(69)	(65)	(72.6)						
Riverside (Rubidoux)			.036	.034	0.35	0	0	0	NA	NA	NA
			(69)	(65)	(66.9)						
San Bernardino			.041	.034	0.36	0	0	0	NA	NA	NA
			(78)	(65)	(68.8)						
Fontana	1-hour	ppm	0.18	0.20	0.19	NA	NA	NA	0	0	0
		($\mu g/m^3$)	(345)	(382)	(363)						
Riverside (Rubidoux)			0.16	0.16	0.16	NA	NA	NA	0	0	0
			(306)	(306)	(306)						
San Bernardino			0.18	0.20	0.16	NA	NA	NA	0	0	0
			(345)	(306)	(306)						
Carbon Monoxide											
Fontana	8-hour	ppm	5.80	4.90	4.40[b]	0	0	0	0	0	0
		($\mu g/m^3$)	(6,728)	(5,684)	(5,104)						
Riverside (Magnolia)			8.50	7.30	6.90	0	0	0	0	0	0
			(9,860)	(9,698)	(8,004)						
Riverside (Rubidoux)			10.30	6.30	7.40	1	0	0	1	0	0
			(11,948)	(8,364)	(8,584)						

Notes: NA = Not applicable; ND = No data.
(a) PM_{10} 24-hour standard exceedance is measured as percentage of time samples exceeded standard, rather than as number of days standard was exceeded. Percentage is used because PM_{10} sampling is not performed on a daily basis.
(b) Data presented are valid, but incomplete in that insufficient number of valid data points were collected to meet the U.S. EPA and/or the CARB criteria for representativeness.

Table 3.4-3. Existing Air Quality in the Area of Norton AFB
Page 2 of 3

Pollutant/Monitoring Station	Averaging Time	Unit of Measure	Maximum Concentration by Year			Number of Days: Federal Standards Exceeded[a]			Number of Days: State Standards Exceeded[a]		
			1989	1990	1991	1989	1990	1991	1989	1990	1991
San Bernardino			8.10 (9,396)	6.00 (6,960)	7.00 (8,120)	0	0	0	0	0	0
Fontana	1-hour	ppm ($\mu g/m^3$)	7.0 (8,120)	6.0 (6,960)	6.0[b] (6,960)	0	0	0	0	0	0
Riverside (Magnolia)			14.0 (16,240)	15.0 (17,400)	14.0 (16,240)	0	0	0	0	0	0
Riverside (Rubidoux)			12.0 (13,920)	10.0 (11,600)	8.0 (9,280)	0	0	0	0	0	0
San Bernardino			11.0 (12,760)	9.0 (10,440)	8.0 (9,280)	0	0	0	0	0	0
Sulfur Dioxide											
Fontana	Annual	ppm ($\mu g/m^3$)	.001 (2.65)	.000	.000 (<1.0)	0	0	0	NA	NA	NA
Riverside (Rubidoux)			.001 (2.65)	.000	.000 (<1.0)	0	0	0	NA	NA	NA
San Bernardino			.001 (2.65)	.000[b]	ND (ND)	0	0	ND	NA	NA	NA
Fontana	24-hour	ppm ($\mu g/m^3$)	.007 (18.6)	.003 (8.0)	0.14 (37.1)	0	0	0	0	0	0
Riverside (Rubidoux)			.008 (21.2)	.006 (15.9)	.009 (23.9)	0	0	0	0	0	0
San Bernardino			.007 (18.6)	.002[b] (5.3)	ND (ND)	0	0	ND	0	0	ND
Fontana	1-hour	ppm ($\mu g/m^3$)	0.03 (79.5)	0.01 (26.5)	0.05 (133)	NA	NA	NA	0	0	0
Riverside (Rubidoux)			0.02 (53.0)	0.03 (79.5)	0.02 (53)	NA	NA	NA	0	0	0
San Bernardino			0.03 (79.5)	0.01 (26.5)	ND (ND)	NA	NA	NA	0	0	ND

Notes: NA = Not applicable; ND = No data.

(a) PM_{10} 24-hour standard exceedance is measured as percentage of time samples exceeded standard, rather than as number of days standard was exceeded. Percentage is used because PM_{10} sampling is not performed on a daily basis.

(b) Data presented are valid, but incomplete in that insufficient number of valid data points were collected to meet the U.S. EPA and/or the CARB criteria for representativeness.

Table 3.4-3. Existing Air Quality in the Area of Norton AFB
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Pollutant/Monitoring Station	Averaging Time	Unit of Measure	Maximum Concentration by Year			Number of Days: Federal Standards Exceeded[a]			Number of Days: State Standards Exceeded[a]		
			1989	1990	1991	1989	1990	1991	1989	1990	1991
PM_{10}											
Fontana	Annual	µg/m³	68.5	62.7	56.6[b]	NA	NA	NA	1	1	1
Riverside (Rubidoux)	(geometric)		81.3	66.9	65.5	NA	NA	NA	1	1	1
San Bernardino			69.2	54.8	52.0	NA	NA	NA	1	1	1
Fontana	Annual	µg/m³	77.1	77.6	62.6[b]	1	1	1	NA	NA	NA
Riverside (Rubidoux)	(arithmetic)		94.2	78.4	76.0	1	1	1	NA	NA	NA
San Bernardino			80.5	65.0	60.6	1	1	1	NA	NA	NA
Fontana	24-hour	µg/m³	227	475	127	3.3%	5.1%	0%	77.0%	72.8%	64.8
Riverside (Rubidoux)			252	207	179	11.5%	4.9%	3.3%	83.6%	70.1%	68.3
San Bernardino			271	235	163	5.1%	3.3%	1.7%	74.6%	58.3%	68.3
Lead											
Riverside (Magnolia)	Calendar	µg/m³	0.06	0.08	0.06	0	0	0	NA	NA	NA
Riverside (Rubidoux)	quarter		*0.05*	*0.09*	0.04	0	0	0	NA	NA	NA
San Bernardino			0.07	0.07	0.05	0	0	0	NA	NA	NA
Riverside (Magnolia)	30-day	µg/m³	0.07	0.05	0.08	NA	NA	NA	0	0	0
Riverside (Rubidoux)			0.07	0.04	0.05	NA	NA	NA	0	0	0
San Bernardino			0.09	0.05	0.06	NA	NA	NA	0	0	0

Notes: NA = Not applicable; ND = No data.
(a) PM_{10} 24-hour standard exceedance is measured as percentage of time samples exceeded standard, rather than as number of days standard was exceeded. Percentage is used because PM_{10} sampling is not performed on a daily basis.
(b) Data presented are valid, but incomplete in that insufficient number of valid data points were collected to meet the U.S. EPA and/or the CARB criteria for representativeness.

Sources: California Air Resources Board, 1988, 1989, 1990b, and 1991.

Table 3.4-4. Air Quality Modeling Results for Preclosure Conditions in the Vicinity of the Runways at Norton AFB, ppm ($\mu g/m^3$)

Pollutant	Averaging Time	Maximum Impact[a]	Background Concentration[b]	Limiting Standard[c]
Carbon monoxide	8-hour	0.01 (12.2)	6.91 (8,014)	9 (10,000)
	1-hour	0.05 (55.2)	10.0 (11,600)	20 (23,000)
Sulfur dioxide	Annual	<0.0001 (0.011)	<0.001 (1)	0.03 (80)
	24-hour	0.0004 (0.98)	0.007 (19)	0.04 (105)
	3-hour	0.002 (4.78)	0.025 (66)	0.5 (1,300)
	1-hour	0.004 (9.36)	0.025 (66)	0.25 (655)
PM_{10}	Annual (arithmetic)	NA (0.02)	NA (75)	NA (50)
	Annual (geometric)	NA (0.02)	NA (64)	NA (30)
	24-hour	NA (1.50)	NA (237)	NA (50)

Notes:
(a) Maximum impact in all cases occurred at receptors located near the property lines downwind from the ends of the runway.
(b) Background concentrations assumed to equal the mean of first-high values monitored at the Fontana, Riverside, and San Bernardino monitoring stations from 1989 to 1991 (refer to Table 3.4-3).
(c) Limiting standard is equal to the more stringent of the CAAQS or NAAQS (refer to Table 3.4-1).

furnaces, and incinerators. Painting and metal cleaning operations and fuel storage and handling contribute a substantial amount of the total stationary source ROG emissions (63.8 percent).

Closure Baseline. The direct emissions for Norton AFB at base closure (year 1994) are presented in Table 3.4-5. Closure emissions for the SCAB were projections for 1994 provided in the 1991 AQMP for the basin (SCAQMD, 1991). The SCAB emission projections were adjusted to include the emissions from 14 C-141 aircraft that would be transferred from Norton AFB to March AFB and, therefore, would remain within the basin. Emission projections for the San Bernardino County portion of the SCAB were not available. Emissions for San Bernardino County were therefore estimated for the year 1994 using the 1987 inventory information and the same rate of change as projected for the total basin between the years 1987 and 1994.

Despite emission increases associated with increased population growth, total emissions for all pollutants with the exception of PM_{10} will decrease in the basin during the time period 1987 to 1994 due to the effectiveness of

Table 3.4-5. Preclosure and Closure Emission Inventory

Source Category	ROG	NO_x	CO	SO_2	PM_{10}
Norton AFB Preclosure (1987-88)					
Stationary Sources (lbs/day)[a]					
Boilers, furnaces, and incinerators (11)	1.3	481.5	35.2	3.6	2.7
Internal combustion engines (3)	3.2	39.8	8.7	2.6	2.7
Jet engine testing (1)	33.3	30.0	42.9	3.0	2.5
Fire training exercises	66.3	1.0	70.6	0.3	65.5
Painting and metal cleaning operations (12)	175.6	0.0	0.0	0.0	0.0
Printing operations	8.3	0.0	0.0	0.0	0.0
Fuel storage and handling (13)	59.4	0.7	0.1	0.0	0.0
Herbicides and insecticides	0.6	0.0	0.0	0.0	0.0
Wastewater treatment plant	3.9	0.0	0.0	0.0	0.0
Subtotal Stationary Sources (lbs/day)	351.9	553.0	157.5	9.5	73.4
Mobile Sources (lbs/day)					
Aircraft flight operations					
Assigned aircraft	7,571.9	912.2	9,566.0	185.1	66.9
Transient aircraft	371.9	169.0	728.4	19.9	6.3
Aircraft engine maintenance	806.9	737.7	1,035.2	70.4	54.1
Motor vehicle operations					
Assigned vehicles	51.7	94.1	430.8	4.7	21.7
Commuting vehicles	332.6	279.6	2,260.8	16.4	131.9
Delivery trucks	75.0	370.3	827.7	17.4	66.8
Subtotal Mobile Sources (lbs/day)	9,210.0	2,562.5	15,846.9	313.9	347.7
Preclosure Total (lbs/day)	9,561.9	3,115.8	16,004.4	323.4	421.1
Preclosure Total (tons/day)	4.8	1.6	8.0	0.2	0.2
San Bernardino County Total - 1987 (tons/day)[b]	110.0	100.0	440.0	6.2	140.0
South Coast Air Basin Total - 1987 (tons/day)	1,375.0	1,208.0	4,987.0	134.0	1,075.0
Norton AFB Closure Total - 1994 (tons/day)	0.1	0.1	0.7	(c)	(c)
San Bernardino County Total - 1994 (tons/day)[d]	83.0	81.0	339.0	5.7	164.4
South Coast Air Basin Total - 1994 (tons/day)[e]	1,062.0	978.0	3,842.0	124.0	1,262.0

Notes: (a) Numbers in parentheses indicate the number of emission sources in the category.
(b) San Bernardino County inventory includes only emissions from that portion of the county within the South Coast Air Basin.
(c) Less than 0.1.
(d) Emission projections for San Bernardino County were not available. Emissions for the closure year (1994) were estimated from year 1987 emissions using the same rate of change as predicted for the South Coast Air Basin (see note below).
(e) Emission projections for the South Coast Air Basin were derived by the South Coast Air Quality Management District using: (1) emissions from the base year 1987, (2) expected controls after implementation of Air District and CARB rules adopted prior to June 30, 1990, and (3) emissions growth in various source categories between 1987 and 1994.

Sources: U.S. Air Force, 1990a; California Air Resources Board, 1990; SCAQMD, 1991.

new and increasingly stringent emission control regulations. PM_{10} emissions will increase somewhat because the effects of population growth and increased vehicle miles traveled cannot be sufficiently countered by new control strategies that are directed primarily at stationary sources. Nearly all emissions of PM_{10} (89 percent) are from area sources such as road dust, farming, fires, and other natural sources. Emissions of road dust from paved and unpaved roads, in particular, account for approximately 55 percent of all PM_{10} emissions and are directly related to VMT.

3.4.4 Noise

Noise is usually defined as sound that is undesirable because it interferes with speech communication and hearing, is intense enough to damage hearing, or is otherwise annoying (unwanted sound). The characteristics of sound include parameters such as amplitude, frequency, and duration.

Sound can vary over an extremely large range of amplitudes. The dB is the accepted standard unit for measuring the amplitude of sound. It is a logarithmic unit that accounts for the large variations in amplitude and reflects the way people perceive changes in sound amplitude. Table 3.4-6 presents examples of typical sound levels.

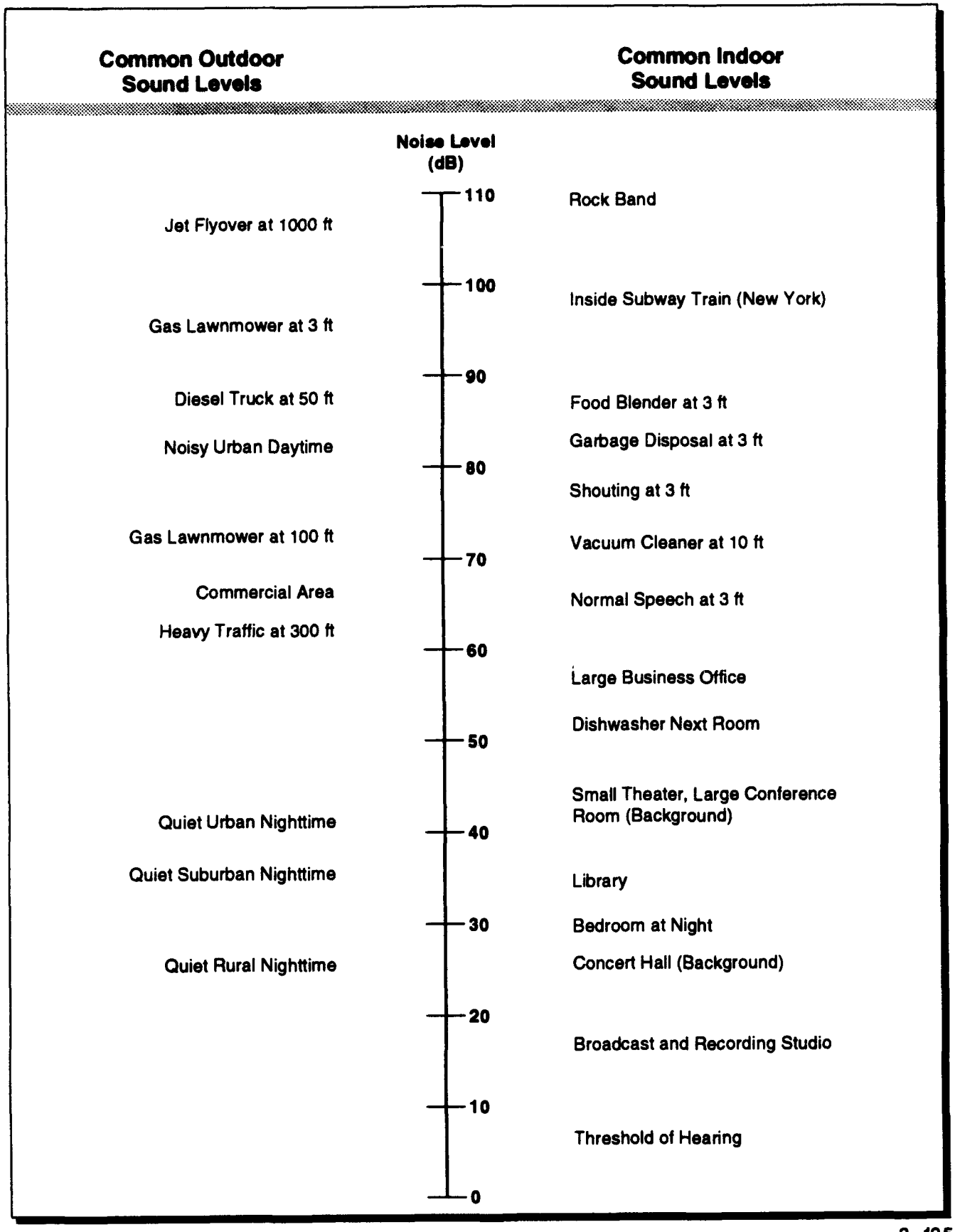
Different sounds may have different frequency content. When measuring sound to determine its effects on a human population, A-weighted sound levels are typically used to account for the frequency response of the human ear. The A-weighted sound level represents the sound level according to a prescribed frequency response established by the American National Standards Institute (1983).

Noise levels often change with time; therefore, to compare levels over different time periods, several descriptors have been developed that take into account this time-varying nature. These descriptors are used to assess and correlate the various effects of noise on man and animals, including land use compatibility, sleep interference, annoyance, hearing loss, speech interference, and startle effects.

One descriptor is the equivalent sound level (L_{eq}). The L_{eq} is the equivalent steady-state, level that would contain the same acoustical energy as the time-varying level during the same time interval. Another descriptor of time-varying sound is the sound exposure level (SEL). The SEL value represents the level integrated over the entire duration of the noise event and referenced to a duration of 1 second. When an event lasts longer than 1 second, the SEL value will be higher than the highest sound level during the event.

The DNL was developed to evaluate the total community noise environment. The DNL is the average A-weighted acoustical energy during a 24-hour

Table 3.4-6. Comparative Sound Levels



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 increased sensitivity to nighttime noise events. The DNL was adopted by the U.S. EPA and is mandated by HUD, FAA, and DOD as the accepted unit for quantifying human annoyance to general environmental noise, which includes aircraft noise. The noise descriptors used in this EIS are DNL and SEL.

The DNL is used in this report because it is the noise descriptor recognized by the FAA and Air Force for airfield environments. The DNL is sometimes supplemented with other metrics, primarily L_{eq}. Occasionally SEL is used to supplement DNL, especially where sleep disturbance is a concern.

The ROI for noise sources at Norton AFB is defined using FAA-developed land use compatibility guidelines. The area most affected by noise due to the base disposal and reuse is limited to the base property itself and adjacent communities.

Table 3.4-7 provides FAA-recommended DNL ranges for various land use categories based on the land use compatibility guidelines for noise developed by the Federal Interagency Committee on Urban Noise (U.S. Department of Transportation, 1980). The California Department of Health, Office of Noise Control has also developed land use compatibility guidelines. The Office of Noise Control guidelines give ranges of acceptable levels for noise sensitive receptors such as: (1) single family residences, (2) multi-family residences, (3) transient lodging, and (4) churches and schools. For these four categories, maximum "normally acceptable" levels range from DNL 60 to 70 dB for buildings with standard construction. A maximum "conditionally acceptable" level is given as DNL 70 dB for buildings with necessary noise insulation features included in the design of the structure. The city of San Bernardino has incorporated the Office of Noise Control guidelines in its General Plan. The San Bernardino County Noise Element also provides land use guidelines. The county gives DNL 60 dB as the acceptable external noise level for residential lands and DNL 65 dB if noise reduction is incorporated and the interior level is below DNL 45 dB.

Appendix H provides additional noise-related 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 have been the primary sources of noise in the vicinity of Norton AFB. In airport analyses, areas with DNL above 65 dB are often considered in land use

Table 3.4-7. Land Compatibility with Yearly Day-Night Average Sound Levels
Page 1 of 2

Land Use	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N[a]	N[a]	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N[a]	N[a]	N[a]	N	N
Public Use						
Schools	Y	N[a]	N[a]	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y[b]	Y[c]	Y[d]	Y[d]
Parking	Y	Y	Y[b]	Y[c]	Y[d]	N
Commercial Use						
Offices, business, and professional	Y	Y	25	30	N	N
Wholesale and retail; building materials, hardware, and farm equipment	Y	Y	Y[b]	Y[c]	Y[d]	N
Retail trade--general	Y	Y	25	30	N	N
Utilities	Y	Y	Y[b]	Y[c]	Y[d]	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y[b]	Y[c]	Y[d]	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y[f]	Y[g]	Y[h]	Y[h]	Y[h]
Livestock farming and breeding	Y	Y[f]	Y[g]	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y[e]	Y[e]	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Letters in parentheses refer to notes (see next page). 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.

Key

Y (Yes)	Land use and related structures compatible without restrictions.
N (No)	Land use and related structures are not compatible and should be prohibited.
25, 30, or 35	Land use and related structures generally compatible; measures to achieve Noise Level Reduction (NLR) of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Table 3.4-7. Land Compatibility with Yearly Day-Night Average Sound Levels
Page 2 of 2

Notes

(a) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide an NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(b) Measures to achieve an NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas or where the normal noise level is low.

(c) Measures to achieve an NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office, areas, noise-sensitive areas, or where the normal noise level is low.

(d) Measures to achieve an NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office area, noise-sensitive areas, or where the normal noise level is low.

(e) Land use compatible provided special sound reinforcement systems are installed.

(f) Residential buildings require an NLR of 25.

(g) Residential buildings require an NLR of 30.

(h) Residential buildings not permitted.

Source: Derived from Federal Aviation Regulations (FAR) Part 150 "Airport Noise Compatibility Planning."

compatibility planning and impact assessment; therefore, the contours of DNL greater than 65 dB are of particular interest.

Preclosure Reference. Aircraft noise at Norton AFB occurs during aircraft engine warmup, maintenance and testing, taxiing, takeoff, approach, and landing. Noise contours for preclosure aircraft operations were taken from the AICUZ for Norton AFB (U.S. Air Force, 1988). The noise contours for preclosure are shown in Figure 3.4-3. Only contours equal to or above DNL 65 dB are shown. There are 7,297 acres exposed to DNL 65 dB or greater as a result of preclosure aviation activity at Norton AFB. Section 3.2.2, Land Use and Aesthetics, describes land uses on and near the base.

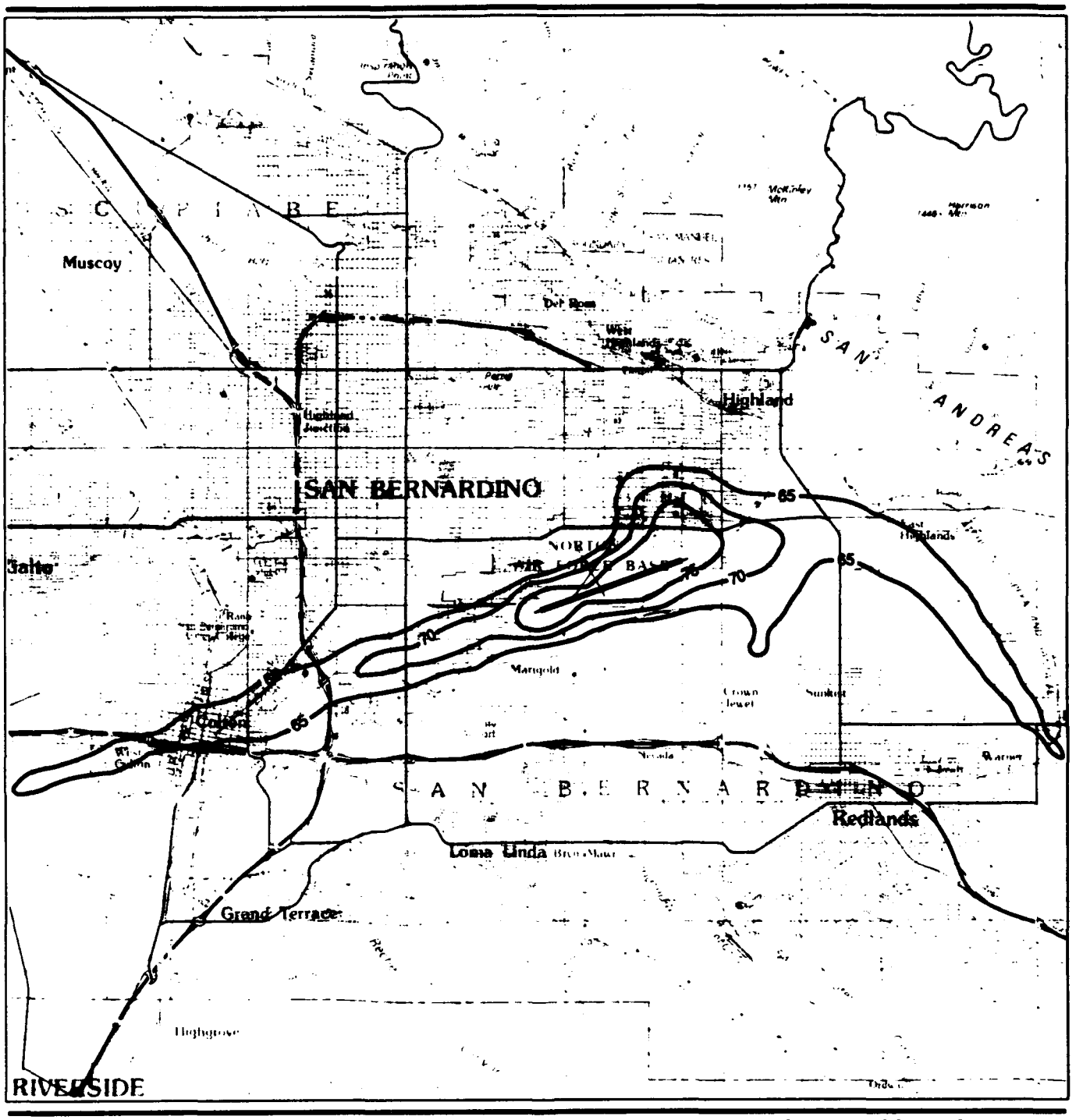
Surface vehicle traffic noise levels for roadways in the vicinity of Norton AFB were analyzed using the Federal Highway Administration (FHWA) Highway Noise Model (1978). This model incorporates vehicle mix, traffic volume projections, and speed to generate DNL. The noise levels are then presented as a function of distance from the centerline of the nearest road. The results of the modeling for surface traffic are presented in Table 3.4-8. The actual distances to the DNLs may be less than those presented in the table because the screening effects of intervening buildings, terrain, and walls were not accounted for in the modeling.

Appendix H contains the data used in the surface traffic noise analysis. These data include information on traffic volumes, mix, and speeds.

Closure Baseline. Upon closure, there would be no aircraft activity; therefore, there would be no aircraft noise. Consequently, the noise levels projected for the closure baseline were based primarily on surface traffic, and calculated using the traffic projections at base closure (see Appendix H). The results of the modeling for the roadways analyzed for the closure baseline are presented in Table 3.4-8. The actual distances to the DNLs may be less than those presented in the table because screening effects of intervening buildings, terrain, and walls were not considered. Table 3.4-8 indicates that noise levels will be reduced compared to preclosure conditions, except for Victoria Avenue, Fifth Street, and I-10. Noise along I-10 is expected to increase due to regional growth projections unrelated to base closure.

3.4.5 Biological Resources

Biological resources include the native and naturalized plants and animals in the project area. These are divided into vegetation, wildlife (including aquatic biota), threatened or endangered species, and sensitive habitats. Human activities in the immediate vicinity of Norton AFB have altered the natural environment substantially through urbanization and through channelization of the Santa Ana River.



EXPLANATION

——— DNL Noise Contours
(in 5 db intervals)

Preclosure Aircraft Noise Contours

0 2500 5000 10000 Feet

Map Source: U.S. Geological Survey, 1982

Figure 3.4-3

Table 3.4-8. Distance to DNL from Roadway Centerline for the Preclosure Reference and Closure Baseline (feet)

Roadway	DNL 65-70 dB	DNL 70-75 dB	DNL >75 dB
Preclosure			
Tippecanoe Ave	190	60	40
Mill St	160	60	20
Del Rosa Dr	70	40	*
3rd St (East)	100	40	*
3rd St (West)	100	40	*
Victoria Ave	110	40	*
5th St (Waterman to Victoria)	100	40	20
5th St (Victoria to Palm)	90	40	*
Closure			
Tippecanoe Ave	100	40	40
Mill St	60	*	*
Del Rosa Dr	40	40	*
3rd St (East)	60	40	*
3rd St (West)	50	40	*
Victoria Ave	80	40	*
5th St (Waterman to Victoria)	80	30	*
5th St (Victoria to Palm)	50	40	*

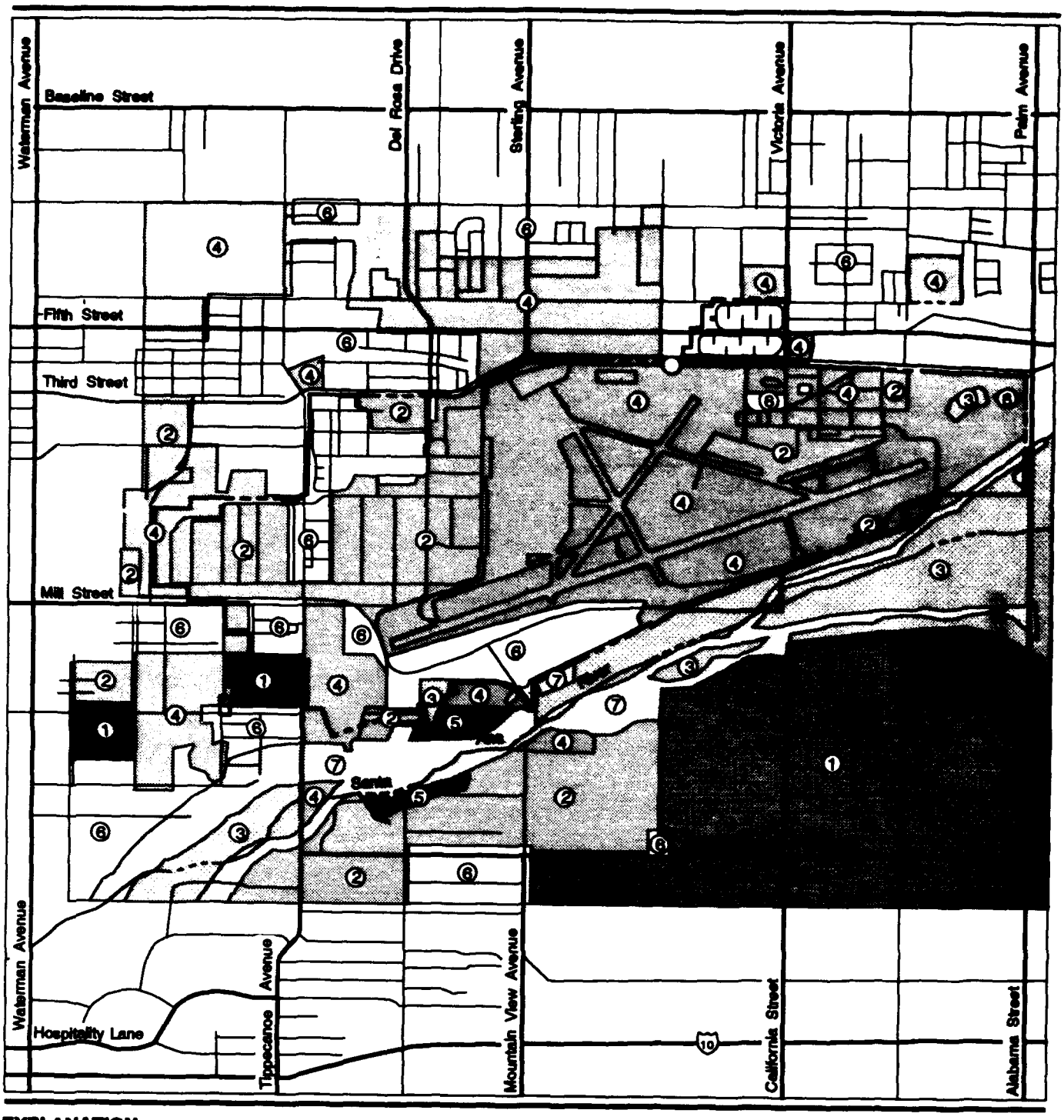
*Contained within roadway

The ROI used for discussions of resources present and potential impacts on these biological resources is Norton AFB and the surrounding area within about 5 miles of the base.

Information on the affected environment was obtained from literature information for the area, aerial photographs (January 1991), and a July 1991 reconnaissance survey of the base and surrounding area.

3.4.5.1 Vegetation. Norton AFB is located on an alluvial plain at the base of the San Bernardino Mountains. The base is adjacent to the north bank of the Santa Ana River and was probably once dominated by riparian woodland and Riversidean alluvial fan sage scrub.

The vegetation on and in the vicinity of Norton AFB is shown in Figure 3.4-4. The categories include Riversidean alluvial fan sage scrub, riparian/wetland, ruderal (weedy), urban/landscaped, and disturbed habitat. The riparian/wetland category includes riparian woodland, riparian scrub, sandy stream channels bordered by riparian vegetation, and small wetlands



EXPLANATION

- 1 Agriculture
- 2 Disturbed
- 3 Alluvial Scrub
- 4 Ruderal
- 5 Scrub
- 6 Urban/ Landscaped
- 7 Wetland/Riparian
- 8 Olive Trees
- Base Boundary

0 750 1500 3000 Feet

Vegetation on and in Vicinity of Norton AFB

Figure 3.4-4

occurring in drainage ditches. The ruderal category includes areas that have been temporarily disturbed, allowing exotic plant species (e.g., mustard and European grasses) to colonize and dominate. For completeness, two other categories are presented on the vegetation map. Nonvegetated areas that are paved (e.g., roads, parking lots, airfield, support facilities), graded, filled, or covered with structures are classified as disturbed habitat. On-base residential areas are classified as urban/landscaped (a mixture of disturbed and landscaped). The residential and commercial industrial areas surrounding the base are included in the urban/landscaped category. Additional categories found off base include agriculture and alluvial scrub.

Native vegetation on most of the base has been altered by human activities or replaced by landscaped species and base-related facilities. However, a small amount of riparian woodland and Riversidean alluvial scrub exists in the southern part of the base along the Santa Ana River. The largest remaining riparian woodland, located immediately south of the golf course clubhouse (off base), is dominated by cottonwood trees (*Populus fremontii*). Black willow (*Salix goodingii*) and mulefat (*Baccharis salicifolia*) are also present. The understory is composed primarily of weedy species such as filaree (*Erodium* spp.), black mustard (*Brassica nigra*), and annual European grasses (*Bromus* spp., *Avena barbata*, etc.). Native understory species include California buckwheat (*Eriogonum fasciculatum*) and croton (*Croton californicus*). The non-native giant reed (*Arundo donax*) occurs in the river wash. Just east of the clubhouse is a similar cottonwood-dominated riparian stand that also contains several mature eucalyptus trees (*Eucalyptus* sp.). Arrowweed (*Pluchea sericea*), an individual sandbar willow (*Salix hindsiana*), and elderberries (*Sambucus mexicana*) occur in scrub southwest of the golf course clubhouse. An isolated grove of cottonwoods, black willow, and mulefat occurs within the Santa Ana Wash adjacent to Alabama Street in the southeast corner of the base. Sparse riparian vegetation dominated by mulefat occurs within the wash along a narrow perennial section of the Santa Ana River.

The alluvial scrub community within the river wash is known as Riversidean alluvial fan sage scrub, a sensitive plant community that is discussed further in Section 3.4.5.4. In the vicinity of the base, the scrub is a relatively open community characterized by California buckwheat, prickly pear (*Opuntia littoralis*), scale broom (*Lepidospartum squamatum*), and schismus grass (*Schismus barbatus*). Wash groundsel (*Senecio douglasii*), Spanish bayonet (*Yucca whipplei*), and yerba santa (*Eriodictyon trichocalyx*) are common, as is Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*), an endangered species (see Section 3.4.5.3). California juniper (*Juniperus californica*) is an occasional shrub. Commonly introduced (non-native) species include filaree and black mustard.

Prior to channelization of the Santa Ana River and base development, Riversidean alluvial fan sage scrub was probably the dominant plant

community on the land occupied by the base. Though not mapped in Figure 3.4-4, small remnant patches of alluvial scrub occur on the base north of the river levee in areas that are not mowed. As these areas frequently intergrade with ruderal (i.e., weedy) communities, the non-native component becomes more prevalent than in the channelized river wash. California buckwheat, croton, scale broom, and Santa Ana River woolly-star are common natives. One such stand occurs to the northeast of the runways in an area that has been used as a dump. Another stand that includes California juniper occurs adjacent to the base boundary south of the western portion of the golf course.

The golf course is in an area that formerly supported riparian-oak woodland (U.S. Fish and Wildlife Service, 1990). The native trees have been largely replaced with landscape species such as gum trees (*Eucalyptus* spp.), birch (*Betula* sp.), cultivated California fan palms (*Washingtonia filifera*), pine trees (*Pinus spp.*), and oleander bushes (*Nerium oleander*). A few mature coast live oak (*Quercus agrifolia*), one black willow, and several elderberry trees remain. The five ponds on the golf course support limited amounts of marsh and aquatic vegetation. Cattails (*Typha domingensis*) are present in one pond; other species present include sedges (*Carex* sp.), marsh pennywort (*Hydrocotyle umbellata*), nut-grass (*Cyperus eragrostis*), spike rush (*Eleocharis acicularis*), and monkeyflower (*Mimulus guttatus*).

Most of the land surrounding base offices and housing has been landscaped. A wide variety of tree species has been planted; some of the conspicuous species include coast live oak, cork oak (*Quercus suber*), sycamores (*Platanus* spp.), eucalyptus, California fan palm, pepper trees (*Schinus* sp.), and several pine species. Oleander is a common landscape shrub. Bermuda grass (*Cynodon dactylon*) is the most prevalent grass on the base, though fescues (*Festuca* spp.), bluegrasses (*Poa* spp.), and other species are also common.

The remaining areas of the base that are not landscaped support weedy vegetation dominated by non-native grasses and weedy herbaceous species. Common species include filaree, ripgut brome (*Bromus diandrus*), Bermuda grass, fescue (*Festuca megalura*), slender wild oats (*Avena barbata*), Russian thistle (*Salsola kali*), black mustard, pigweed (*Chenopodium album*), schismus, telegraph weed (*Heterotheca grandiflora*), tumbleweed (*Amaranthus albus*), jimsonweed (*Datura meteloides*), sand bur (*Ambrosia acanthicarpa*), and golden aster (*Chrysopsis villosa*). Most of these areas are mowed regularly. Yerba santa is a native shrub occasionally occurring in the ruderal areas in the eastern portion of the base. A small grove of planted olive trees (*Olea europaea*) occurs in the northeast corner of the base. Several native palo verde trees (*Cericidium floridum*) are also present.

The 30-acre parcel in Highland is a vacant field surrounded by residential development. With the exception of a baseball diamond in the southwest

portion of the property and seven western sycamores (*Platanus racemosa*), the vegetation is ruderal. Common species include filaree, bromegrass (*Bromus* spp.), black mustard, jimsonweed, calabazilla (*Cucubita foetidissima*), and sand bur.

3.4.5.2 Wildlife. The wildlife of Norton AFB includes species associated with urbanized areas, weedy grasslands, and the alluvial fan sage scrub and wetland/riparian communities on and near the base. Wildlife activity is highest in the undisturbed habitats along the Santa Ana Wash and lowest in areas disturbed by human activities and urbanization. Because little natural habitat remains on base, overall wildlife diversity and density are low.

Common mammals of Norton AFB include the valley pocket gopher (*Thomomys bottae*), California ground squirrel (*Spermophilus beecheyi*), deer mouse (*Peromyscus maniculatus*), western harvest mouse (*Reithrodontomys megalotis*), blacktail jackrabbit (*Lepus californicus*), and Audubon's cottontail (*Sylvilagus audubonii*) which frequent most habitat types on base. The San Bernardino Merriam's kangaroo rat (*Dipodomys merriami parvus*), discussed in Section 3.4.5.3, is common on the base along the Santa Ana Wash and also occurs in the olive grove at the northeast corner of the base. Coyotes (*Canis latrans*) occur along the southeast border of the base. Adjacent to the Santa Ana Wash is the base golf course where rodenticides are used for rodent control. The poisoning of rodents (potential prey items) may pose a potential hazard to predators, scavengers, and nontarget granivorous rodents such as the San Bernardino Merriam's kangaroo rat.

Various bird species are known to occur on base as year-round residents, winter residents, or transient visitors. Birds typical throughout the developed and landscaped areas include the common raven (*Corvus corax*), American crow (*Corvus brachyrhynchos*), scrub jay (*Aphelocoma coerulescens*), house finch (*Carpodacus mexicanus*), western kingbird (*Tyrannus verticalis*), Brewer's blackbird (*Euphagus cyanocephalus*), white-crowned sparrow (*Zonotrichia leucophrys*), and house sparrow (*Passer domesticus*). The western meadowlark (*Sturnella neglecta*), loggerhead shrike (*Lanius ludovicianus*), and greater roadrunner (*Geococcyx californianus*) are common throughout the base grasslands. Killdeer (*Charadrius vociferus*) are found along the Santa Ana River and within the small wetlands on the base. Large coast live oak trees are present on base, and several near the northwest end of the runway provide a winter roosting site for black-crowned night herons (*Nyctanassa violacea*). Band-tailed pigeons (*Columba fasciata*) also frequent the oaks. Red-tailed hawks (*Buteo jamaicensis*), American kestrels (*Falco sparverius*), and turkey vultures (*Cathartes aura*) forage over the weedy grassland and scrub areas of the base and may nest in the large sycamores, eucalyptus, and oaks on the base. The burrowing owl (*Athene cunicularia*), listed by the California Department of Fish and Game (CDFG) as a Species of Special Concern, occurs as a year-round resident on base in several locations near the

runways and abandoned buildings. One burrowing owl has been seen nesting in the culvert of a loading dock.

Several small ponds on the Norton AFB golf course provide habitat for ducks and wading birds such as the mallard (*Anas platyrhynchos*), northern pintail (*Anas acuta*), wood duck (*Aix sponsa*), American coot (*Fulica americana*), and snowy egret (*Egretta thula*).

The western fence lizard (*Sceloporus occidentalis*) and side-blotched lizard (*Uta stansburiana*) are the most common reptiles on Norton AFB. The California whiptail (*Cnemidophorus tigris*), western rattlesnake (*Crotalus viridis*), and red coachwhip (*Masticophis flagellum lineatulus*) occur along the less disturbed southeast edge of the base. The San Diego horned lizard (*Phrynosoma coronatum*) and orange-throated whiptail (*Cnemidophorus hyperythus*), category 2 species for federal listing, may occur at the southern border of the base along the Santa Ana Wash. The fine sandy soils and presence of ants and other insect prey in the Santa Ana Wash provide appropriate habitat for these species (see Section 3.4.5.3).

Because the flow of the Santa Ana River is intermittent, few amphibians are expected. Species that may occur include the western spadefoot (*Scaphiopus hammondii*) and western toad (*Bufo boreas*). The small ponds on base provide habitat for the western toad, bullfrog (*Rana catesbeiana*), and Pacific tree frog (*Hyla regilla*).

3.4.5.3 Threatened and Endangered Species. Based on known habitat requirements and distribution, a number of state and federally listed threatened, endangered, and candidate species may occur at Norton AFB. Table 3.4-9 summarizes information on habitat requirements and distribution of species listed or candidates for listing as federal or state threatened or endangered or identified by the California Native Plant Society (CNPS) as rare, threatened, or endangered.

Federally and state-listed or candidate species known to occur at Norton AFB include the Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*), Swainson's hawk (*Buteo swainsoni*), loggerhead shrike, San Bernardino Merriam's kangaroo rat, and Los Angeles little pocket mouse (*Perognathus longimembris brevinasus*). The woolly-star, listed as endangered by the federal government and the state of California, was observed in various areas of the base in July 1991 (Figure 3.4-5, for habitat distribution). The species was common within the Santa Ana Wash along the base's southeast boundary and was also observed in various locations throughout the eastern portion of the base: both north and south of the runways in frequently mowed ruderal vegetation, in scrub just north of the river levee, and in disturbed scrub near a dump. It also occurs adjacent to the base south of the western portion of the golf course.

Table 3.4-9. Threatened, Endangered, and Candidate Species Potentially Occurring in the Vicinity of Norton AFB
Page 1 of 3

Name	Status[a] Federal	State	CNPS	Habitat and Distribution
Insects				
Greenest tiger beetle (*Cinindela tranquebarica viridissima*)	C1	-	-	Occurs in fine sandy substrate near riparian habitats. Historically ranged along the Santa Ana River from Orange County to the base of the San Bernardino Mountains. May occur in the Santa Ana Wash on Norton AFB (USFWS, 1990).
Reptiles				
San Diego horned lizard (*Phrynosoma coronatum blainvillei*)	C2	CSC	-	Occurs in sandy washes with scattered low shrubs for cover (Stebbins, 1985). Has been extirpated from most lowland areas in southern California. May occur at Norton AFB.
Orange-throated whiptail (*Cnemidophorus hyperythrus*)	C2	CSC	-	Inhabits washes and other sandy areas with rocks and patches of brush. Has been sighted 5 miles south of Norton AFB (CDFG, 1991). May occur on base.
Southwestern pond turtle (*Clemmys marmorata pallida*)	C1	CSC	-	Occurs in a variety of aquatic habitats with both permanent and intermittent water. Historically found throughout southern California. Only scattered populations remain. May occur in the golf course ponds at Norton AFB (USFWS, 1990).
Birds				
Swainson's hawk (*Butso swainsonii*)	-	T	-	Habitat includes plains, range, and open hills. Has been observed on Norton AFB (USFWS, 1990).
Burrowing owl (*Athene cunicularia*)	-	CSC	-	Inhabits open grassland, prairies, farmland, and airfields. Occurs as a year-round resident on base.
Least Bell's vireo (Vireo bellii pusillus)	E	E	-	In summer, the vireos reside in lowland riparian woodlands. Known to occur near Norton AFB (U.S. Air Force, 1990e). Unlikely to occur on base except incidentally due to ack of habitat.
Loggerhead shrike (*Lanius ludovicianus*)	C2	-	-	Forages over open or brushy areas. Observed on Norton AFB.

Table 3.4-9. Threatened, Endangered, and Candidate Species Potentially Occurring in the Vicinity of Norton AFB
Page 2 of 3

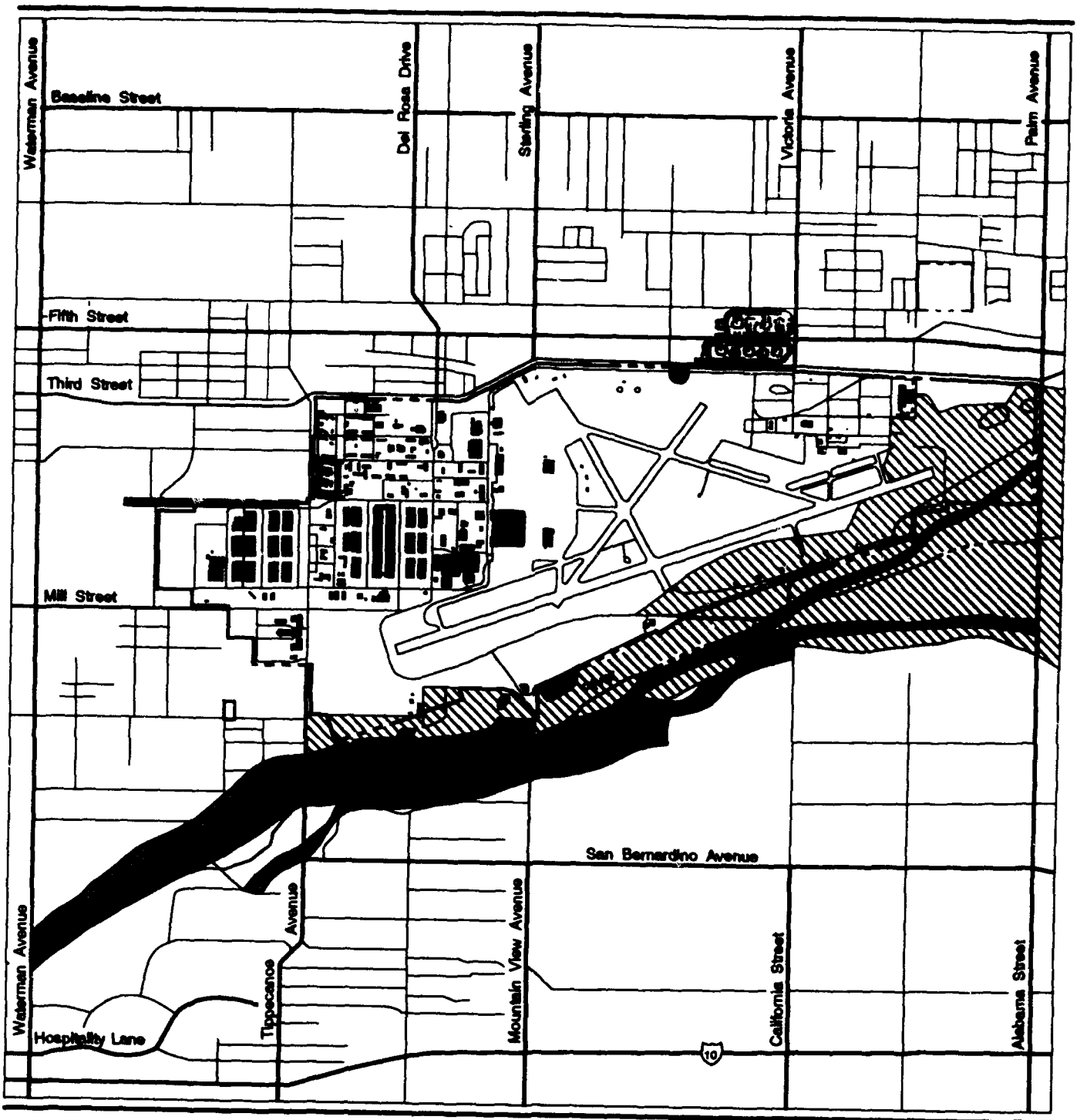
Name	Status[a] Federal	State	CNPS	Habitat and Distribution
Mammals				
Stephen's kangaroo rat (*Dipodomys stephensi*)	E	T	-	Norton AFB is located at the northern extent of the kangaroo rat's range. Have been observed within 5 miles south of the base. May occur at Norton AFB (CDFG, 1991).
Los Angeles little pocket mouse (*Perognathus longimembris brevinasus*)	C2	CSC	-	Habitat includes open ground with fine sandy substrate. Historically occurred in the San Fernando-Burbank-Los Angeles areas. Known to occur at Norton AFB (USFWS, 1990).
San Bernardino Merriam's kangaroo rat (*Dipodomys merriami parvus*)	C2	-	-	Inhabitats open ground with fine sandy soils. Collected in alluvial scrub and olive tree habitats on the base (USFWS, 1990)
Plants				
Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*)	E	E	1B	Occurs in alluvial fan sage scrub. Restricted to an 8-mile stretch of the Santa Ana River floodplain from Norton AFB to the mouth of the river canyon. Observed at Norton by biologists in Spring, 1991.
Slender-horned spineflower (*Dodecahema leptoceras*)	E	E	1B	Occurs on sandy river terraces and in washes. Has been observed in association with the Santa Ana River woolly-star in the Santa Ana Wash within 2 miles of the base boundary. May occur at Norton AFB (CDFG, 1991).

Table 3.4-9. Threatened, Endangered, and Candidate Species Potentially Occurring in the Vicinity of Norton AFB

Notes: (a) Federal Status (determined by USFWS)
- E Endangered; in danger of extinction throughout all or a significant portion of its range.
- 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.

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 CDFG "Species of Special Concern."

CNPS Status
- 1B Rare, threatened, or endangered in California and elsewhere.
- 3 Plants about which more information is needed -- a review list.



EXPLANATION

Santa Ana River Woolly-Star Habitat
(Eriastrum densifolium ssp. sanctorum)

Riversidean Alluvial Fan Sage Scrub and
Los Angeles Pocket Mouse Habitat

Wetland/Riparian Habitat

0 750 1500 3000 Feet

Sensitive Habitats

Figure 3.4-5

Six Swainson's hawks, listed as threatened by the state of California, were observed during the 1990 U.S. Fish and Wildlife Service (USFWS) surveys. The loggerhead shrike was observed on the base in May-June 1990 and July 1991, and may be a local resident. One Los Angeles little pocket mouse was trapped by the USFWS on the base in the Santa Ana Wash. The San Bernardino Merriam's Kangaroo rat is common on the base along the Santa Ana Wash and is known to occur in the olive grove at the northeast corner of the base. Both are federal category 2 candidate species, and the pocket mouse is also a CDFG species of special concern. Although not observed in the USFWS surveys or in a reconnaissance survey conducted in July 1991, several additional listed and candidate species may potentially occur at Norton AFB. The greenest tiger beetle (*Cicindela tranqueberica viridissima*), a federal category 1 candidate, may occur in the Santa Ana Wash at Norton AFB. The San Diego horned lizard (*Phrynosoma coronatum blainvillei*) and the orange-throated whiptail (*Cnemidophorus hyperthyrus*), both category 2 candidates, may also occur in the southeastern portion of the base. The southwestern pond turtle (*Clemmys marmorata pallida*) may inhabit the golf course ponds. The turtle is the only turtle native to the southwest and is a category 1 candidate for federal listing. The Stephen's kangaroo rat (*Dipodomys stephensi*), federally listed as endangered and state listed as threatened, may occur, although none were trapped during the 1990 USFWS surveys. The slender-horned spineflower (*Dodecahema leptoceras*), listed as endangered by both federal and state governments, may also occur along the southeast edge of Norton within the Santa Ana Wash. It has been found in the wash within 2 miles of the eastern base boundary.

Though known to occur near Norton AFB (U.S. Air Force, 1990e), the Least Bell's vireo (*Vireo bellii pusillus*) is a bird species unlikely to occur on base except incidentally, due to the lack of well developed riparian forest.

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., breeding areas). In the vicinity of Norton AFB, Riversidean alluvial fan sage scrub, wetlands, and riparian woodlands associated with the Santa Ana River are the primary sensitive habitats. Sensitive habitats are shown in Figure 3.4-5.

Riversidean alluvial fan sage scrub is a native alluvial scrub community that has greatly declined due to channelization of the Santa Ana River and intense development in the area. This community is considered "very threatened" by the CDFG. Remnants of this native alluvial scrub community occur on Norton AFB.

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). Areas that are periodically wet but do not meet all three criteria (hydrophytic vegetation, hydric soils, and wetland hydrology) are not jurisdictional wetlands subject to Section 404 of the Federal Clean Water Act. Areas that have been disturbed or that are classified as problem area wetlands, however, may not meet all three criteria as a result of natural or human-induced causes, yet are still classified as wetlands.

Aerial photographs (January 1991) and a base tour (May 1991) indicated that at least one wetland was present in a drainage ditch on the base. A field survey was conducted on July 11, 1991, to confirm this and to determine the amount of wetland present. The routine on-site method, plant community assessment procedure, was used for the two drainage ditches along the northern base boundary. The western drainage (an unnamed tributary to Warm Creek) has recently been cleared of most of the vegetation. The other channelized drainage (City Creek) was dry except where a culvert discharged water from the north. Both have an enhanced water supply, apparently from landscape irrigation runoff.

Based on field evidence, both areas delineated are jurisdictional wetlands. The unnamed drainage meets all three wetland criteria, even though recent clearing has greatly reduced plant cover and disturbed the soils. The area of this wetland is 0.9 acre. The small wetland area (less than 0.1 acre) in City Creek meets the vegetation and hydrology criteria, and the sandy soils fall under the problem area wetland category. Regular erosion and deposition of sediments in City Creek during winter runoff events (when most vegetation is dormant) do not allow development of hydric soils, but the area is functionally a wetland. Ponds on the golf course are not jurisdictional wetlands as long as they are actively maintained.

A portion of the Santa Ana Wash crosses the southeast corner of Norton AFB. Most of the wash is not a jurisdictional wetland, although areas of riparian woodland and Riversidean alluvial fan sage scrub occur at intervals along or in the wash. A narrow low-flow channel from a culvert under Alabama Street contained flowing water in July 1991. High-energy storm runoff events in winter and spring, along with the sandy soils and varying channel location, prevent the development of hydric soils. These flows also limit plant growth. Consequently, this channel is classified in the problem wetland category. Some wetland plant species were present, and the hydrology criterion was met. Considering the primarily natural disturbances, this channel qualifies as a jurisdictional wetland. Variability in location and width make mapping difficult, although an approximate location is shown in Figure 3.4-5.

3.4.6 Cultural Resources

Cultural resources consist of prehistoric and historic sites, buildings, structures, districts, objects, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. Cultural resources include archaeological resources, historic structures/resources, and Native American resources. For the purposes of this EIS, cultural resources are also defined to include paleontological resources. The ROI for cultural resources includes all areas within the boundaries of Norton AFB and any off-base areas where ground-disturbing activities may occur in connection with reuse plans.

Numerous laws and regulations require federal agencies to consider the effects of proposed actions 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, Advisory Council on Historic Preservation [ACHP]). Compliance with requirements of these laws and regulations ideally involves four basic steps: (1) identification of cultural resources that could be affected by the Proposed Action or other alternatives, (2) evaluation of the importance of these resources in terms of criteria for eligibility for the National Register of Historic Places (NRHP), (3) assessment of the impacts or effects of these actions on cultural resources on, or eligible for listing on, the NRHP (defined as historic properties), and (4) development and implementation of measures to eliminate or reduce adverse impacts. Only those potential historic properties eligible for the NRHP are subject to protection by a federal agency.

The primary law governing treatment of cultural resources is the National Historic Preservation Act (NHPA). In compliance with the NHPA, the Air Force will continue consultation with the California SHPO required under Section 106 of the act. The California Environmental Quality Act (CEQA) provides for consideration of cultural resources prior to ground disturbance for non-federal projects.

3.4.6.1 Cultural History of the Area. The prehistory and history of the Norton AFB area are summarized in a cultural resource report prepared by Tetra Tech, Inc. (1991). Native Americans have lived in the interior of southern California since around 10,000 B.C. The Norton AFB region was occupied by the Serrano, Cahuilla, and Gabrieleno people. In 1860, over 3,000 Native Americans lived in San Bernardino County. After 1862, disease and encroachments on their land and culture led to continued population decline.

The first Spanish explorer to enter the San Bernardino County area was Pedro Fages in 1772. Subsequent Spanish settlement of California was initially tied to the establishment of missions. Spanish rule was overthrown by Mexico in 1821, and secularization of mission lands was begun in 1833.

In 1848, California became a U.S. possession, and in 1850 it became a state. The development of the railroads and the citrus industry led to rapid population growth and to a land boom in San Bernardino County in the 1880s.

The San Bernardino Air Depot (later Norton AFB) was officially activated in 1942. In 1950 the name was changed to Norton AFB (see Section 3.2). During the archival research by Tetra Tech, Inc. (1991), aerial photographs indicated that, before the building of the Air Depot, the area now encompassed by Norton AFB was agricultural with the exception of a commercial hangar and an airstrip.

3.4.6.2 Archaeological Resources. Concurrence has been reached between the SHPO and the Air Force on the determination that no historic properties occur on Norton AFB property.

Despite intensive archaeological survey, no prehistoric sites have been previously recorded on Norton AFB or within 1 mile of the base boundaries (Tetra Tech, Inc., 1991).

Attempts to locate four historic water ditches mentioned in archival sources have been unsuccessful during all field investigations. An evaluation of an historic trash dump, CA-SBR-6096H, resulted in a determination of non-eligibility for listing on the NRHP.

Following an extensive literature search, the possibility of buried resources existing beneath the 30-acre noncontiguous parcel in Highland was negated. The SHPO concurred with the Air Force determination, and noted that there was little likelihood that cultural resources existed along City Creek. SHPO agreed that the Air Force had conducted an adequate investigative effort to identify historic properties located on Norton AFB.

3.4.6.3 Historic Structures and Resources. An architectural inventory of World War II structures completed for Norton AFB concluded that no facilities were considered significant under *National Register* criteria. The SHPO has concurred with this determination.

Both San Bernardino and Redlands have historic structures potentially exposed to noise levels generated by aircraft activity on base. However, recent studies have shown that structural damage due to aircraft noise would not be likely to occur more than 50 feet from the existing runway pavement. No off-base structures exist within 50 feet of the runway.

Because there is no possible impact to off-base structures caused by aircraft noise, an inventory of historic structures in San Bernardino and Redlands is not necessary for this EIS.

3.4.6.4 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 Norton AFB environs. No such areas were identified.

3.4.6.5 Paleontological Resources. No fossil remains have been identified or recorded in the ROI. No fossil remains have been found on the base and none are expected given the depth of alluvium and recent scouring (Carmichael, 1991).

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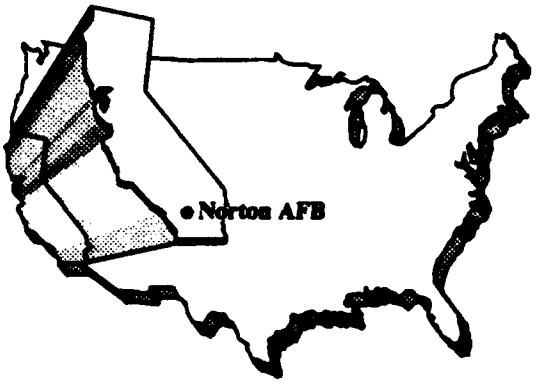


CHAPTER 4
ENVIRONMENTAL IMPACTS

4.0 ENVIRONMENTAL IMPACTS

4.1 INTRODUCTION

This chapter discusses the potential environmental impacts associated with the Proposed Action and alternatives. 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 this EIS. 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 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 activities or as an indirect result caused by changes within the local communities. Cumulative impacts and possible mitigation measures to minimize or eliminate the 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 and alternatives are discussed as required by NEPA. Potential mitigation measures depend upon the particular resource affected. In general, however, mitigation measures are defined in CEQ regulations as actions that include:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation

(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action

(e) Compensating for the impact by replacing or providing substitute resources or environments.

Future reuse of the base is uncertain in its scope, activities, and timing. This EIS addresses these uncertainties by evaluating alternative reuse scenarios intended to encompass a range of reasonably foreseeable reuses and their environmental impacts.

Alternatives are defined for this analysis on the basis of (1) plans of local communities and interested individuals, (2) general land use planning considerations, and (3) Air Force generated plans to provide a broad range of reuse options. Reuse scenarios considered in this EIS must be sufficiently developed to permit environmental analysis. Initial concepts and plans are taken as starting points for scenarios to be analyzed. Available information on any reuse alternative is then supplemented with economic, demographic, transportation, and other planning data to provide a reuse scenario for analysis. Conversion of Norton AFB property for civilian use is examined over approximately 20 years.

4.2 LOCAL COMMUNITY

4.2.1 Community Setting

Reuse of Norton AFB would result in changes in employment and population in the ACS and the San Bernardino-Riverside county region. Without reuse of Norton AFB, population in the ACS is expected to increase 26 percent between 1995 and 2015 to approximately 454,200. The San Bernardino-Riverside county population is projected to increase 36 percent to a total of about 4,700,000 by 2015.

Employment and population generated by the implementation of the Proposed Action and each alternative are discussed herein as influencing factors that could result in impacts on the biophysical environment. A complete assessment of socioeconomic effects is provided in the *Socioeconomic Impact Analysis Study* being prepared separately and concurrently with this EIS.

In order to provide a basis for comparison of the Proposed Action, reuse alternatives, and the No-Action Alternative, the influencing factors and resulting impacts are reported for the property available for disposal. They do not include employment and population associated with the BMO facilities or military family housing to be retained by the Air Force which are not available for reuse. Employment and population associated with BMO and the housing would remain in the ROI after closure regardless of the disposition of the base. Baseline employment directly related to the base property identified for disposal consists of 50 personnel in the DMT and an additional 20 secondary jobs. The following sections describe employment and population effects of each reuse alternative relative to this baseline.

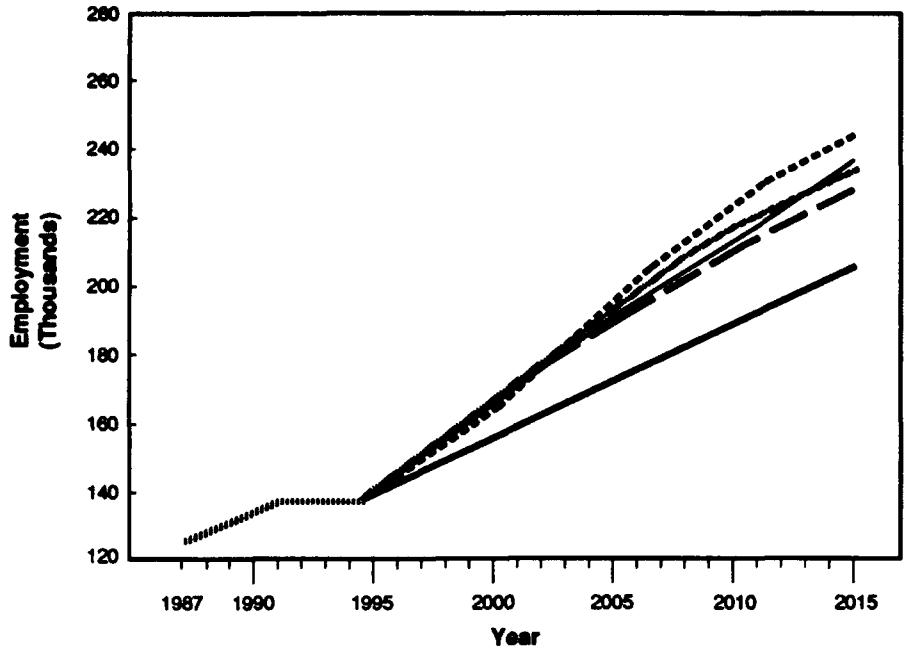
4.2.1.1 Proposed Action. It is estimated that the redevelopment activities at Norton AFB under the Proposed Action would generate approximately 30,300 direct and 23,000 secondary jobs by the year 2015. About 37,700 of these jobs would occur within the ACS. Direct jobs would be located on base property and in primarily the ACS, whereas secondary jobs would be created throughout San Bernardino and Riverside counties. Figure 4.2-1 shows the effects of the Proposed Action and alternatives on employment and population in the ACS.

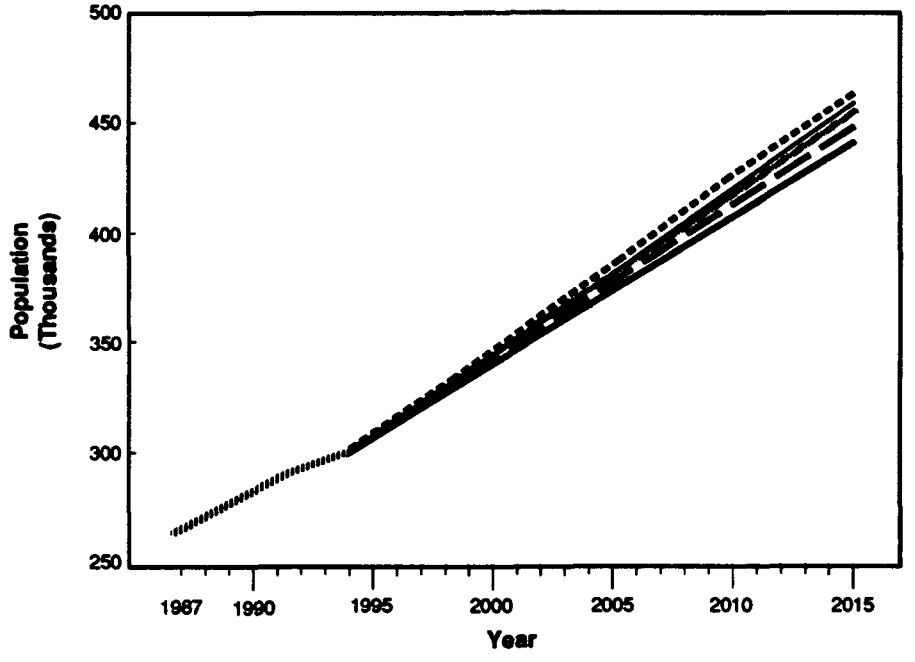
Population in the San Bernardino-Riverside county region would increase by approximately 34,300 as a result of new civilian jobs. The majority of in-migrants are expected to locate in the ACS. The Proposed Action is estimated to result in an increase of 20,700 in the ACS population by 2015. This represents nearly 5 percent increase in population within the ACS compared to the baseline projected out to the year 2015 (see Figure 4.2-1). The communities likely to experience the largest increases in population are the cities of San Bernardino, Redlands, and Highland. The Proposed Action would generate positive economic benefits by increasing employment and earnings in the region.

4.2.1.2 Airport with Mixed Use Alternative. The level of economic activity under this alternative would be less than reported for the Proposed Action. It is projected that reuse of Norton AFB would generate 22,800 direct jobs and 19,900 secondary jobs by 2015. About 28,900 of these jobs would occur within the ACS. The population in the San Bernardino-Riverside county region would increase by 26,300, and population in the ACS is projected to increase by 15,700 by 2015 (see Figure 4.2-1). This represents an approximately 3.5 percent increase over the baseline population for the ACS projected to 2015. This alternative would have similar economic benefits as the Proposed Action.

4.2.1.3 Aircraft Maintenance Center Alternative. This alternative would generate 18,100 direct jobs and 16,200 secondary jobs by 2015. About 23,100 of these jobs would occur within the ACS. The San Bernardino-Riverside county population under this alternative is projected to increase by approximately 21,000, with the population in the ACS increasing by 12,500 by 2015. This represents an approximately 3 percent increase over projected post-closure baseline population for the ACS (see Figure 4.2-1). This alternative would also have positive economic benefits, although somewhat less than the Proposed Action and Airport with Mixed Use Alternative.

4.2.1.4 Non-Aviation Alternative. It is projected that this alternative would generate approximately 25,500 direct and 19,800 secondary jobs by the year 2015. About 31,400 of these jobs would occur within the ACS. The population of San Bernardino and Riverside counties would increase by 28,800 as a result, and the population in the ACS is projected to increase





EXPLANATION

- Proposed Action
- Airport with Mixed Use Alternative
- Aircraft Maintenance Center Alternative
- Non-Aviation Alternative
- No-Action Alternative
- Preclosure

Note: Area of concentrated study includes the cities of San Bernardino, Redlands, Highland, Loma Linda, and Colton.

Total Area of Concentrated Study Employment and Population- All Alternatives

Figure 4.2-1

by 17,300 by 2015. This represents an approximate 4 percent increase over the baseline population for the ACS projected to 2015 (see Figure 4.2-1). Benefits would be similar to the Proposed Action and other alternatives.

4.2.1.5 Other Land Use Concepts. Other land use concepts would be initiated on an individual basis rather than as part of an integrated reuse alternative. Therefore, the potential effects of these proposals are discussed in relation to the Proposed Action and the other comprehensive reuse alternatives. Table 4.2-1 summarizes employment and population effects from each land use concept in combination with each alternative. These effects are relative to the alternatives without the independent land use. Decreases indicate that the land use concept would generate less employment or population than the alternative's land use designation for the location under consideration.

4.2.1.6 No-Action Alternative. Under the No-Action Alternative, only caretaker status activities would occur at the base. It is estimated that the caretaker activities at Norton AFB would involve approximately 50 direct DMT and 20 secondary jobs through the year 2015.

4.2.2 Land Use and Aesthetics

This section discusses the Proposed Action and alternatives relative to land use, planning, and zoning to determine potential impacts in terms of land use and aesthetics. Land use compatibility with aircraft noise is discussed here and in Section 4.4.4.

4.2.2.1 Proposed Action

On-Base Land Use. The Proposed Action would result in substantial change in the overall pattern of land use on base by reducing the variety of relatively small land use areas into two general land use areas: airfield/aviation support and OIP. Specific changes in on-base land uses associated with the Proposed Action are:

- All existing residential land on base (not including portions retained by the Air Force) would become OIP.
- The proposed OIP would absorb the medical, commercial, residential, and recreational areas on the northwest side of the airfield, much of the existing industrial-use area, and open areas along the west boundary of the base. A portion of the southwestern CZ, currently open space, would be developed for warehouse industrial use.
- Recreational, open areas, and industrial areas on the northeast side of the base would be converted to commercial, office, and

Table 4.2-1. Employment and Population Effects of Other Land Use Concepts

Land Use Concept	Reuse Alternative	Direct Employment Effects	Secondary Employment Effects	Population Effects
U.S. Department of Interior (sponsor), City/County parks	Proposed Action	-2,992	-2,334	-2,952
	Airport with Mixed Use	-778	-685	-779
	Aircraft Maintenance Center	11	10	11
	Non-Aviation	24	19	24
U.S. Department of Agriculture, Forest Service (west site)	Proposed Action	-629	-491	-621
	Airport with Mixed Use	-368	-324	-368
	Airport Maintenance Center	-368	-335	-370
	Non-Aviation	-286	-226	-283
U.S. Department of Agriculture, Forest Service (east site)	Proposed Action	-1,234	-963	-1,217
	Airport with Mixed use	-665	-585	-666
	Airport Maintenance Center	145	132	146
	Non-Aviation	150	-119	-148
U.S. Department of Agriculture, Forest Service-Office and Warehouse sites	Proposed Action	-140	-109	-138
	Airport with Mixed Use	-29	-26	-29
	Aircraft Maintenance Center	-29	-26	-29
	Non-Aviation	-29	-26	-29
U.S. Department of Education (sponsor), State/Community Higher Education	Proposed Action	-40	-31	-39
	Airport with Mixed Use	-40	-35	-40
	Aircraft Maintenance Center	-40	-36	-40
	Non-Aviation	-40	-32	-40
U.S. Department of Veterans Affairs	Proposed Action	-1,021	-796	-1,007
	Airport with Mixed use	-87	-77	-87
	Aircraft Maintenance Center	-87	-79	-87
	Non-Aviation	-87	-69	-86
U.S. Postal Service	Proposed Action	-81	-63	-80
	Airport with Mixed Use	369	325	369
	Aircraft Maintenance Center	369	336	371
	Non-Aviation	369	292	365
McKinney Act/ Homeless Housing	Proposed Action	-140*	-109*	-138*
	Airport with Mixed Use	0	0	0
	Aircraft Maintenance Center	0	0	0
	Non-Aviation	0	0	0
San Bernardino County Work Furlough Program	Proposed Action	-265	-207	-261
	Airport with Mixed Use	-265	-233	-265
	Aircraft Maintenance Center	-265	-241	-266
	Non-Aviation	-265	-209	-262
Aggregate Mining	Proposed Action	-32	-25	-32
	Airport with Mixed Use	-32	-28	-32
	Aircraft Maintenance Center	N/A	N/A	N/A
	Non-Aviation	-352	-278	-348

* Or more

Note: Effects are relative to employment and population projected for each alternative.

retail uses along Third Street, and aviation support uses toward the airfield.

- The proposed aviation support area would be larger than the existing aviation support area. It would include areas currently used for temporary housing, open areas on the north side of the airfield, the existing field-training institutional/educational area, and the southern and easternmost portion of the existing industrial-use area.

- Four existing golf course holes within the FAA RPZ would be relocated and the land left clear as part of the airfield. Replacement holes would be constructed in an adjacent area that is currently open. While it is desirable to keep the RPZ clear, golf courses are normally acceptable within the RPZ, outside the object-free area, as buffers between airfields and surrounding land use areas (Federal Aviation Administration, 1989).

- The area on the south side of the airfield currently used for munitions storage would be left open.

- The 30-acre parcel in Highland would continue to be used for recreation under the Proposed Action.

The proposed on-base land uses would be internally compatible. The OIP development would also be compatible with the area to be retained by the Air Force for the BMO. The Air Force officer housing would be adjacent to new OIP development. This has a potential for adverse impacts, depending on the specific uses developed adjacent to the housing areas. Industrial uses that create noise, lighting, and/or heavy traffic (especially truck traffic) could be incompatible. Office uses would generally be compatible, provided that adequate landscape buffers are included and traffic is channeled away from the residential area. The NCO housing to be retained by the Air Force would be across Third Street from new commercial office and retail development and aviation support. This would not be a significant change in land use type, but in the long term, when the new passenger terminal is constructed, the land use intensity would be greater.

Several easements, licenses, and permits would likely be in effect at base closure (see Table 3.2-1). Most of them are for roads, utilities, or flood control and would not be expected to adversely affect the Proposed Action if they were continued under the new ownership. Agreements/leases/permits with CSE Repeater Company, American Federation of Government Employees Local 1485, and California Business Enterprises have indefinite time periods and can be terminated by the Air Force. The Defense Logistics Agency's lease expires in December 1995, shortly after closure. This organization could continue as an interim user without adversely affecting

the Proposed Action. The Norton Credit Union has a lease that extends to 2006 and may use office space in the BMO area.

In 1990, the city of San Bernardino adopted a concept plan which defines land use areas for the base after closure. The concept plan proposes to zone the base property for commercial airport and OIP uses. The Proposed Action is generally consistent with the city's proposed zoning for the base with respect to types of land uses. There are some differences in the boundaries of the golf course and aviation support area. The Proposed Action also includes a commercial area and warehouse industrial area, which are not identified in the proposed zoning. The new zoning has not been officially adopted; however, so there is no conflict.

Adjacent Land Use and Zoning. The Proposed Action would involve extensive demolition and redevelopment which would give the project area a distinctive quality in relation to surrounding areas. It would lie between relatively open areas to the south and diffused, small-scale, mixed uses to the north. Even with the fence removed, a clear edge around the redeveloped base land would remain. South, east, and southwest of the base land is primarily open with some industrial and agricultural use. The lot sizes tend to be larger and more homogenous in use. The Proposed Action, with its larger cohesive land use areas, would be similar to these areas, particularly with other redevelopment areas like Tri-City, South Valley, and the Southeast Industrial Area. There would be more of a contrast with the older, mixed use areas north of the base.

The proposed on-base land uses would be generally compatible with the existing off-base land uses. Areas of potential land use conflict are:

- Areas to be used for OIP on the west side of the base (previously open space) have the potential for adversely affecting low-density residential uses in areas close to the base boundaries.

- *Proposed OIP, aviation support, commercial, office, and retail* uses have the potential for adversely affecting residential uses in areas north of the base. New commercial development and traffic from the passenger terminal could have a negative impact on the residences along Third Street.

- There is a small area adjacent to the southern boundary of the base property zoned for heavy industrial use wedged between the golf course and the Santa Ana Wash (see Figure 3.2-6). Although this area is presently undeveloped, any future uses would require a Development or Conditional Use Permit and would go through the prescribed review process. Most uses would be acceptable, with the exception of activities that produce undesirable odors and glare, or attract birds, which could conflict with airfield use.

- Warehouse industrial development between the airfield and the Santa Ana River at the southwest corner of the base would be consistent with the industrial zoning of the area but could be inconsistent with plans for the Santa Ana River Corridor Trail System. The Master Plan for the trail system proposes to have a bicycle trail along the levee and develop camping, picnic facilities, and regional park open space in the area.

Land Use Plans and Regulations. The Proposed Action would relate to regional plans of SCAG, the General Plan for the city of San Bernardino, and the San Bernardino Development Code. On a regional level, the primary issues are the jobs/housing balance and regional transportation. The Proposed Action would improve the jobs/housing balance in the region by increasing employment in the urbanizing subregions of southern California, which have historically acted as bedroom communities for employment centers in Los Angeles and Orange counties. However, the increased employment would also generate population growth which would, in turn, increase demand for residential properties. This would likely expand residential development into rural areas to the north and east. Increasing employment in the San Bernardino area will only partially address the jobs/housing imbalance until more housing is provided in the urbanized communities.

Many of the base buildings, roads, and utilities are not in conformance with the City of San Bernardino Development Code. Under the Proposed Action, all substandard facilities would be demolished and replaced with new construction in compliance with the code. Several complying structures would also be torn down as part of the overall redevelopment. Many existing streets within the proposed OIP are narrower than the minimum 64-foot width required by the city of San Bernardino for commercial streets. As a result of upgrading and widening the streets, existing buildings could be in violation of minimum setback requirements for commercial and industrial facilities under the City of San Bernardino Development Code. Until they were replaced, facilities that are not in compliance with the Development Code would be allowed as nonconforming uses (unless they posed a health or safety hazard). Stipulations for nonconforming uses are in the Development Code. Continuing nonconforming residential uses in an industrial zone would not be permissible after the year 2009. Under the Development Code, new industrial development on base would require a Development Permit, be reviewed for land use compatibility, and be required to comply with prescribed setbacks, signage, building design, and landscaping to buffer adjacent areas from potential impacts.

The City of Highland General Plan identifies the area adjacent to the base for development as a business park with light industrial, research, and office activities. The General Plan acknowledges that the existing mixed use area has some incompatible uses and is of poor quality. The city of Highland intends to consolidate similar uses and intensify industrial-type uses along

the northern base boundary in response to future new development on base property. Industrial/commercial uses in areas closest to the airfield would be compatible with the Proposed Action.

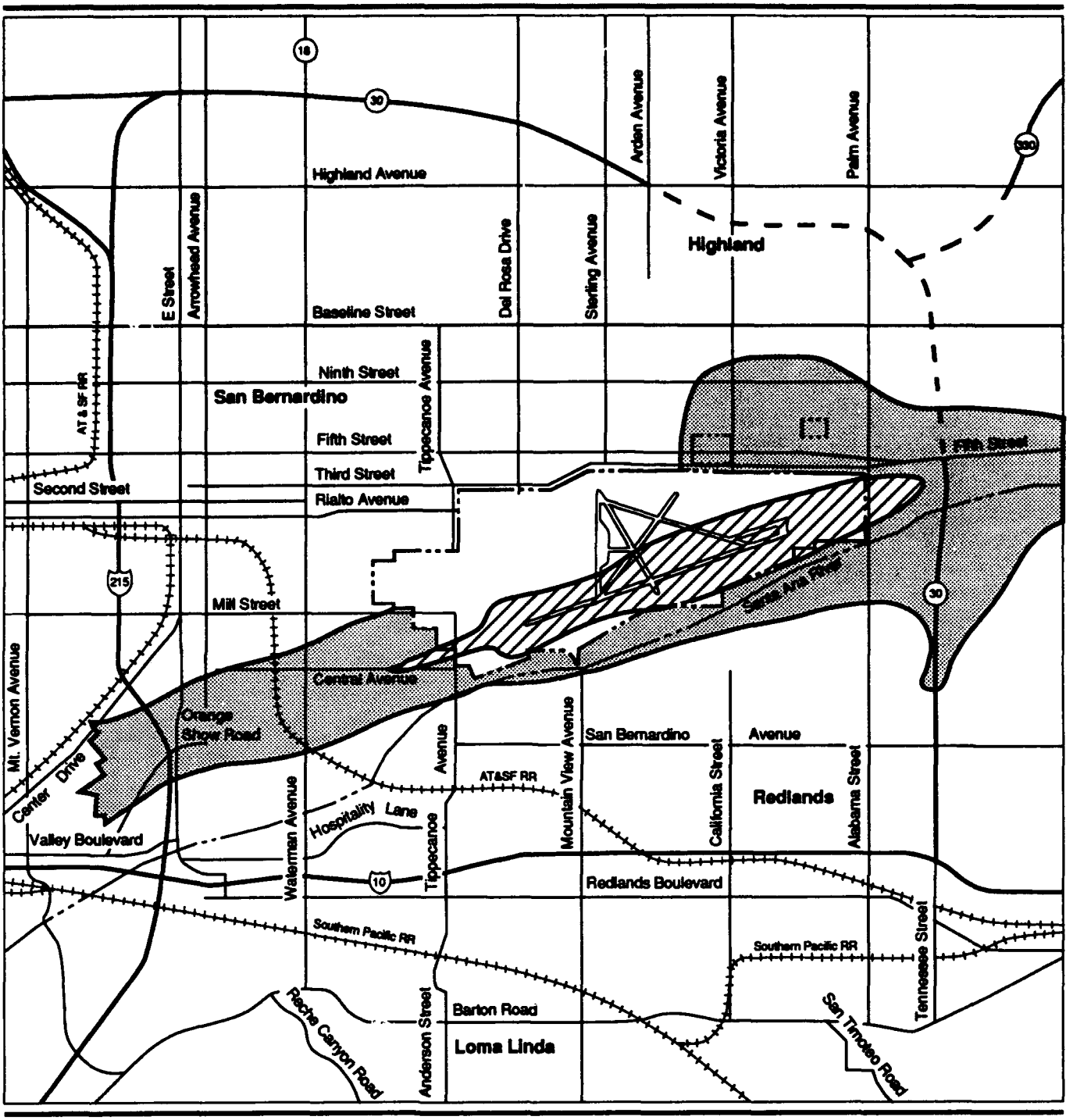
The city of Redlands is separated from base reuse development by the Santa Ana Wash and would only be affected by indirect impacts from increased traffic congestion on north/south and east/west arterial streets. The EVCDS area is generally focused on increased industrial and commercial land uses along the I-10 and SR-30 corridors, which would be compatible with airport and OIP activities on base.

Airport Policies Affecting Adjacent Land Uses. Under the Proposed Action, Air Force AICUZ guidelines would be replaced by FAA land use compatibility criteria outlined in FAA Advisory Circulars, including *Noise Control and Compatibility Planning for Airports, Airport Land Use Compatibility Planning, Airport Design,* and *Airport Master Plans*. FAR Part 150 prescribes the procedures, standards, and methodologies governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs.

The FAA safety criteria also differ from AICUZ criteria. The FAA RPZ at each end of the runway (also known as clear zone) would be a fan-shaped area starting 200 feet from the runway threshold and extending 2,500 feet out. The width of this zone would be 1,000 feet nearest the runway and 1,750 feet at the other end. This is 130 acres smaller than the Air Force CZ. The FAA does not identify any other restrictions comparable to the Air Force APZs.

Under the Proposed Action, four golf course fairways that currently lie directly in front of the runway threshold would be relocated to the edge of the southwest RPZ. As noted above, golf courses are normally acceptable uses in RPZs. The relocation would enhance public safety, however. No new development is proposed within the northeast RPZ.

The City of San Bernardino Development Code currently includes land use restrictions in five Airport Overlay Districts based on the AICUZ. Under the Proposed Action, Airport Overlay Districts I and II which relate to accident potential would no longer be needed. The other three districts, which relate to noise, could be substantially decreased to reflect the projected reduction in noise. Figure 4.2-2 shows the reduction in area that would be subject to an Airport Overlay District, based on projected worst-case noise conditions anticipated to occur in 2005 (see Section 4.4.4). At that time, approximately 780 acres would be exposed to DNL 65 dB or above. Within San Bernardino, most of this area would be confined to base property. A small area southwest of the runway threshold extends beyond the base boundary. It is zoned for industrial use and currently includes six nonconforming residences. It should be noted that noise levels in the year



EXPLANATION

Current Restrictions

Restrictions Under the Proposed Action (2005)

0 1/4 1/2 1 Mile

Changes in Land Use Restrictions: Proposed Action

Figure 4.2-2

2015 are projected to be less than in 2005 due to anticipated improvements in aircraft required by Aviation Safety and Capacity Expansion Act (1990). Thus, another revision to the Development Code may be warranted in the future.

By the year 2005, a small area in the city of Highland would be exposed to DNL above 65 dB. This area is within the Santa Ana Wash and is currently used for aggregate mining. All other jurisdictions, including Redlands, Loma Linda, Colton, Rialto, and Fontana would no longer be exposed to noise levels above DNL 65 dB due to aircraft operations at Norton.

Aesthetics. The OIP development under the Proposed Action would substantially alter the visual character of the base by replacing existing buildings and grounds with a park-like setting of new buildings and extensive landscaping. The overall impact could be beneficial. Proposed road improvements along Tippecanoe and new OIP development in this area could have a potentially adverse effect on the palm-lined parkway by eliminating all or portions of it or developing the surrounding areas in such a way that the distinctiveness of the parkway is lost or diminished. Relocation of the four golf course fairways could have a beneficial effect on the golf course by offsetting it from airfield and airfield support structures. The scale and design of aviation support and OIP development directly adjacent to the military housing areas could have an adverse visual effect on the housing areas.

In general, off-base areas with views of the base would not be adversely affected by the proposed development. Over time, road improvements and base redevelopment would visually integrate the base into the community. This could have a beneficial effect on certain areas near the base. Warehousing in the southwest corner of the base could affect views along the Santa Ana River Corridor Trail System.

Cumulative Impacts. Other redevelopment projects in combination with the Proposed Action would bring land use patterns in the area closer to the objectives of the General Plans of communities in the ROI. Improvement in any area can be expected to have a synergistic effect in promoting and attracting investment and development in surrounding areas.

Mitigation Measures. Potential adverse impacts from the Proposed Action could be mitigated by designing and landscaping proposed industrial development adjacent to residential areas giving consideration to the existing scale, character, and sensitivity of these areas. Landscaping and screening would also mitigate adverse effects from warehouse development on the Santa Ana River Corridor Trail System. With mitigation, warehousing and recreational uses could be compatible.

4.2.2.2 Airport with Mixed Use Alternative

On-Base Land Use. The Airport with Mixed Use Alternative would result in the least overall changes in land use on base. There would be some reorganization of land use areas as a result of the realignment of Tippecanoe Avenue and Del Rosa Drive and consolidation of airfield and aviation support areas, but, in general, the multiple land uses presently found on the base would continue. This alternative also involves using more of the existing facilities on base, although substandard facilities would be demolished and replaced. The changes in on-base land use are described below.

- The industrial warehousing area on the west side of the base would be expanded into the open space along the west base boundary.
- The new alignment of Tippecanoe Avenue would eliminate some existing recreational and residential areas. It would become the boundary between industrial/commercial land use areas to the east and residential/recreational areas to the west.
- The commercial land use area would expand to the south and absorb the existing educational facilities on the base.
- Aviation support areas would include existing aviation support, some existing industrial use areas, the existing flight training facilities, a portion of the existing airfield, all the industrial and recreational areas on the northeast side of the base, and open land on the north side of the airfield.
- Development of warehousing in a portion of the southwestern CZ would be the same as described for the Proposed Action.
- Golf course realignment would be the same as under the Proposed Action.
- The area on the south side of the airfield, currently used for munitions storage, would become open area, as with the Proposed Action.
- Like the Proposed Action, the 30-acre parcel in Highland would be used for recreation.

On-base land use relationships under the Airport with Mixed Use Alternative would be similar to preclosure conditions. The residential area would be compatible with the adjacent officer housing to be retained by the Air Force, and proposed warehouse use on the west side of the base would be compatible with the BMO complex. The realigned Tippecanoe-Del Rosa corridor would separate residential and recreational uses from potentially incompatible office/industrial uses, but the roadway itself could expose residents to high levels of traffic and noise if not adequately buffered. The

aviation support development across Third Street from the NCO housing would be similar to the Proposed Action.

Impacts from easements, licenses, and permits on base property would be the same as described for the Proposed Action.

The Airport with Mixed Use Alternative would not be consistent with the proposed (but not yet adopted) zoning for the base. Specifically, the residential, recreational, medical, and commercial areas would be inconsistent with the proposed zoning.

Adjacent Land Uses and Zoning. This alternative would retain a land use pattern which is similar to surrounding areas. The mixture of smaller land use areas on the northwest side of the base is similar in scale and diversity to the existing mixed use areas to the north and northwest in the cities of San Bernardino and Highland. With the base fence removed, there would be a less perceptible distinction between the scale and pattern of structures and roadways of on-base and off-base areas. Land uses would be more readily integrated into the surrounding community than under the Proposed Action. Residents in existing areas north of the base would be attracted to medical, recreational, and commercial facilities on base. Potential land use conflicts between this alternative and surrounding areas are:

- Areas to be used for warehousing on the west side of the base (previously open land) have the potential for adversely affecting low-density residential uses in areas close to the base boundaries.

- New aviation support facilities uses have the potential for adversely affecting residential uses in areas on the north side of the base.

- Potential conflicts between the off-base area adjacent to the southern boundary of the base and airfield use, as well as between warehousing and the Santa Ana River Corridor Trail system, would be the same as under the Proposed Action.

Land Use Plans and Regulations. Like the Proposed Action, the Airport with Mixed Use Alternative would tend to improve the jobs/housing balance in the region and be consistent with SCAG goals.

Requirements of the City of San Bernardino Development Code would be as described for the Proposed Action. Until replaced, facilities not in compliance with the code would be nonconforming uses. Because this alternative would involve more extensive use of existing facilities, there could be more nonconforming uses than with the Proposed Action. Nonconforming residential uses would have to be replaced by 2009. New development would require an application for a Development Permit, at

which time it would be reviewed for compatibility and subject to landscaping, signage, setback, and building design requirements.

This alternative would be similar to the Proposed Action in its relationship to the cities of Highland and Redlands.

Airport Policies Affecting Adjacent Land Uses. Under this alternative, the airfield would operate as a civilian airport and be subject to the same safety zone restrictions and land use compatibility guidelines described for the Proposed Action. The area exposed to DNL 65 dB and above would be marginally smaller than under the Proposed Action. Similar changes to the City of San Bernardino Development Code would be appropriate.

Aesthetics. Visual impacts on the palm-lined parkway along Tippecanoe, the golf course, and adjacent to the proposed Santa Ana River Corridor Trail System would be as described for the Proposed Action. The Airport with Mixed Use Alternative differs from the Proposed Action in that it retains existing facilities on the western portion of the base rather than replacing them with new OIP development. Retaining these facilities would result in less change in the visual character of the base, compared to the Proposed Action, which would more significantly alter the property's visual character. Dormitories or other multi-family residential uses would be developed or retained east of the existing officer housing area, resulting in less potential for visual impacts on this area than from the nonresidential uses planned under the Proposed Action and a more gradual visual transition.

Cumulative Impacts. The Airport with Mixed Use Alternative would not result in cumulative land use impacts in combination with other projects in the ROI.

Mitigation Measures. Potential conflicts between aviation support and industrial areas and adjacent residential or recreation areas could be mitigated through vegetative screening, setbacks, and site design. In particular, screening should be used along the new Del Rosa-Tippecanoe corridor to reduce noise and traffic impacts on adjacent residential areas. Traffic within the residential areas could be channeled to a few intersections with the new corridor, so that high-speed vehicles are limited in access to residential streets.

4.2.2.3 Aircraft Maintenance Center

On-Base Land Use. The Aircraft Maintenance Center Alternative would result in similar on-base land uses to the Airport with Mixed Use Alternative for much of the base. The differences include aggregate mining on the northeast side of the base and fewer aircraft operations. This alternative would involve less flight activity, resulting in reduction in aircraft noise relative to the Proposed Action and Airport with Mixed Use alternatives.

Changes in on-base land use from preclosure conditions are the same as for the Airport with Mixed Use Alternative (see Section 4.2.2.2) with the following differences:

- The aviation support area would be smaller than the Airport with Mixed Use Alternative and would include some existing industrial areas along the west ramp, existing aviation support areas and flight training facilities, a portion of the airfield, and some open area on the north side of the airfield.

- The northeast side of the airfield would be used for aggregate mining operations in areas that include existing industrial, recreational, and open lands (including the landfill area) and portions of the existing northeast airfield CZ.

- Like the Proposed Action, the 30-acre parcel in Highland would be used for recreation.

On-base land use relationships in the western half of the base would be the same as under the Airport with Mixed Use Alternative. In the eastern half of the base, aggregate mining could coexist with airfield uses, provided that mining facilities and operations were sited and conducted so as not to interfere with aviation activities. Specifically, no facilities or equipment would be permitted to penetrate the glide slope for the runway, and operations would have to be conducted such that no smoke or dust could impair pilot visibility. The settling pond used in aggregate processing could attract waterfowl and other birds, which would present a potential air-strike hazard. The location of the pond would be an important factor in minimizing this risk, and mitigation may be required to discourage waterfowl from congregating at the pond.

Impacts from easements, licenses, and permits on base property would be the same as described for the Proposed Action.

This alternative would not be consistent with the proposed (but not yet adopted) zoning for the base. The same inconsistencies would exist as under the Airport with Mixed Use Alternative. Aggregate mining would also be inconsistent. The portion of this land use in the Santa Ana Wash would fall within the Biological Resource Management (BRM) and Mineral Resource Zone (MRZ) overlays of the City of San Bernardino General Plan. It would also fall within the 100-year flood hazard zone.

Adjacent Land Use and Zoning. As in the Airport with Mixed Use Alternative, the mixture of land use areas in the western half of the base would be similar in scale and diversity to existing mixed use areas to the north and northwest in the cities of San Bernardino and Highland. Potential conflicts between proposed warehouse development and the future development of the Santa Ana River Corridor Trail System would be the

same as described for the Proposed Action. Aggregate mining operations in the eastern half of the base would be compatible with existing mining operations in the Santa Ana Wash across Alabama/Palm Avenue. However, existing and future residential uses in areas north of Third Street between Victoria and Alabama/Palm Avenue and the NCO housing area could be adversely affected by noise, truck traffic, and the large-scale mining operations and facilities. This potential impact would be less the farther south and east that mining operations are concentrated. The area immediately north of Third Street is zoned by the city of Highland for commercial and industrial use, which could be compatible with mining. Most of this land is currently vacant. Aggregate mining could adversely affect future recreational use of the Santa Ana Wash.

Land Use Plans and Regulations. The Aircraft Maintenance Center Alternative would tend to improve the job/housing balance in the region and be consistent with SCAG goals. As with the Proposed Action and other alternatives, new development would require Development Permits and would be reviewed for compatibility with the San Bernardino Development Code.

Proposed aggregate mining activities would undergo a similar process, but the Development Code indicates that the same criteria used for industrial development may not be appropriate and, therefore, not applicable to aggregate mining operations. However, the intention of the General Plan and the Development Code is to maintain compatibility of adjacent uses, and site-specific development requirements may be incorporated into the conditions for this type of use. The aggregate mining would require a land use amendment to Industrial Extractive District from the city of San Bernardino. In accordance with the state Surface Mining and Reclamation Act (SMARA), a Mining and Land Reclamation Plan would need to be submitted to the city for approval. A Conditional Use Permit application would also be required.

MRZs in the General Plan were defined by the State Geologist as potential significant regional mineral resource areas. The aggregate mining site is within an MRZ-2 zone designated as a potential significant construction aggregate area. Land uses that would prevent retrieval of resources have to be justified by local planning agencies. Portions of the land within the MRZ-2 is within a BRM area. Because of the sensitivity of the area, an Environmental Impact Report (EIR) may be required in order to determine areas that are suitable for development. The goals for these two overlays may conflict, and special development provisions and project design may be required.

Since a portion of the aggregate mining site is also within the 100-year flood hazard zone, facility location and pit design would need to be approved by the San Bernardino County Flood Control Board. The major

concern is to avoid obstructing the primary flood control channel. Potential effects on flood control equipment and easements near the site would need to be reviewed. Other agencies that would need to review this use include the state Regional Water Quality Control Board and the Air Quality Management District.

The City of Highland General Plan projects future business park development adjacent to the north edge of this alternative's aggregate mining area. This was conceived as part of an up-scaled commercial/industrial/research area adjacent to civilian airport and OIP development on the base. The business park area would create a buffer between the existing aggregate mining across Alabama/Palm Avenue and low-density residential areas to the north. Therefore, a new aggregate operation adjacent to business park uses should be compatible. The City of Highland General Plan allows for some resource recovery within open space areas, but it explicitly seeks to limit additional aggregate mining because it is not compatible with residential land use in the city, particularly low-density, up-scale development.

The portion of the aggregate mining area that lies within the Santa Ana Wash is surrounded by city of Redlands land zoned as open space. The City of Redlands General Plan permits flood control, conservation, recreation, and aggregate mining operations in open space areas. These activities all exist in the Santa Ana Wash within Redlands. Recent residential development along the south banks of the Santa Ana Wash in Redlands has been affected by noise and dust from existing mining operations in the wash. The site on Norton AFB is sufficiently far from these areas and separated by SR-30 to preclude impacts from mining on base property.

A portion of the planned Santa Ana River Corridor Trail system would pass through the Norton aggregate mining area, along the northern edge of the wash. The specific route would have some siting flexibility. Portions of the trail farther east are planned to pass between existing active aggregate mining.

Airport Policies Affecting Adjacent Land Uses. Under this alternative, the airfield would operate for aircraft undergoing maintenance and for general aviation operations, and it would be subject to the same safety zone restrictions and land use compatibility guidelines described for the Proposed Action and Airport with Mixed Use Alternative. Since mining operations are not proposed within the runway object-free area and FAA guidelines do not restrict mining operations in any of the designated noise exposure levels, this use could be compatible with FAA land use guidelines. Coordination with FAA would be needed to preclude conflicts in the siting and design of the mining operation. Aggregate mining operations in conjunction with aviation activities would require review by the county's Airport Land Use Commission.

Because this alternative does not include any commercial passenger or commuter aircraft activity, noise exposure levels for surrounding areas would be less than under the other aviation reuse plans. The area exposed to DNL 65 dB and above would be wholly contained within the airfield land use.

The Airport Overlay Districts in the City of San Bernardino Development Code could be completely eliminated under this alternative. However, this would remove restrictions to development and could lead to encroachment by land uses incompatible with high aircraft noise. This could constrain future expansion of the airport to accommodate passenger or other expanded operations.

Aesthetics. Under this alternative, the area north and east of the airfield would be used for aggregate mining over a projected 20-year period. Other areas and their visual effects would be the same as the Airport with Mixed Use Alternative.

The proposed aggregate mining area does not border any existing or proposed areas which have been identified as visually sensitive. The mining area would be south of the NCO housing area; however, this residential area is in a neighborhood of mixed uses and is not considered to be visually sensitive. It has also been assumed that a 100-foot setback from the northern base boundary would be applied to the mining area. Bordering on-base uses proposed under this alternative would be airfield and aviation support, which are not visually sensitive. Bordering off-base uses would include the existing mining and processing operations across Alabama Street to the east, and commercial and vacant property north of Third Street and west of the NCO housing, between Victoria Avenue and Palm Avenue.

If additional off-base lands north of the proposed aggregate mining areas are developed for residential use and become a more cohesive residential area, the visual sensitivity of the area would increase, resulting in the potential for adverse visual impacts on residential areas from aggregate mining operations.

Under this alternative, aggregate mining could also occur on 27 acres in the Santa Ana Wash, an area currently vacant. This area does not border any existing or proposed sensitive visual resources, and no visual impacts are anticipated.

Cumulative Impacts. The Aircraft Maintenance Center Alternative would not result in cumulative land use impacts in combination with other projects in the ROI.

Mitigation Measures. Mitigations are the same as for the Proposed Action. In addition, visual and acoustical barriers between the mining site and

adjacent properties to the north would reduce impacts to residential and business park land uses. These could be achieved through siting, contouring, and landscaping. Haul roads, access points, lighting, fencing, and orientation of facilities should be designed to reduce noise and visual incongruence with other land uses in the immediate vicinity.

4.2.2.4 Non-Aviation Alternative

On-Base Land Use. The on-base land uses associated with the Non-Aviation Alternative represent a significant change from existing uses. The western half of the base would have the same land uses as the Airport with Mixed Use Alternative, maintaining a similar land use pattern and scale as preclosure conditions. However, under this alternative the airfield and aviation support areas would be replaced with residential uses. The changes in on-base use are described below.

- Land use changes in the western half of the base would be the same as described for the Airport with Mixed Use Alternative.
- OIP would extend into the area currently in the southwest CZ (no longer restricted by airfield criteria) and the west side airfield support area.
- The munitions storage area would become open area.
- New single-family residential development would replace the existing airfield and the recreation, industrial, and open areas on the north side of the airfield. It could also include a portion of the old landfill on the east side of the airfield which would need to be properly closed before development could occur.
- The northeast corner of the property would be developed for commercial-retail use. This use would serve with new residential development on the base.
- The golf course would remain the same; without aircraft activity, there would be no requirement to relocate four fairways.
- The 30-acre parcel in Highland would be developed for residential use.
- The 3-acre parcel southwest of the runway would be developed for industrial use.

On-base land use relationships in the western half of the base would be as reported for the Airport with Mixed Use Alternative. New residential development would be compatible with the neighborhood commercial and open recreation uses to the south and east. The extension of Sterling Avenue through base property would separate residential development from

OIP development. Traffic using this roadway, especially industrial traffic, would have a potential for adversely affecting adjacent residential properties.

Impacts from easements, licenses, and permits on base property would be the same as described for the Proposed Action.

This alternative would not be consistent with the proposed (but not yet adopted) zoning for the base. Specifically, the residential, recreational, medical, and commercial areas would be inconsistent, as would removing the airfield.

Adjacent Land Uses and Zoning. As in the Airport with Mixed Use and Aircraft Maintenance Center alternatives, the mixture of land use areas in the western half of the base would be similar in scale and diversity to existing mixed use areas to the north and northwest. New residential development would be compatible with other residential land uses north of Third Street. Potential land use conflicts between this alternative and surrounding areas are:

- Potential conflicts along the west half of the base would be the same as under the Airport with Mixed Use Alternative.
- New residential development might be incompatible with quarry operations east of Alabama/Palm Avenue, depending on noise, visibility, truck traffic, and hours of operation of the quarry.

Land Use Plans and Regulations. The Non-Aviation Alternative would increase residential land use in the ROI. While this would be consistent with market demands, it would not improve the jobs/housing balance in the region and would, therefore, be inconsistent with SCAG goals.

Requirements of the City of San Bernardino Development Code would be the same as described for the Proposed Action and Airport with Mixed Use Alternative. The city of Highland's plans to develop business park uses along the northern base boundary would present a potential conflict with adjacent residential development on the base property.

This alternative would be similar to the Proposed Action in its relationship to the city of Redlands.

Airport Policies Affecting Adjacent Land Uses. Under this alternative, there would be no airfield activity. Consequently, land use restrictions induced by high noise exposure levels and accident hazard would no longer exist. The city of San Bernardino could amend the Development Code to eliminate the Airport Overlay Districts.

Aesthetics. This alternative maximizes residential use and has the greatest potential to visually integrate the base into the surrounding community when build out is complete and to create a visually attractive residential area that might upgrade the appearance of the base. The potential impact from warehouse development on the Santa Ana River Corridor Trail System would be as described for the Proposed Action.

Cumulative Impacts. This alternative would not result in cumulative land use impacts in combination with other projects in the ROI.

Mitigation Measures. Residential areas north and northeast of the base may require buffer areas and screening toward quarry areas east of the base and mixed use areas north of the base that are in a blighted condition. New industrial development along Third Street may also be required to provide screening to reduce potential incompatibility. Landscaping and screening of warehousing adjacent to the Santa Ana River Corridor would mitigate potential impacts on future recreational development along the corridor.

4.2.2.5 Other Land Use Concepts. Several federal and other government agencies have proposed land uses, which could be initiated individually or in combination with any of the comprehensive alternatives. In addition, aggregate mining is evaluated as an independent land use. The potential effects of each of these concepts on surrounding land use and on land uses of the Proposed Action, Airport with Mixed Use, Aircraft Maintenance Center, and Non-Aviation alternatives are described below. It should be noted that any transfer or conveyance of a portion of the base to a federal agency or independent owner would be inherently inconsistent with the intent of the Proposed Action to redevelop the base through a single, unified ownership concept, regardless of the compatibility of the land use. Some of the federal land uses would be inconsistent with the proposed zoning for base property, but as federal facilities, they would not be bound by local land use regulations. Federal transfers and other government uses would appear to be consistent with the current zoning of the base as a Public Facility.

U.S. Department of the Interior

Land Use. This proposal would convey all existing recreational facilities on base for public use as city/county recreational areas. Continued use of the golf course would represent no change to the Proposed Action or any alternative. Continued use of recreation facilities on the northwest side of the base would be similar to the land use plan for the Airport with Mixed Use, Aircraft Maintenance Center, and Non-Aviation alternatives but different from the Proposed Action which identifies this area for OIP. However, the Proposed Action includes some recreational facilities within the scope of the OIP development, and these uses would be compatible with adjacent OIP development. Retaining the family camping area along

Third Street would be beneficial to the NCO residential area directly to the north, but it would curtail future aviation support development under the Proposed Action and Airport with Mixed Use Alternative. As an open park-like space, this would be most compatible with the Non-Aviation Alternative which identifies residential use in this portion of the base.

The U.S. Bureau of Reclamation's request for office space for 25 persons and associated parking space would be compatible with any of the alternatives. It would have no impact on land use.

Aesthetics. No visual impacts are anticipated.

U.S. Department of Agriculture

Land Use. Several potential sites are identified for use by the USFS. One site is on the north end of the west ramp and includes the existing Commissary and Base Exchange. This site would be within an OIP area under the Proposed Action and within an aviation support and commercial retail area under the Airport with Mixed Use and Aircraft Maintenance Center alternatives. A second site is on the east side of the airfield. Other sites would be within aviation support, warehousing, and OIP areas.

The western locations would be compatible with the Proposed Action. Under the Airport with Mixed Use or Aircraft Maintenance Center alternatives, this proposal would not be an incompatible land use, but it would preclude use of the Commissary and Base Exchange as retail facilities and anchors for other retail development in the adjacent area. The eastern location could be integrated with the Proposed Action if designed to avoid conflicts with general aviation. This location would be most compatible with the Airport with Mixed Use Alternative. It would curtail aggregate mining under the Aircraft Maintenance Center Alternative.

Under the Non-Aviation Alternative, only office and warehousing functions would locate on base. These functions would be compatible with the office and industrial land uses identified for this alternative.

Aesthetics. Warehouse and open storage uses could have an adverse visual impact on adjacent residential areas; however, the proposal could include buffer zones, landscaping, and screening.

U. S. Department of Education

Land Use. Under this proposal, several classroom buildings and a hangar have been identified for use by local educational institutions. The aviation training activities would be compatible with the Proposed Action, even though educational uses are not part of the proposed uses. The classrooms would be within OIP and aviation support areas, and aviation training would

support the overall use of the airport. These activities would also be compatible with surrounding land uses. Under the Airport with Mixed Use, Aircraft Maintenance Center, and Non-Aviation alternatives, some facilities would be in a residential land use area. The San Bernardino Development Code allows for Conditional Use of schools in residential areas. Under the Non-Aviation alternative, however, the aviation education may not be suitable.

Aesthetics. These uses and locations appear to be visually compatible.

U. S. Department of Veterans Affairs

Land Use. This proposal would be inconsistent with the Proposed Action which designates the site for OIP development. Continued use of these existing facilities also appears to be inconsistent with the intent of the Proposed Action except in the short term. However, there would be no incompatibility between the Veterans Affairs facilities and adjacent uses under the Proposed Action. This proposal would be compatible with the alternatives to the Proposed Action and could potentially take advantage of the public recreational facilities that are included in the public benefit transfer proposal sponsored by the U.S. Department of the Interior. Warehousing space would be in the existing warehousing area adjacent to the BMO area and would be compatible with BMO activity.

Aesthetics. The dormitory and clinic uses may be visually compatible with OIP and industrial/warehouse uses with appropriate landscape buffering.

McKinney Act Housing

Land Use. This proposal would be incompatible with the Proposed Action which does not include any residential use. The area under consideration for this use is delineated for continued residential use in the Airport with Mixed Use, Aircraft Maintenance Center, and Non-Aviation alternatives, and this proposal would be compatible with those alternatives. Under the City of San Bernardino Development Code, homeless facilities require a Conditional Use Permit in medium- to high-density residential areas and are prohibited in areas zoned for nine dwellings per acre or less. This proposal should have little effect on surrounding land uses.

Aesthetics. The proposal could be visually compatible with adjacent OIP development delineated in the Proposed Action with the use of buffer zones, landscaping, and screening.

U. S. Postal Service

Land Use. This proposal would occur within areas designated for warehousing in, and would be compatible with, the Airport with Mixed Use,

Aircraft Maintenance Center, and Non-Aviation alternatives. Under the Proposed Action, this complex would be in the center of the OIP. Siting and design treatment could provide adequate buffering from truck noise and could, therefore, be compatible with the Proposed Action. However, continued use of existing facilities could be inconsistent with the Proposed Action in the long term.

Aesthetics. The proposal would not result in any visual impacts.

San Bernardino County

Land Use. The site for the Work Furlough Program would be within the OIP area of the Proposed Action and within the residential area in the Airport with Mixed Use, Aircraft Maintenance Center, and Non-Aviation alternatives. Although not specifically mentioned in the City of San Bernardino Development Code, it would probably be similar in use and impact to a homeless facility. This activity would be more compatible with multi-family housing than low-density single-family housing. Since it would involve use of existing facilities, this proposal would only be compatible with the Proposed Action in the short term. It is not expected to adversely affect surrounding land uses.

Aesthetics. The work furlough facility could be visually compatible with OIP facilities or residential areas, depending upon the type and design of each. Screening and sensitive design should be considered to ensure compatibility.

Aggregate Mining

Land Use. This proposal would displace most of the commercial and some airfield and open area in the Proposed Action. Under the Airport with Mixed Use Alternative, OIP, commercial, aviation support, open area, and airfield uses would be replaced with aggregate operations. In these alternatives, aggregate mining operations would be an appropriate use alongside airfield activities, but noise and dust generation could be incompatible with some OIP uses. However, extensive mining operations may reduce the viability of airport development. Aggregate mining would be incompatible with the Non-Aviation Alternative since immediate proximity to residential areas would be undesirable. Limited mining operations within the Santa Ana Wash, designated for airfield in the aviation alternatives and as public/recreation area in the Non-Aviation Alternative, may be compatible. In the Non-Aviation Alternative, adequate buffers between mining and residential areas would need to be provided. Compatibility of aggregate mining operations with adjacent off-base zoning and land uses is discussed in Section 4.2.2.3 under Adjacent Land Uses and Zoning.

Aesthetics. In combination with the Proposed Action or Airport with Mixed Use Alternative, aggregate mining would be visually compatible with

existing and proposed adjacent land uses. In combination with the Non-Aviation Alternative, aggregate mining operations could have an adverse visual impact on adjacent residential areas. These impacts could be reduced through buffer zones, landscaping, and screening.

Combined Impacts of Other Land Use Concepts. It is not feasible to combine all of the individual land use concepts under all alternative reuse plans. For example, portions of the U.S. Department of Education and Department of Agriculture proposals are not feasible without aviation. It would be possible, however, to implement most of these proposals. The potential adverse effects of breaking up ownership of the base on developing a comprehensive, unified reuse concept are mentioned above with respect to the Proposed Action. Nevertheless, most proposals are small (e.g., U.S. Postal Service, Veterans Affairs) or easily integrated into the Proposed Action (e.g., Department of Agriculture, Department of Education) and would not preclude redevelopment of the remainder of the base.

Cumulative Impacts. No additional cumulative impacts would result from other land use concepts.

Mitigation Measures. Incompatibilities between other land use concepts and comprehensive reuse plans could be mitigated through planning, site development, and screening.

4.2.2.6 No-Action Alternative

Land Use. Under this alternative, most of the base land would be placed into caretaker status. The base would be maintained but not actively used.

Under caretaker status, the base would constitute a large, unused portion of the city of San Bernardino. In addition to the direct decrease in productivity associated with this disuse, the base could adversely affect land uses in adjacent areas and have an overall negative effect on the redevelopment and improvement of these areas. While this condition would not tend to directly affect industrial, open space, and flood control areas on the east, south, and west side of the base, it could affect more sensitive uses on the north side. There would be less incentive to invest in this area for new development, adding to the existing problem of deterioration. The base would also continue to inhibit through traffic, which could adversely affect new development plans in adjacent areas.

The No-Action Alternative would not contribute to regional goals for improving the jobs/housing balance.

The General Plans of San Bernardino and Highland are predicated on assumptions about reuse of Norton AFB. The city of San Bernardino

proposes zoning the base for a combination of airport and OIP. The No-Action Alternative would be inconsistent with this proposed zoning.

Lack of airfield activities would result in beneficial impacts to residential areas which have been negatively impacted by high noise levels in the past.

Aesthetics. The No-Action Alternative is not expected to significantly affect the visual and aesthetic quality of the base or the surrounding area. With the absence of human activity, some landscaped portions of the base could return to more natural vegetation.

Cumulative Impacts. The No-Action Alternative would not result in cumulative impacts in combination with other projects in the ROI.

Mitigation Measures. Adverse impacts of the No-Action Alternative on adjacent areas could be reduced by maintaining base facilities in good condition and increasing vegetative screening along the perimeter fence to decrease visibility.

4.2.3 Transportation

The effects of the Proposed Action and alternatives on each component of the transportation system, including roadways, airspace and air traffic, and railroads, are presented in this section. Mitigation measures are identified for those components likely to experience substantial adverse impacts under the Proposed Action or any alternative.

Roadways. Project-related effects on roadway traffic were assessed by estimating the number of trips generated by employees, visitors, residents, and service vehicles associated with construction and all other on-site activities and land uses for the Proposed Action and each alternative. Principal trip-generating land uses included industrial, office, commercial, residential, and airport uses. These trips were distributed to the roadway system based on proposed land uses and existing travel patterns for commuters and other traffic. This analysis is based on daily trips, for which data on roadway capacities and volumes are available and standards are established. Comparable data are not available for peak hour traffic.

The resulting traffic volumes were then added to the non-project-generated (ambient) traffic projected under post-closure baseline conditions. Ambient traffic in the area was projected using an average annual growth factor of 2.5 percent per year for the period 1995-2015, which was applied to all of the existing traffic movements and volumes on key local and regional roads. Traffic impacts were determined based on LOS changes for each of the key roads (see Table 3.2-2 for definitions of LOS).

In urban and suburban areas, LOS can also be affected by the capacity of intersections. Intersections along key roads that would experience unacceptable LOS were examined for deficiencies in capacity. Details on reuse are not sufficiently developed to permit an in-depth evaluation of intersection capacities.

The trip distribution analysis assumed the reuse alternatives would, in general, take advantage of the three main access points to the base area: Gate 1 via Tippecanoe Avenue or Mill Street, Gate 4 via Del Rosa Drive, and a third new access at Victoria Avenue. Distribution of traffic to and from the base area for each reuse plan was based on existing traffic patterns as determined by a traffic count conducted for this EIS in June 1991, the type of proposed land use, and the distribution of places of residence of personnel working at Norton AFB. It was assumed that the residential choices of the project-related employees would correspond to those of the current base personnel.

This analysis incorporates the assumption that transportation system improvements would be undertaken to maintain at least LOS E on key affected local roads. System improvements to maintain LOS E would include adding through lanes and associated intersection upgrades, proper signalization, sufficient turning lanes (especially for left turns into the base area), and appropriate ingress and egress. If improvements were indicated, local general plans were reviewed, and any inconsistencies were identified and addressed by mitigation measures.

Airspace/Air Traffic. The airspace analysis examines the type and level of aircraft operations projected for the Proposed Action and alternatives, and compares them to how the airspace was configured and used under preclosure conditions. The same constraints and considerations existing during preclosure were assumed, such as terrain, runway configurations, and other airport and airway air traffic. The Proposed Action and other aviation alternatives assumed the continued availability of radar and tower ATC services for the base.

The impact analysis considers the relationship of the projected aircraft operations to the operational capacity of the airport, using criteria that has been established by the FAA for determining airport service volumes. Potential effects on airspace use were assessed, based on the extent to which the Proposed Action or alternatives could (1) require modifications to the airspace structure or ATC systems/facilities; (2) restrict, limit, or otherwise delay other air traffic in the region; or (3) encroach on other airspace areas and uses. The degree of potential effects on airspace use is primarily a function of the capacities and capabilities of both the human and equipment elements of the ATC system, as well as the procedures and separation standards governing IFR aircraft operations.

The FAA is ultimately responsible for evaluating the specific effects that reuse of an airport will have on the safe and efficient use of navigable airspace by aircraft. Such a study is based on details from the airport proponent's Airport Master Plan and consists of an airspace analysis, a flight safety review, and a review of the potential effect of the proposal on ATC and air navigational facilities. Once this study is completed, the FAA can then best determine the actual requirements, facilities, terminal and en route airspace realignments, and ATC procedural changes needed.

Air Transportation. SCAG recently completed the Southern California Aviation System Study Update (SCAG, 1991). This study concluded that air passenger demand in Los Angeles, Orange, Riverside, Ventura, Imperial, and San Bernardino counties is likely to grow from approximately 59 MAP in 1988 to 90 MAP in the year 2000 and 118 MAP in the year 2010. Airspace, noise, and ground access constraints imply a total capacity at existing airports of only about 63 MAP. Projected growth in demand would need to be accommodated at other airports in the region. Reuse of Norton AFB for commercial air passenger service therefore could absorb part of the projected excess demand with minimal net effect on passenger volumes at existing airports.

Railroads. It is assumed here that the effects of the reuse of Norton AFB on ridership at the San Bernardino AMTRAK station will increase in proportion to population increases induced by each alternative. Because none of the alternatives assumes direct use of local railroads, direct effects on rail transportation are expected to be *minimal*.

4.2.3.1 Proposed Action

Roadways. By 2015, the major traffic generators would be 30,300 projected employees and the approximately 1.3 MAP associated with the Proposed Action. At this time, it is estimated that about 97,400 one-way trips (vehicle trip ends [VTEs]) would be generated by the Proposed Action on a typical weekday (a round trip would comprise two VTEs). The estimated trips generated by on-site development at various phases of reuse are depicted in Table 4.2-2. The number of trips generated by the Proposed Action would increase steadily, exceeding the 1991 preclosure level by the year 2000. The greatest change in the volume of trips would occur from 2000 to 2005, with volume rising by a factor of about 2.5 in 5 years. After 2005, project-generated traffic on local roads would continue to increase, but at a much slower rate. In the peak construction year of 2005, only about 4 percent of the total trips generated would result from construction workers.

Regional. Approximately 40 percent of total daily trips generated under the Proposed Action would use key regional roads. By 2015, the already congested freeway system would deteriorate further, displaying many

Table 4.2-2. Summary of Total Daily Trips Generated by Various Reuse Alternatives

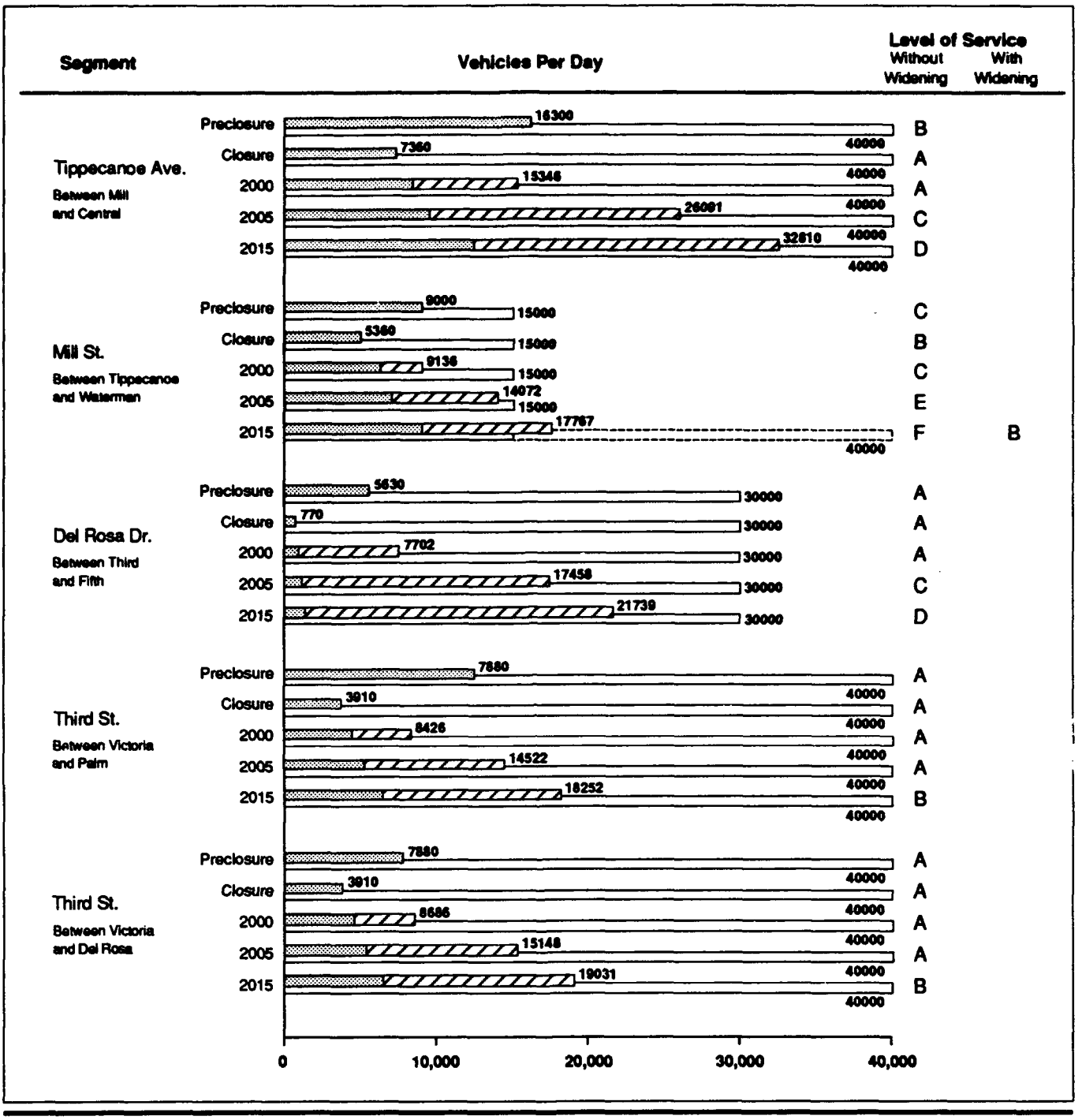
Reuse Alternative	2000	2005	2015
Proposed Action	32,421	78,331	97,357
Airport with Mixed Use	38,551	69,364	83,621
Aircraft Maintenance Center	34,351	59,537	63,959
Non-Aviation	61,281	88,625	118,433

Note: Daily trips generated are defined as vehicle trip ends.

bottlenecks due to lack of capacity on freeway segments, interchange ramps, and approaches to ramps. By 2015, with or without the Proposed Action, the LOS on I-10 at the Tippecanoe interchange and I-215 at the Mill interchange would be at LOS F. By 2015, the project would add about 9,700 daily vehicles to I-10 at the Tippecanoe interchange, which amounts to 3.6 percent of total daily traffic at that location. The project would also add about 5,800 daily vehicles to SR-30 at Del Rosa Drive or about 6.4 percent of that location's total projected daily traffic, but LOS would not be affected.

Local. Figure 4.2-3 shows the daily vehicular volume that would be generated by the Proposed Action operations and construction activities, added to post-closure conditions on each of the key community roads for the years 2000, 2005, and 2015. By 2015, the most heavily used local road segment would be Tippecanoe, with approximately 32,800 vehicles per day. On other key roads, daily traffic volumes would range from about 15,000 to 22,000 vehicles.

As described in Chapter 2, improvements to Mill, Fifth, and Alabama streets would be required under the Proposed Action to maintain LOS E or above. Fifth Street would need to be widened to four through lanes between Del Rosa Drive and Victoria Avenue by 2003. This would include widening the two-lane bridge over City Creek near SR-30 to four lanes. Alabama Street would also need to be widened to four through lanes between Palmetto and Third streets by 2013. In addition, Mill Street is expected to be widened to four through lanes between Waterman and Tippecanoe avenues. This would be required to be completed by 2006 to maintain LOS E or above. These improvements would be sufficient to assure attainment of LOS no lower than E for the Proposed Action. These measures amount to upgrading the streets to major arterials, consistent with the Circulation Element of the General Plan of the City of San Bernardino. However, the East Valley Corridor Specific Plan requires a LOS C and six lanes on Alabama Street between Palmetto and the Santa Ana River. Alabama Street, when widened in 2013, will operate at LOS B. Alabama Street requires widening by 2005 to meet the requirements of the East Valley Corridor Specific Plan for LOS C.

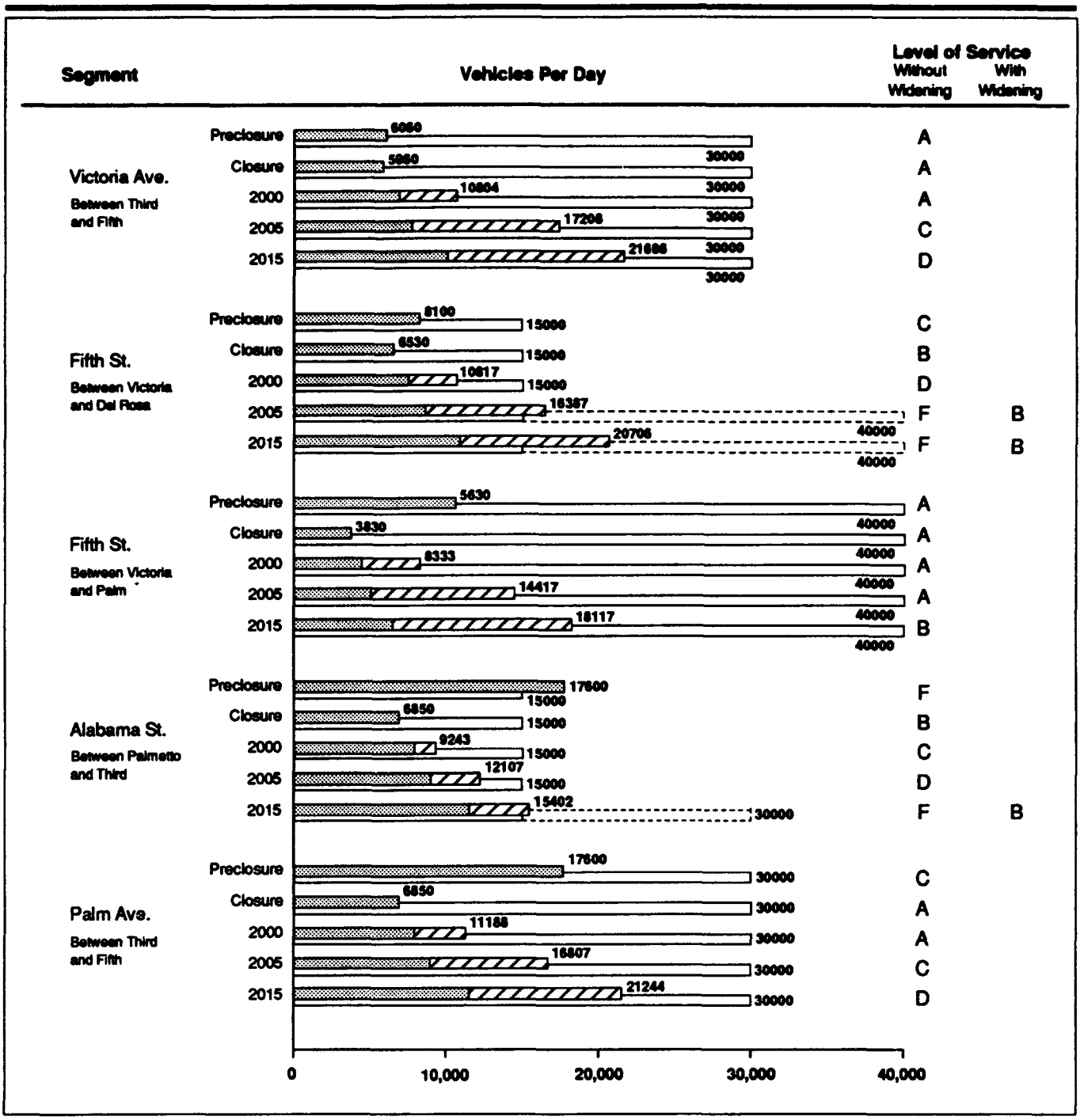


EXPLANATION

- Non-Project Generated Traffic (Vehicles per Day)
- Project Generated Traffic (Vehicles per Day)
- Existing Capacity
- Future Capacity

Daily Vehicular Traffic Volumes on Key Local Roads-Proposed Action

Figure 4.2-3



EXPLANATION

- Non-Project Generated Traffic (Vehicles per Day)
- Project Generated Traffic (Vehicles per Day)
- Existing Capacity
- Future Capacity

Daily Vehicular Traffic Volumes on Key Local Roads- Proposed Action

Figure 4.2-3 (continued)

Figure 4.2-3 also shows the projected LOS for each key road segment, both with and without improvements to Mill, Fifth, and Alabama streets. With the assumed improvements, local roads would be at LOS D or better in 2015. Fifth, Mill, and Alabama streets would need improvements to maintain LOS E or above in 2003, 2006, and 2013, respectively.

These results assume coordination of traffic signals on key local roads to best utilize the system and distribute traffic evenly on roadways surrounding the base. This coordination is a key component in maintaining LOS achieved by these improvements.

On-Base. The Proposed Action assumes existing on-base roads would be used in the short term during the construction period, but ultimately the entire on-base network would be upgraded and reconstructed to accommodate new land uses in accordance with an approved Specific Plan for reuse. In the interim, heavy traffic movement would be experienced on these on-base roads.

By 2015, the transition corridor through the base connecting Tippecanoe to Del Rosa would experience the heaviest traffic volumes, potentially in the range of 18,000 to 25,000 daily trips. Many of these trips would be internal to the base area, involving turning movements on and off the corridor. This corridor would fulfill a dual role: (1) serve internal trips which would involve heavy volumes of left and right turns; and (2) serve through traffic which would require mobility. Feeder streets connecting to this corridor would likely carry 8,000 to 10,000 daily trips. A new loop roadway connecting at Third Street would serve the newly constructed airport terminal and adjacent land uses and would carry about 8,000 trips per day.

Future on-site circulation improvements under reuse activities would handle both internal traffic and a portion of local road traffic. Depen[illegible]on the Specific Plan implemented, this could potentially reduce local r[illegible] traffic below levels reported above.

Public Transportation. The Proposed Action is expected to increase the demand on public transportation.

Movement of Goods. The Proposed Action includes roadway improvements to facilitate movement of goods by truck to on-site land uses.

Airspace/Air Traffic. Aviation activities identified under the Proposed Action include air passenger service, corporate and private flying (general aviation), air cargo, and aircraft maintenance-related operations. The projected number of flight operations and the fleet mix associated with the Proposed Action are shown in Table 2.2-3. FAA guidelines (Federal Aviation Administration, 1983b) were utilized to determine the Annual Service Volume (ASV), as a reasonable estimate of an airport's operational capacity

based on retention of the existing runway configuration, projected fleet mix, weather conditions, etc. that would normally be encountered over a year's time. Projected operations for the Proposed Action were then compared to the ASV to determine if the airport can meet forecasted demands. It was calculated that the ASV for the Norton airport would increase from approximately 195,000 operations in 1995 to 205,000 operations by the year 2015, primarily as a result of changes in the fleet mix composition. Because operations associated with the Proposed Action represent only about 25 percent of the ASV by 2015, no airport constraints would be expected to the runway capability to handle this number of arrival and departure operations.

The Proposed Action and this analysis assume that the same type of radar coverage and navigational aids would be provided for the airport as existed prior to base closure in order to maintain an equivalent level of ATC services for the reuse aviation activities. A very high frequency omnirange tactical air navigation (VORTAC) aid with distance measuring equipment is already available with instrument approach and departure procedures established for the base that can be used by properly equipped civil aircraft. The existing ILS is also compatible with civil aircraft instrumentation and could either be retained or replaced to maintain this precision approach capability. The decision to retain the ILS or install a newer system would depend on operational needs and availability of funds, as determined by the FAA and the airport development authority.

Airspace requirements for the Proposed Action should be the same as those in effect under the preclosure reference with the Ontario TRACON retaining control of this area. This Proposed Action includes a control tower which, along with navigational aids, would require that the ATA, CZ, and possibly the ARSA be retained to provide protective airspace for airport traffic and instrument flight procedures. These requirements could be satisfied by maintaining the preclosure airspace structure without any changes or additions.

Civil aircraft approaching or departing Norton would follow the same flight tracks as used during preclosure. The climb rates required for instrument departures to the east may be a limiting factor for some heavier types of air carriers.

The overlapping airspace would still be required to serve simultaneous IFR arrivals into Ontario and Norton. This airspace would continue to be susceptible to air traffic saturation for the Ontario-Norton radar sector during peak operational periods. According to information and estimates presented in the Airport Master Plan for Reuse of Norton AFB (P&D Technologies, 1991) and the Southern California Aviation Systems Study Update (SCAG, 1991), a radar sector controller can theoretically handle 30 IFR operations an hour. These reports also indicate that in 1989 the Ontario-Norton sector

handled up to 43 IFR operations in a peak hour, 9 of which were attributable to Norton traffic. While this implies theoretically that this sector operated 43 percent above its capacity, actual work-load capacities are contingent on factors such as the type of IFR operations involved in (overflight versus airport traffic) weather conditions which affect traffic separation requirements, runway acceptance rates, and individual controller capabilities. Considering such factors and making use of en route traffic flow control and speed adjustment techniques as necessary, Ontario TRACON management has indicated that the current air traffic conditions have not created any significant capacity problems for the radar sector controller. Normally, only occasional minor delays in aircraft arrivals have been experienced at Ontario and Norton.

By 2015, IFR operations (predominantly air carrier and air cargo) at Norton AFB are projected to increase about 30 percent above the preclosure IFR operations. It would not appear that this increase (an additional three peak-hour operations) would by itself adversely affect air traffic movement in the area using present flow and speed control techniques. VFR aircraft (most general aviation operations) would normally fly directly to and from the airfield outside of the standard routes used by IFR aircraft, thereby causing little effect on the other surrounding airspace uses and ATC traffic handling capacities.

Based on examination of airspace use and procedures, discussions with the FAA, and the information presently available, it does not appear that the type and level of aircraft operations identified for the Proposed Action would alone limit or delay other air traffic in the area, require any airspace realignments or ATC system modifications, or encroach on other airspace areas or uses.

Air Transportation. The commercial airport identified under the Proposed Action would have a passenger volume of approximately 1.3 MAP by 2015. SCAG recently completed forecasts of air passenger demand in southern California for the years 2000 and 2010 (SCAG, 1991). Regional total air passenger demand was projected at 118 MAP in the year 2010, well in excess of the 63 MAP capacity of current regional airports. The Proposed Action would satisfy a portion of this unmet demand. Other regional airports would continue to operate at or above capacity.

Air cargo shipments through the commercial airport under the Proposed Action can be expected to help meet the growing demand for the air freight capacity projected by SCAG through the year 2010 (SCAG, 1991).

The existing private airports in the ROI would probably not experience a loss of patronage with the introduction of general aviation at Norton AFB. Unless accommodations were better and/or fees were less, private aircraft owners would have little reason to leave the airport they are now using. As

new private aircraft are introduced to the San Bernardino area, their owners might be more inclined to use the new facilities at Norton AFB airport.

Railroads. With the introduction of industrial and commercial uses at Norton AFB, only minor added requirements for rail freight are expected. It is unlikely that rail freight could compete with trucks due to the relatively small amount of freight and to the wide range of origins and destinations. The daily enplaned air cargo tonnage forecasts at Norton airport for 2015 would amount to 56 tons, which is not enough to justify a rail link by the year 2015. The rail line formerly connected to the base near Gate 1 could, if rebuilt, be used during heavy construction periods to bring in construction materials, though little long-term economic justification for rebuilding the line is apparent.

Ridership on the AMTRAK system in and out of San Bernardino is expected to increase in proportion to population increases in the area. Under the Proposed Action, annual ridership at the San Bernardino AMTRAK station would increase from 40,600 in 1990 to 68,900 in 2015, an increase of 58.9 percent over this period. Approximately 5,100 riders of the 2015 total are attributable to the population effects of the Proposed Action.

Cumulative Impacts. Other redevelopment projects in the vicinity of Norton would contribute substantially to the growth in roadway traffic in the region. The cumulative impacts of these projects added to the future reuse of Norton AFB would further worsen the currently congested I-10 and its interchanges at Waterman, Tippecanoe, Mountain View, California, and Alabama, as well as I-215 and its interchange at Mill Street. If all redevelopment projects along the I-10 corridor were fully developed, VTEs could reach 500,000, a significant percentage of which could be expected to access I-10. The current capacity of I-10 is estimated to be about 200,000 AADTs. Tippecanoe Avenue between Redlands Boulevard and Mill Street, and Alabama Street between Third Street and Barton Road would be the key local roads most affected by this cumulative development. These cumulative impacts would have to be addressed in a comprehensive regional manner in order to mitigate congestion on the key roads and other roads in the redevelopment area.

The Proposed Action, coupled with other future airport growth and development planned for the region, particularly the Ontario International Airport, could place additional demands and constraints on airspace use in the region and result in potential adverse impacts. Specifically, Ontario International Airport is planning to increase its capacity from 5 MAP to 12 MAP by the year 2000, which would gradually increase annual aircraft operations from 182,000 to 264,000. This increase in air traffic may further complicate and congest the overlapping Ontario-Norton airspace to a point that could exceed the capacity and capability of the ATC system to conduct simultaneous operations to the respective airfields during peak

periods. The Master Plan and Aviation Study Update for Ontario estimate that by the year 2010, the Ontario-Norton radar sector would be handling 66 IFR peak-hour operations (Fowler, 1991). The cumulative effect could therefore limit or delay arrival and departure operations during peak hours beyond normally acceptable levels (ATC reportable delays of 15 minutes or greater). Considering the planned growth for Ontario and the capacity constraints of the radar sector serving both airports, it appears that the Proposed Action may contribute to a cumulative impact unless effective measures can be implemented by the FAA to minimize such impacts as traffic congestion increases.

Aircraft operations at March AFB would not contribute to the cumulative airspace effects since aircraft operations there are expected to decrease, and traffic patterns and arrival/departure routes for March AFB do not overlap the Ontario final approach course. The proposed reuse of George AFB is not expected to affect the Norton airspace ROI due to the geographical separation and ATC airspace segregation of the two bases.

Mitigation Measures. Improvements to segments of Alabama and Fifth streets have been assumed to maintain these roadways at LOS E or above. Similar improvements to Mill Street would also be required and are already planned. Coordinating intersection signalization along Tippecanoe Avenue between Mill Street and Redlands Boulevard should be considered. Intersections that control access to I-10 from Tippecanoe Avenue and the intersection controlling access to I-215 from Mill Street could be improved. In addition, improvements to Alabama Street by 2005 would allow operation at LOS C, consistent with the East Valley Corridor Specific Plan.

These changes do not account for possible trip reduction resulting from Transportation Demand Management (TDM) measures to encourage person- and vehicle-trip reductions and peak period modifications. In addition, these changes do not address potential impacts on the implementation of the San Bernardino County Congestion Management Plan which is currently being developed. TDM measures could include, for example, reduced work weeks and telecommuting to reduce person-trips, ridesharing (vanpools and carpools), implementation of transit-oriented development mass transit usage to reduce vehicle trips, phasing of base development and flexible work schedules to modify peak traffic periods. Specific mitigation measures that could be implemented as part of reuse of Norton AFB include mass transit accommodations such as bus turnout lands, park and ride facilities, and bus and shuttle shelters. These accommodations could be included in the Specific Plan covering base property, planned and provided in coordination with mass transit system operators. Airport operators could also coordinate ride-sharing programs in accordance with the Congestion Management Plan. Implementation of TDM could reduce vehicle trips by a maximum of 15 to 20 percent. Projected LOS D on key roads by the year 2015 could be raised to LOS C with efficient use of TDM measures.

No mitigation measures for airspace/air traffic impacts are required for the Proposed Action. However, measures to mitigate the cumulative impacts focus on eventual changes to the overlapping approach routes to Ontario and Norton that would allow the traffic workload to be distributed between two radar sectors. This could be effectively accommodated through use of a microwave landing system (MLS), which permits an angled IFR approach to a runway where terrain or other airspace considerations prevent or limit straight-in approaches. Installation of this system may allow development of an MLS approach to Norton from the southwest that would keep arriving traffic sufficiently clear of the Ontario arrival route. The MLS is not yet available for widespread use. Implementation of other feasible routing changes would likely be phased in to meet the gradual cumulative buildup of operations at the two airports.

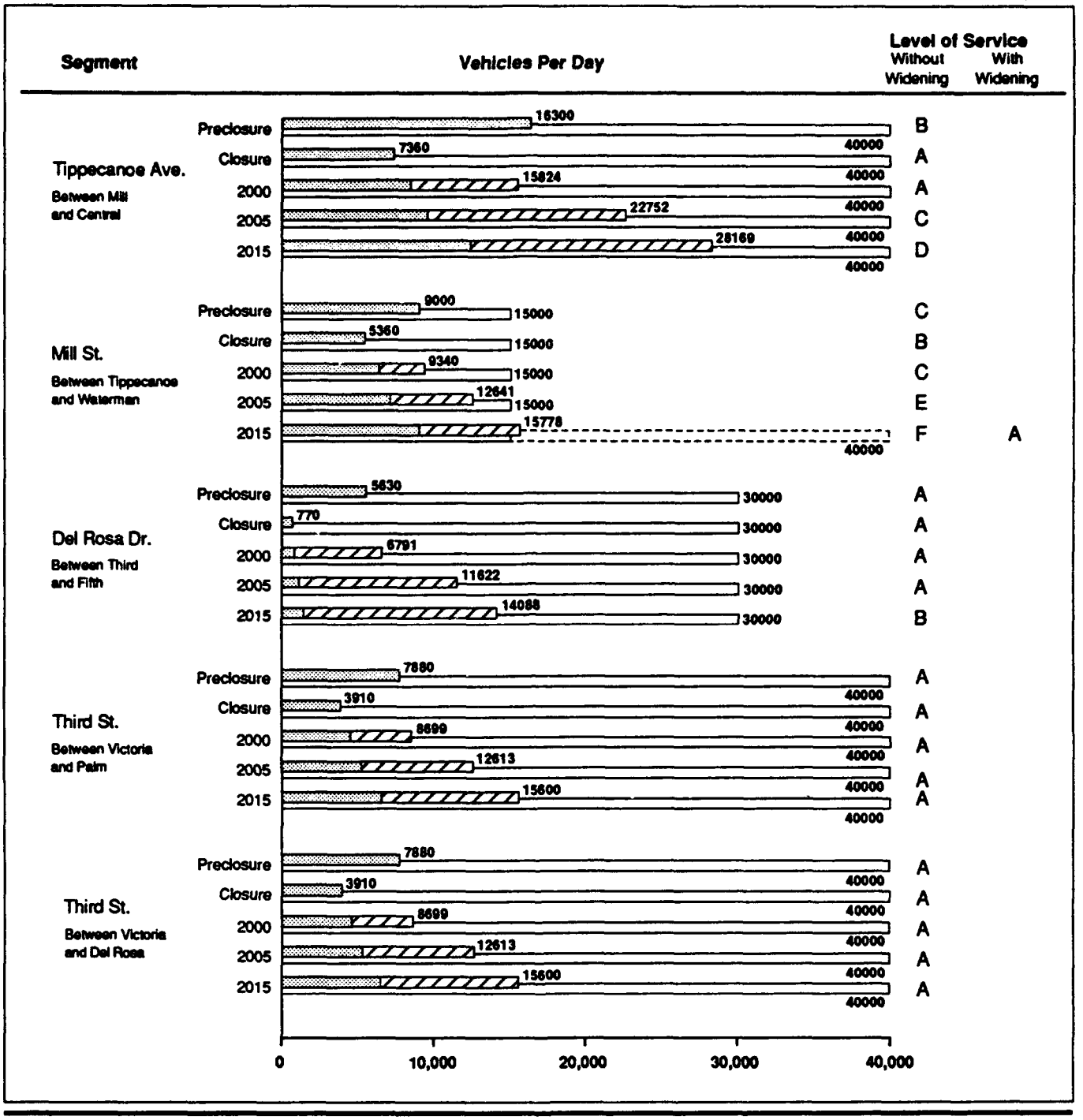
A more specific determination of potential impacts and required mitigation measures will be identified in the FAA airspace analysis for the planned reuse of Norton and airport expansion at Ontario. The findings and recommendations of this analysis, coupled with future use of technological advances such as the MLS, could help reduce the potential cumulative impacts on this airspace environment as market demands for air commerce continue to increase.

4.2.3.2 Airport with Mixed Use Alternative

Roadways. The major traffic generators under this reuse alternative would be 23,000 employees from the industrial and commercial activities, 1,300 residential dwellings, and 1.3 MAP. By the year 2015, total daily trips generated by the Airport with Mixed Use Alternative are estimated at about 83,600 (see Table 4.2-2). Most of this growth in trips generated would occur by the year 2005, when daily trips would exceed the preclosure level by a factor of 2.2. After 2005, the project-generated traffic on local roads would continue to increase, though at a slower rate. In the peak construction year of 2000, about 4 percent of site-related daily vehicle trips would result from construction activity.

Regional. Forty percent of total daily trips generated under the Airport with Mixed Use Alternative would use key regional roads (freeway interchanges). As noted for the Proposed Action, LOS at some intersections would be at LOS F, even without base reuse. By 2015, this alternative would add about 8,400 daily vehicles to I-10 at the Tippecanoe interchange. This amounts to 3 percent of total daily traffic at the same location. The project would also add about 5,000 vehicles per day to SR-30 at Del Rosa Drive, or about 5.5 percent of total traffic.

Local. Figure 4.2-4 shows the vehicle volumes and LOS generated by the project on each of the key local roads added to post-closure conditions for 2000, 2005, and 2015.

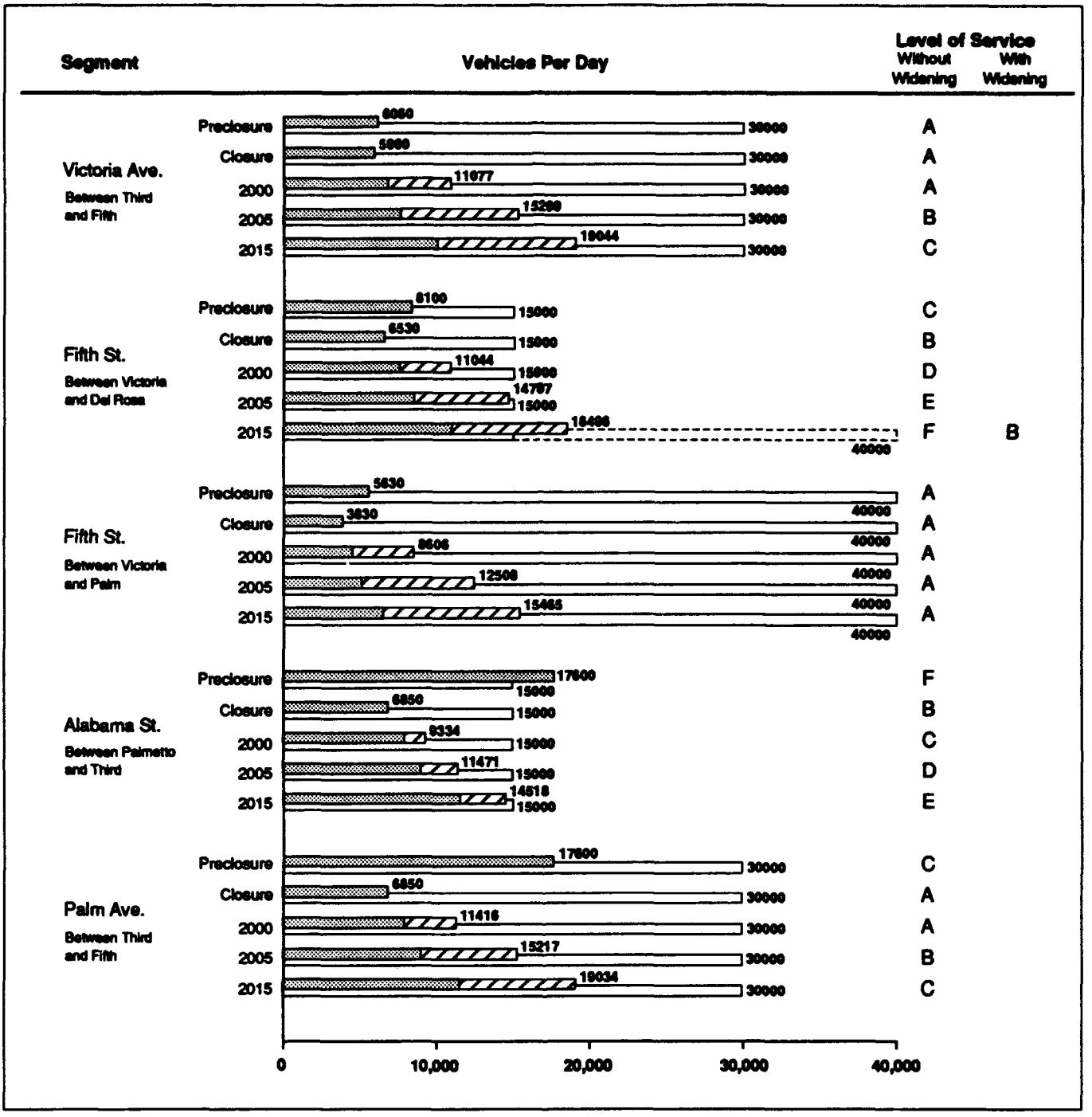


EXPLANATION

- Non-Project Generated Traffic (Vehicles per Day)
- Project Generated Traffic (Vehicles per Day)
- Existing Capacity
- Future Capacity

Daily Vehicular Traffic Volumes on Key Local Roads- Airport with Mixed Use Alternative

Figure 4.2-4



EXPLANATION

- Non-Project Generated Traffic (Vehicles per Day)
- Project Generated Traffic (Vehicles per Day)
- Existing Capacity
- Future Capacity

Daily Vehicular Traffic Volumes on Key Local Roads-Airport with Mixed Use Alternative

Figure 4.2-4 (continued)

The local key road most affected, in terms of traffic volume, would be Tippecanoe, which would carry 28,200 daily vehicles by 2015. Other key roads would carry daily traffic ranging from about 14,000 to 19,000 vehicles that same year.

Improvements would be required to Mill and Fifth streets, including widening the bridge over City Creek, to maintain LOS E or above. Provided Fifth Street is widened in 2006, it would operate at LOS B. If Mill Street is widened by 2011, it would operate at LOS A. Alabama Street near Palmetto would operate at LOS E, which is below the LOS C required by the East Valley Corridor Specific Plan. All other key roads would operate at LOS D or better in 2015.

On-Base. It is assumed for this alternative that existing on-base roads would be used in the short term and during construction. Ultimately some of the on-base network would be widened or upgraded to accommodate new land uses in accordance with an approved Specific Plan for reuse. In the interim, heavy traffic movement would be experienced on these on-base roads.

By 2015, the transition corridor through the base connecting Tippecanoe Avenue to Del Rosa Drive would experience the heaviest traffic volumes, potentially in the range of 19,000 to 21,000 trips per day. Feeder streets connecting to this corridor would likely bear 5,000 to 7,000 daily vehicles. A new loop road connecting at Third Street and Victoria Avenue would serve the newly built air terminal, and would carry about 8,000 vehicles.

Public Transportation. The Airport with Mixed Use Alternative is expected to increase demand on public transportation in proportion to population increases in the region; however, there will be no significant impact on the public transportation system.

Movement of Goods. This alternative involves retention of much of the existing on-base roadways, which present constraints to heavy truck movement. Improvements to intersections would be incorporated to improve turning radii and improve truck circulation.

Airspace/Air Traffic. Aviation activities identified under this alternative include air passenger service, corporate and private flying (general aviation), and aircraft maintenance-related operations. The projected number of flight operations and the fleet mix associated with this alternative are shown in Table 2.3-3. Based on these projections, the fleet mix, and retention of the existing runway configuration, the ASV for each of the projected years would range from approximately 195,000 operations in 1995 to 205,000 operations by the year 2015. This increase in capacity would result from changes in the aircraft fleet mix which can influence runway acceptance rates. Since the projected operations for this alternative represent only

30 percent of the service volume by 2015, no runway use constraints would be expected under this scenario.

The Airport with Mixed Use Alternative assumes that the same type of radar coverage would be provided for the airport as existed prior to base closure in order to fully support projected aircraft operations. It is also assumed that this alternative would require an ILS to provide a precision instrument approach capability for air carrier operations. However, as discussed for the Proposed Action, the retention of the existing ILS or installation of a new system would depend on operational needs and availability of funds, as determined by the FAA and airport operator.

Airspace requirements for this alternative would be the same as those in effect under the preclosure baseline (see Figure 3.2-14) and described for the Proposed Action.

Civil aircraft approaching or departing Norton under this alternative would follow the same flight tracks as used during preclosure with the same limitations in climb rates for heavier aircraft described for the Proposed Action. The number of IFR operations projected by the year 2015 is nearly 32 percent above those conducted under the preclosure, which could result in about three additional flights at Norton per peak hour. This increase, compared to the preclosure peak-hour capacity work load of the Ontario-Norton sector controller should not by itself adversely affect air traffic in the area. VFR general aviation operations are projected to be the same as for the Proposed Action and would likewise have little effect on the ATC system and IFR traffic in the area.

Based on the type and level of aircraft operations projected for this alternative and the information available, it would not appear that this reuse option would limit or delay other air traffic in the area, require any airspace modifications, or encroach on other airspace uses in the ROI.

Air Transportation. The commercial airport planned under this alternative would be similar to the Proposed Action. Effects on air passenger and air cargo transportation demand, consequently, would also be similar to those of the Proposed Action.

Railroads. Impacts on rail freight transportation for the Airport with Mixed Use Alternative would be less than those described for the Proposed Action, since a smaller volume of construction and operation rail freight demand is anticipated. AMTRAK ridership in and out of the San Bernardino station would increase from 40,600 in 1990 to 68,200 in 2015, an increase of 67.9 percent during this period. Approximately 4,400 riders of the 2015 total would be attributable to the population impacts of the Airport with Mixed Use Alternative.

Cumulative Impacts. Cumulative roadway impacts would be the same as described for the Proposed Action.

Cumulative airspace effects with the expansion of Ontario International Airport would be the same as described for the Proposed Action. As with the Proposed Action, projected aircraft realignments at March AFB and reuse of George AFB are not expected to affect the Norton airspace.

Mitigation Measures. Improvements to segments of Mill and Fifth streets, including widening the bridge over City Creek, have been assumed to maintain these roadways at LOS E or above. Alabama Street requires improvement to meet requirements of the East Valley Corridor Specific Plan for LOS C. As with the Proposed Action, these changes do not account for TDM measures to reduce vehicle trips.

No mitigation measures would be required for airspace/air traffic impacts for the Airport with Mixed Use Alternative. However, as discussed for the Proposed Action, actions would eventually have to be taken to relieve congestion due to cumulative impacts through procedural changes and technological advances. This would be studied further by the FAA to ensure identification of impacts and planned implementation of appropriate measures to mitigate such effects.

4.2.3.3 Aircraft Maintenance Center Alternative

Roadways. By 2015, the major traffic generators would be 18,100 projected employees and approximately 1,200 residential dwellings. By the year 2015, it is estimated that about 64,000 daily trips would be generated by the Aircraft Maintenance Center Alternative (see Table 4.2-2). The amount of trips generated by this alternative would increase steadily, exceeding the 1991 preclosure level by the year 2000. The greatest change in the volume of trips would occur during the period 2000-2005. After 2005, project-generated traffic on local roads would continue to increase, but at a much slower rate. In the peak construction year of 2000, about 12 percent of the total trips generated would result from construction workers.

Regional. Approximately 36 percent of total daily trips generated under the Aircraft Maintenance Center Alternative would use key regional roads. By 2015, the LOS on some regional roads would decrease to Level F even without base reuse. By 2015, this alternative would add about 8,400 daily vehicles to I-10 at Tippecanoe interchange, which amounts to 3.1 percent of total daily traffic at that location. The project would also add about 5,000 daily vehicles to SR-30 at Del Rosa, about 5.5 percent of that location's total projected daily traffic. The projected aggregate mining activities would ultimately add an average of 250 truck trips per day to I-10 which represent slightly less than 1 percent increase in truck traffic on I-10 between SR-30 and I-215.

Local. Figure 4.2-5 shows the daily vehicular volume as generated by the Aircraft Maintenance Center Alternative operations and construction activities, added to the post-closure conditions on each of the key local roads for the years 2000, 2005, and 2015. By 2015, the most heavily used local road would be Tippecanoe, with approximately 25,000 vehicles per day. On other key roads, traffic volumes would range from about 13,000 to 18,000.

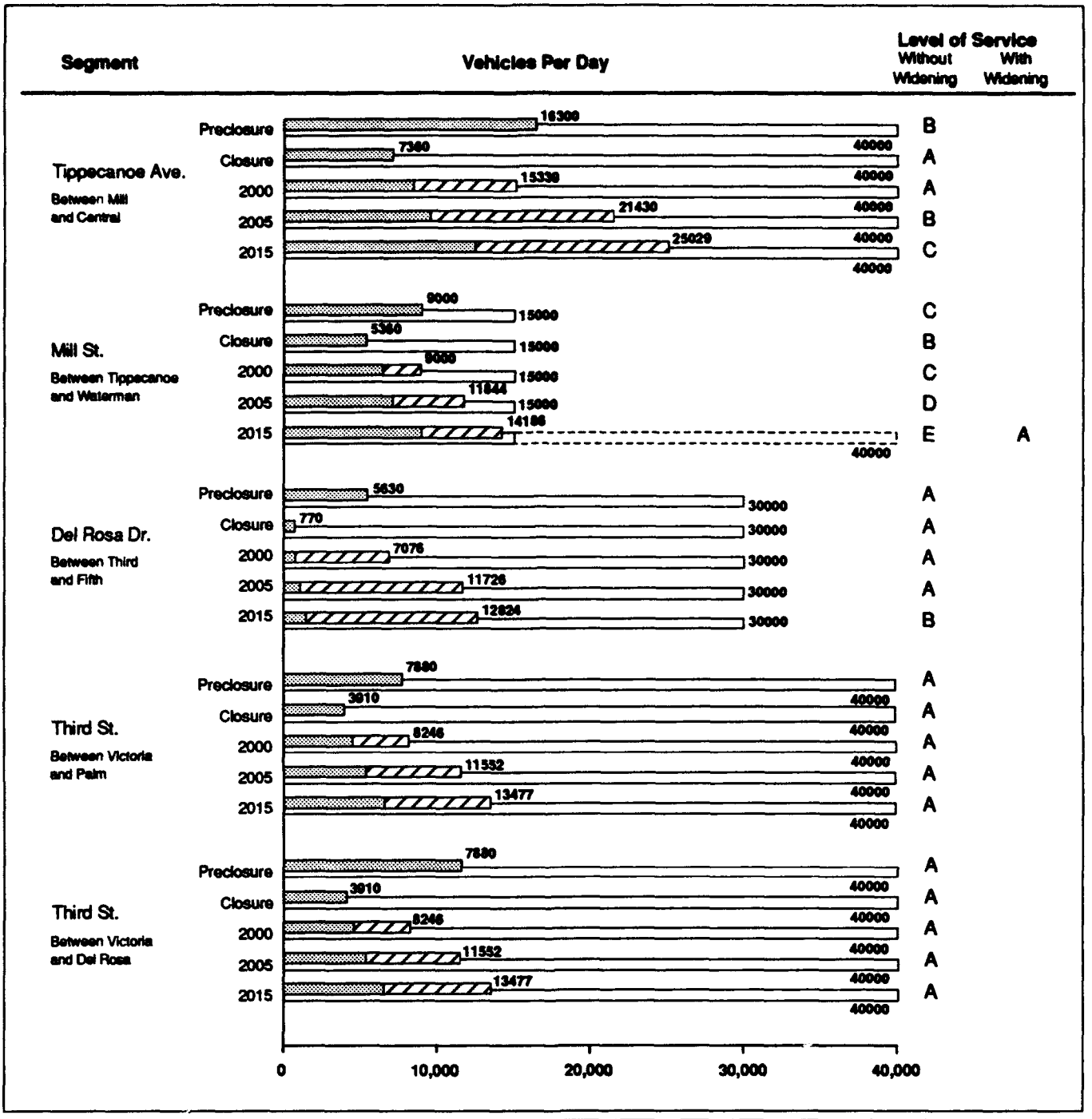
Improvements would be required to segments of Fifth Street by 2005 and Mill Street by 2015, including widening the bridge over City Creek. With these assumed improvements, all local roads would maintain LOS C or better through the year 2015, except Alabama Street between Palmetto and Third Street, which would operate at LOS E by 2015. Improvements to Alabama Street are required to meet requirements of the East Valley Corridor Specific Plan for LOS C.

On-Base. The Aircraft Maintenance Center Alternative assumes that existing on-base roads would be used in the short term during the construction period. Ultimately, some on-base roads would be widened or upgraded to accommodate new land uses in accordance with an approved Specific Plan for reuse. In the interim, heavy traffic movement would be experienced on these on-base roads.

By 2015, the transition corridor through the base connecting Tippecanoe to Del Rosa would experience the heaviest traffic volumes, potentially in the range of 14,000 to 20,000 daily trips. Feeder streets connecting to this corridor would likely carry 6,000 to 12,000 daily trips, while a typical new access to the aviation support area from Third Street would carry about 6,000 vehicles per day. The access to the mining area would carry 500 vehicles per day of which 300 would be heavy trucks. The trucks were converted to passenger car equivalents and assigned to the appropriate street for analysis. These estimates would vary, depending on the location and number of driveways to the site.

Public Transportation. The Aircraft Maintenance Center Alternative is expected to increase demand on public transportation in proportion to population increases in the region; however, there will be no significant impact on the public transportation system.

Movement of Goods. This alternative would be similar to the Airport with Mixed Use Alternative for the western part of the base. Heavy truck traffic would be associated with aggregate mining on the east side of the base. On-base roads would be designed to accommodate this traffic. Off-base roads that would be used by aggregate transport vehicles have the basic design capability to accommodate these vehicles; however, adequate turning radii and pavement reinforcement may be required.

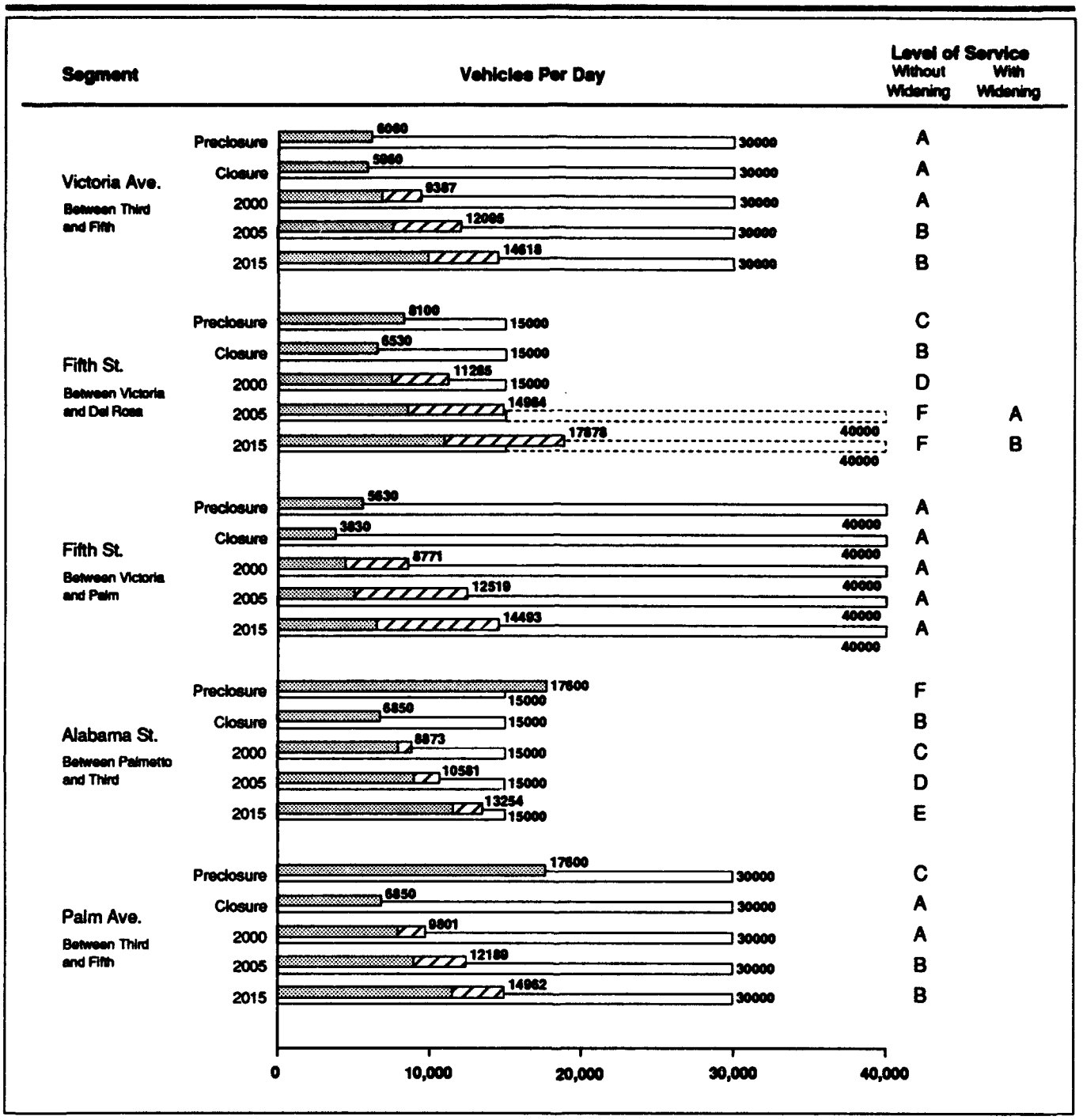


EXPLANATION

- Non-Project Generated Traffic (Vehicles per Day)
- Project Generated Traffic (Vehicles per Day)
- Existing Capacity
- Future Capacity

Daily Vehicular Traffic Volumes on Key Local Roads- Aircraft Maintenance Center Alternative

Figure 4.2-5



EXPLANATION

- Non-Project Generated Traffic (Vehicles per Day)
- Project Generated Traffic (Vehicles per Day)
- Existing Capacity
- Future Capacity

Daily Vehicular Traffic Volumes on Key Local Roads- Aircraft Maintenance Center Alternative

Figure 4.2-5 (continued)

Airspace/Air Traffic. Aviation activities projected for this alternative include aircraft maintenance, commuter, air cargo, and general aviation operations. The projected number of flight operations and the fleet mix associated with this airfield usage are shown in Table 2.3-7. The ASV for this alternative would be constant at 230,000 operations through 2015 due to few changes in the fleet mix through the years. Because forecasted operations represent only about 9 percent of the airport operational capacity by 2015, no constraints would be expected.

This alternative would most likely continue to maintain the same level of preclosure ATC and navigational aid services, as well as the same airspace structure. IFR operations associated with this alternative would be less than 10 percent of the preclosure military operations; thus, the Ontario-Norton radar sector may experience only one Norton IFR flight during a peak hour operation. Approximately 90 percent of the projected operations for this alternative may be VFR, which would place little demand on the Ontario TRACON traffic work load. Based on the general projections of this alternative, it would not appear that it would impact or delay air traffic, require any changes to the airspace structure, or encroach on other airspace areas or uses.

Air Transportation. This alternative would not affect commercial air transportation. As under the Proposed Action, the existing private airports in the ROI would probably not experience a loss of patronage with the introduction of general aviation at Norton AFB as part of this alternative.

Railroads. Impacts on rail freight transportation for the Aircraft Maintenance Center Alternative would be less than those described for the Proposed Action since a smaller volume of construction and operation rail freight demand is anticipated. The production of 1 million tons per year of aggregates offers a potential for rail freight. At present, it is unlikely that rail freight could compete with trucks due to the wide range of destinations.

Ridership on the AMTRAK system in and out of San Bernardino is expected to increase in proportion to population increases in the area. Under the Aircraft Maintenance Center Alternative, annual ridership at the San Bernardino AMTRAK station would increase from 40,600 in 1990 to 67,700 in 2015, an increase of 66.7 percent over this period. Approximately 4,000 riders of the 2015 total are attributable to the population effects of the project.

Cumulative Impacts. Cumulative roadway impacts would be as described for the Proposed Action, but less severe.

Although this alternative involves the least number of aircraft operations of the reuse options, it could still create cumulative effects when coupled with the increased operations planned for the Ontario International Airport.

Traffic to Norton and Ontario, as well as other aircraft en route through the area, could experience some delays as a result of airspace and radar sector saturation. March AFB realignments and George AFB reuse would not be affected by this alternative.

Mitigation Measures. Improvements to segments of Mill and Fifth streets are assumed to be the same as for the Airport with Mixed Use Alternative. Alabama Street requires improvement to meet requirements of the East Valley Corridor Specific Plan for LOS C. These mitigations do not account for possible trip reduction resulting from TDM measures.

No mitigation measures to airspace are required for this alternative. However, as addressed for the Proposed Action, incremental ATC procedural changes may have to be implemented, along with use of an MLS when available, to reduce the overall cumulative impacts on airspace congestion.

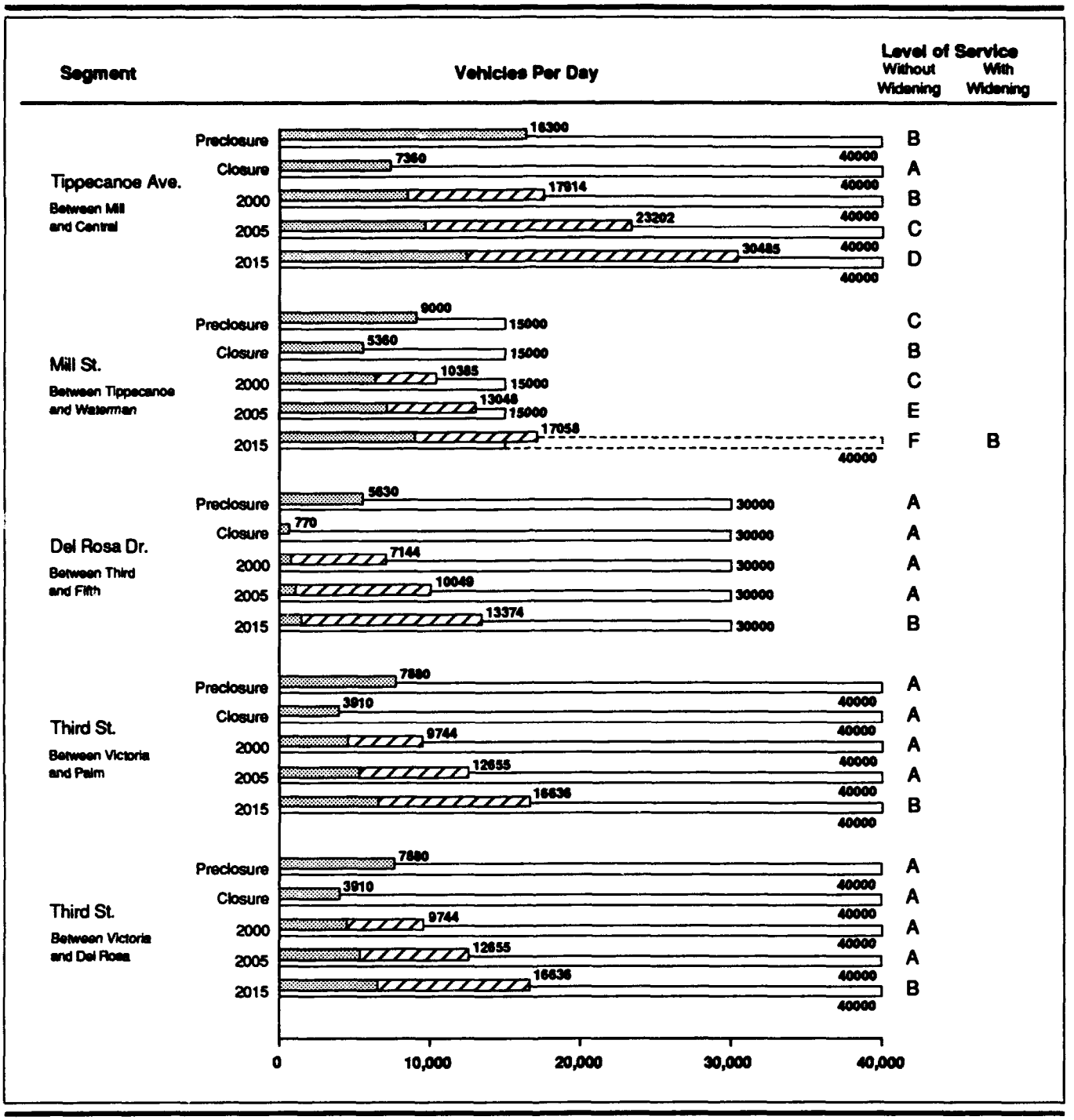
4.2.3.4 Non-Aviation Alternative

Roadways. The major traffic generators under the Non-Aviation Alternative would be the proposed 25,500 employees in industrial, commercial, institutional activities, and the approximately 4,400 residential dwelling units. The total daily trips generated by the Non-Aviation Alternative, by 2015, are estimated at about 118,400. This alternative includes the assumption that direct access would be provided from the site to Alabama Street. In addition, a segment of Sterling Avenue between Third and Fifth streets was added as a key road. Table 4.2-2 depicts the increase in trip generation for the Non-Aviation Alternative from 1995 through 2015.

Regional. Approximately 34 percent of total daily trips generated under the Non-Aviation Alternative would use key regional roads. By 2015, with or without base reuse, the LOS at some interchanges would decrease to LOS F. By 2015, the Non-Aviation Alternative would add about 9,500 daily vehicles to I-10 at the Tippecanoe interchange, which is 3.5 percent of total daily traffic at that location. The project would also add about 7,100 daily vehicles to SR-30 at Del Rosa Drive or about 7.7 percent of total traffic.

Local. Figure 4.2-6 shows the daily vehicular volume that would be generated by the Non-Aviation Alternative. By 2015, Tippecanoe would carry 30,000 daily vehicles. Some key roads would carry between 13,000 and 24,000 daily vehicles. Improvements to Fifth, Alabama, and Mill streets would be required by 2003, 2008, and 2009, respectively, to maintain LOS E or above.

On-Base. As with the Proposed Action and the Airport with Mixed Use Alternative, on-base roads would be used in the short term and during the construction period. Eventually a transition corridor connecting Tippecanoe

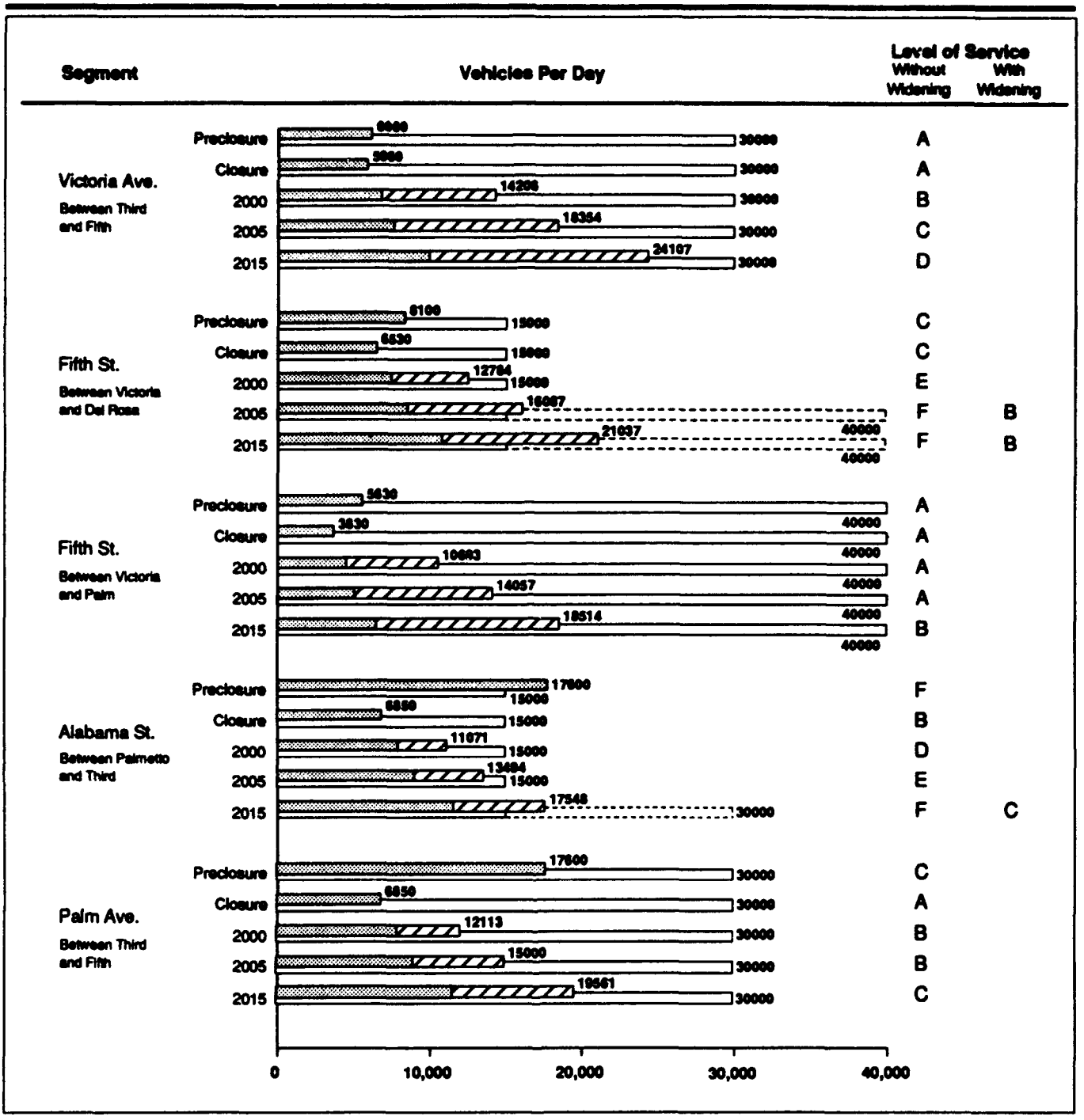


EXPLANATION

- Non-Project Generated Traffic (Vehicles per Day)
- Project Generated Traffic (Vehicles per Day)
- Existing Capacity
- Future Capacity

Daily Vehicular Traffic Volumes on Key Local Roads- Non-Aviation Alternative

Figure 4.2-6



EXPLANATION

- Non-Project Generated Traffic (Vehicles per Day)
- Project Generated Traffic (Vehicles per Day)
- Existing Capacity
- Future Capacity

Daily Vehicular Traffic Volumes on Key Local Roads- Non-Aviation Alternative

Figure 4.2-6 (continued)

and Del Rosa, similar to that of the Proposed Action, an extension of Sterling Avenue, and a new road network in the residential area would be constructed.

By 2015, the Tippecanoe-Del Rosa corridor would carry approximately 30,000 daily vehicles. The Sterling Avenue extension would carry 15,000 daily vehicles. Feeder streets within the nonresidential area would carry 10,000 daily vehicles.

Public Transportation. The Non-Aviation Alternative can be expected to increase demand for public transportation in proportion to residential population increases.

Movement of Goods. This alternative would have similar impacts to the Airport with Mixed Use Alternative.

Airspace/Air Traffic. The use of Norton AFB for non-aviation purposes could have a beneficial effect on air traffic and airspace use in the ROI by eliminating a contributing source of potential congestion in the overlapping airspace used for simultaneous Norton/Ontario arrivals. Airspace actions associated with this alternative would be as specifically addressed in the No-Action Alternative (Section 4.2.3.6).

Air Transportation. Implementation of the Non-[illegible]ation Alternative would provide no commercial air passenger, general aviation, or air cargo service to meet projected regional demands.

Railroads. Rail freight demands from the Non-Aviation Alternative are expected to be less than either the Proposed Action or the Airport with Mixed Use Alternative. Ridership on the AMTRAK system in and out of San Bernardino is expected to increase from 40,600 in 1990 to 68,400 in 2015. The Non-Aviation Alternative would account for about 4,600 of these AMTRAK passengers.

Cumulative Impacts. Cumulative roadway impacts would be as described for the Proposed Action, but more severe. There would be no cumulative airspace impacts.

Mitigation Measures. Improvements to segments of Mill, Alabama, and Fifth streets are assumed to be the same as for the Proposed Action. TDM measures would reduce traffic volumes beyond what is shown in this analysis. However, no such measures were assumed to be implemented.

4.2.3.5 Other Land Use Concepts. Transportation effects are discussed in this section for each proposed land use concept. The analysis considers the net effect of each of these plans in relation to the Proposed Action and alternatives. This analysis concentrates on roadway transportation,

assessed in terms of percent change in daily trips by the year 2015. These uses, in general, would not measurably affect airspace, air transportation, or rail transportation. Almost all of these proposals would result in small changes in daily trips, in numbers not sufficient to affect LOS on any road analyzed.

U.S. Department of Interior. The Department of Interior has requested that certain recreation facilities be conveyed to local jurisdictions. Under the Proposed Action, this proposal would result in the reduction of 7 percent of total daily trips. For the Airport with Mixed Use Alternative, there would be a reduction of 2 percent; for the Non-Aviation Alternative, the reduction would be 5 percent; and for the Aircraft Maintenance Center Alternative, there would be no change in traffic conditions. No change in the projected LOS on key local roads would result under any of the reuse altern[illegible]. Some additional light trucks for services would be generated.

U.S. Department of Agriculture. This would provide a facility for the USFS on three potential sites. The site adjacent to the west apron, in conjunction with the Proposed Action, would result in a net reduction in daily trips of about 1.4 percent. Under the Airport with Mixed Use, the Non-Aviation, and the Aircraft Maintenance Center alternatives, the reduction would be in the order of 1 percent of total daily trips. No change in LOS would result.

Use of the east site in conjunction with the Proposed Action would result in a reduction of about 3 percent of total trips. Under the Airport with Mixed Use Alternative, there would be a 2 percent reduction. With the other reuse alternatives, there would be minor changes in daily trips. No change in LOS would result.

With all reuse alternatives, use of select buildings in the west side of the base would result in a minor reduction in daily trips.

An element of the USFS proposal involves aviation support facilities which would be contingent on continued operation of the base airfield. Routine operations would average one flight per day, which is minor. Transport of personnel during emergency response mobilizations would result in occasional moderate vehicular traffic on all key roads.

U.S. Department of Education. This proposal would provide facilities for 750 to 1,000 students and create 250 direct jobs. Under the Proposed Action and other reuse alternatives, there would be a slight reduction in total daily trips, no more than 1.3 percent. No change in LOS would result.

U.S. Department of Veterans Affairs. In conjunction with the Proposed Action, this proposal would result in a reduction of about 2.3 percent of total daily trips. With the Aircraft Maintenance Center Alternative, there would be a 2.7 percent reduction in daily trips; with the two other reuse

alternatives, the reduction would be 1.4 percent. No change in LOS would result.

U.S. Postal Service. The requested facilities would generate 400 to 500 jobs. With the Proposed Action, there would be a negligible change in traffic conditions; with the other reuse alternatives, there would be an increase in traffic that would range from 0.8 to 1.6 percent. No change in LOS would result.

McKinney Act Housing. In conjunction with the Proposed Action and any of the alternatives, this land use would result in a reduction of a small percent of total daily trips. There would be no change in LOS.

San Bernardino County. Under all reuse alternatives, the county request for a work furlough program would result in a slight decrease in total daily trips (in general, less than 1 percent). No change in LOS would result.

Aggregate Mining. In conjunction with the Proposed Action or Airport with Mixed Use Alternative, aggregate mining would result in a net reduction of less than 1 percent in total daily trips. In conjunction with the Non-Aviation Alternative, there would be a net reduction of about 11 percent in daily trips. The aggregate mining would affect circulation under the Non-Aviation Alternative by precluding the establishment of direct access to Alabama Street from the residential development. Traffic would be distributed to other key roads. This is not expected to change the LOS on those roads. Palm Avenue between Third and Fifth streets would operate at LOS D by 2015, due to truck traffic associated with aggregate mining which is expected to use Alabama/Palm Avenue as the main access road.

In combination with the Proposed Action or Airport with Mixed Use Alternative, aggregate mining activities would not be expected to affect aircraft operations at the airfield. Construction of any mining and processing facilities would need to be coordinated with airport management and the FAA to ensure the height and location of the structures meet required obstacle clearance criteria for instrument flight procedures and airport design standards.

Cumulative Impacts. Other land use concepts would not result in changes in cumulative impacts.

Mitigation Measures. No mitigation measures would be required specifically for other land use concepts.

4.2.3.6 No-Action Alternative

Roadways. Under the No-Action Alternative, the expected population growth and development unrelated to reuse of Norton AFB would lead to traffic volume increases on local roadways through the year 2015. It is projected that traffic on the key local roads would increase in proportion to the area's population growth, minus the traffic generated by the current users of the base, plus the traffic generated by the DMT.

Table 4.2-3 shows the daily vehicular traffic on key local roads during the period 1995 to 2015. At the closure baseline (1994), it has been estimated that practically all roads surrounding the base would experience LOS B or better. By 2015, Mill Street (between Tippecanoe and Waterman avenues) would have LOS C, and Fifth Street (between Del Rosa Drive and Victoria Avenue) and Alabama Street (between Palmetto and Third) would both have LOS D. The Tippecanoe interchange on I-10 and the Mill Street interchange on I-215 would be at LOS F by the year 2015.

Table 4.2-3. Projection of Annual Average Daily Trips (AADT) on Key Local Roads with the No-Action Alternative

Roadway Segments	1995 Daily Capacity	2000 Volume	2005 Volume	2015 Volume
Tippecanoe Ave.	40,000	8,538	9,642	12,365
Mill St.	15,000	6,218	7,022	9,005
Del Rosa Dr.	30,000	893	1,009	1,294
Third St. east of Victoria Ave.	40,000	4,536	5,122	6,569
Third St. west of Victoria Ave.	40,000	4,536	5,122	6,569
Victoria Ave.	30,000	6,914	7,808	10,013
Fifth St., Victoria-Del Rosa Ave.	15,000	7,575	8,554	10,970
Fifth St., Victoria-Palm Ave.	40,000	4,443	5,017	6,434
Alabama St.	15,000	7,946	8,974	11,508
Palm Ave.	30,000	7,946	8,974	11,508

Under the No-Action Alternative, the only traffic on base will be generated by the DMT crew. All on-base roads would operate at LOS A.

Airspace/Air Traffic. Base closure and termination of the flying mission would have resulted in the cancellation of the control zone, ATA, ARSA, and instrument approach and departure procedures. The airspace would then remain available to support other aviation uses. Base closure would provide greater ease for aircraft operating to or from the Redlands Municipal

Airport by not having to avoid the Norton ATC airspace or contact the tower for transit through this area. Ontario TRACON would not likely change its IFR arrival routes; however, more airspace would be available for maneuvering aircraft into the traffic pattern, and controller work load would be reduced for the Ontario-Norton sector. The navigational aids and surveillance radar system previously serving the base could be decommissioned and removed by the Air Force since these facilities do not support any other air traffic operations in the region.

Air Transportation. Without reuse of Norton AFB, no commercial air facilities would be available to help meet growing demands for air passenger and air cargo transportation.

Railroad. Ridership on the AMTRAK system in and out of San Bernardino would increase from 40,600 in 1990 to 63,800 by 2015, a gain of 57.1 percent. Rail freight would not be affected by the No-Action Alternative.

Cumulative Impacts. Impacts of the other projects in the area would exacerbate deteriorated freeway conditions even without reuse of Norton AFB.

Mitigation Measures. No mitigations are required for this alternative.

4.2.4 Utilities

Changes in future utility demands for each alternative were estimated based on changes in direct and indirect employment, population, and proposed land uses associated with the Proposed Action and alternatives, and on average daily per-capita use of utilities. On-site demands were estimated by applying the number of direct project-related workers associated with each type of land use to a related per-capita use rate specific to each land use. Utility usage related to incidental activities, such as landscape irrigation, was also included in the estimate of total on-site demand.

Changes in total regional demand include the on-site demand and all of the indirect utility demand generated by the Proposed Action and reuse alternatives. New workers migrating into the region to take jobs resulting from reuse activities, along with family dependents for both direct and indirect workers, were used to derive net changes in regional utility demands, based on a regional per-capita use rate.

Land uses associated with the Proposed Action and alternatives would create the need for changes in the existing distribution and collection systems at Norton 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. Additional utility corridors would likely be required, and new metered service entrances may be needed at existing facilities. The full extent of these changes, however, can only be identified when plans for future development evolve from the current conceptual level to more detailed requirements.

The following assumptions were made in the analysis of potential effects on utilities:

- Specific infrastructural improvements needed and associated costs would be borne directly or indirectly by the future site developer(s).
- The site would be serviced by local utility purveyors.
- The existing distribution/collection systems will not be removed by the Air Force and would be available in their current condition for reuse.
- Wells on base would be made available to local purveyors to provide water for reuse activities.

4.2.4.1 Proposed Action

Table 4.2-4 presents a summary of on-site utility demand changes associated with the Proposed Action and alternatives. Resulting changes in utility demand in the ROI due to the Proposed Action are presented in Table 4.2-5, compared to post-closure projections without base reuse. The current distribution/collection lines would not be able to handle the demands of the Proposed Action. The existing systems would be replaced immediately with new distribution/collection lines for all utility systems. The existing electrical system could be rehabilitated in order to provide continued service to the base in the short term and could be coordinated into the new utility networks. Eventually, all utility systems would need renovation or replacement.

Water Supply. The Proposed Action would create an on-site water demand of 2.5 MGD by 2015. Of this demand, 37 percent would be needed for landscape irrigation at the site. For fire fighting purposes, a rate of 5,300 gpm (for a period of 10 hours) and a reserve storage of about 3.2 MG would be required to support the population growth (Merritt, 1988).

Reuse of existing on-base systems would require rehabilitation and new construction to tie into an off-base water purveyor's system; preclosure design capacities would not be able to handle the additional demand imposed by the Proposed Action. The on-base electrical system would also require rehabilitation to accommodate improvements to the water system.

Table 4.2-4. On-Site Utility Demands for the Proposed Action and Alternatives

	2000	2005	2015
Proposed Action			
Water (MGD)	1.4	2.0	2.5
Wastewater (MGD)	0.6	1.1	1.5
Solid Waste (thousand cubic yards/yr)	8.3	18.0	23.0
Electricity (MW)	35.1	53.8	64.4
Natural Gas (thousand therms/day)	3.0	6.7	8.3
Airport with Mixed Use Alternative			
Water (MGD)	1.6	2.7	3.0
Wastewater (MGD)	1.0	0.9	1.1
Solid Waste (thousand cubic yards/yr)	9.3	17.0	21.0
Electricity (MW)	56.5	84.7	99.1
Natural Gas (thousand therms/day)	4.0	7.1	8.5
Aircraft Maintenance Center Alternative			
Water (MGD)	1.8	2.4	2.8
Wastewater (MGD)	1.0	0.9	1.0
Solid Waste (thousand cubic yards/yr)	7.3	14.0	16.0
Electricity (MW)	56.9	84.0	96.6
Natural Gas (thousand therms/day)	3.7	6.6	7.4
Non-Aviation Alternative			
Water (MGD)	1.7	2.4	3.1
Wastewater (MGD)	0.9	1.5	2.3
Solid Waste (thousand cubic yards/yr)	10.3	21.0	34.0
Electricity (MW)	27.3	35.9	49.6
Natural Gas (thousand therms/day)	5.5	10.2	13.9

Table 4.2-5. Utility Demand Changes in the ROI - Proposed Action

Utility	2000	2005	2015
Water Consumption (in MGD)			
Post-Closure Projection	93.2	101.6	113.1
Proposed Action	94.2	104.3	118.1
Change From Post-Closure Projection	1.0	2.7	5.0
Percent Change	1.1	2.7	4.4
Wastewater Treatment (in MGD)			
Post-Closure Projection	46.7	54.8	71.2
Proposed Action	47.3	56.5	74.4
Change From Post-Closure Projection	0.6	1.7	3.2
Percent Change	1.3	3.1	4.5
Solid Waste Disposal (in millions of cubic yards/year)			
Post-Closure Projection	3.77	4.35	5.52
Proposed Action	3.79	4.41	5.65
Change From Post-Closure Projection	0.02	0.06	0.13
Percent Change	0.5	1.4	2.4
Electricity Consumption (in MWH/day)			
Post-Closure Projection	7,234	7,995	9,783
Proposed Action	7,325	8,246	10,239
Change From Post-Closure Projection	91	251	456
Percent Change	1.3	3.1	4.7
Natural Gas Consumption (in thousands of therms/day)			
Post-Closure Projection	2,094	2,409	3,038
Proposed Action Projection	2,100	2,425	3,067
Change From Post-Closure Projection	6	16	29
Percent Change	0.3	0.7	1.0

Note: Due to rounding, values in the table may not be verified by addition and simple calculation.

Sources: Projections based on Burns, 1991; California Energy Commission, 1990; Plum, 1991; City of San Bernardino Water Department, 1987; San Bernardino County Solid Waste Management Department, 1991; San Bernardino Valley Municipal Water District, 1990.

Water consumption in the ROI would also increase as a result of the Proposed Action, due to associated population increases. In the short term, there would be little change in overall water demand. By 2015, the overall increase from the Proposed Action would average 5 MGD over estimated 2015 demand of 113 MGD without base reuse. The availability of groundwater or other water supply issues are analyzed in Section 4.4.2, Water Resources.

Overall changes would not be substantially different from the purveyors' current assessed needs. However, between 2005 and 2015, the increase in population and resulting increase in water demand from the Proposed Action would require SBVMWD and individual water purveyors in the area to make currently planned infrastructure improvements ahead of schedule.

Wastewater. The Proposed Action would generate about 1.5 MGD of wastewater on site by the year 2015. This demand would account for about 4.5 percent of the 33 MGD wastewater treatment capacity handled by the SBRWTP, causing a minimal impact to plant operations. For an area fully serviced by sewers, wastewater flows generally equate to water consumption levels (Merritt, 1988). At the base, however, the amount of wastewater would be less than water demand due to landscape irrigation needs (accounting for 37 percent of water demand).

Infrastructural changes would be needed on the site to accommodate the proposed reuse and site improvements. Rehabilitating and coordinating the intertie of the base collection system would be required in order to meet the demands of the Proposed Action. New construction might be necessary for the majority of the current collection system on the site in order to meet city codes. Additional pipeline capacity would be needed for the Norton outfall and interceptor line which carries wastewater to the treatment plant. This line is currently at capacity and would not be able to handle the additional demand imposed by the Proposed Action. Increasing the size of the line could rectify the deficiency. Industrial wastes generated by base reuse could require pretreatment prior to discharging into the sanitary system or other disposal. Improper disposal would adversely affect the SBRWTP. Hazardous waste management is addressed in Section 4.3.

In the short term, there would be little change in overall wastewater treatment demand in the ROI. By 2015, the increase generated by the Proposed Action would be about 3.2 MGD greater than the estimated demand without base reuse. This increase would affect the SBRWTP and the Redlands and Colton treatment plants. About 0.8 MGD of the increase would be in Redlands, 0.2 MGD in Colton, and the remainder in the SBRWTP service area, which includes San Bernardino, Highland, and Loma Linda.

The increased population and resulting increase in wastewater levels due to the Proposed Action may require SBRWTP to accelerate the long-term infrastructural improvements as proposed in the *Focused Facilities Master Plan* (City of San Bernardino Water Department, 1987). However, the overall changes to their short- and long-term plans will not be notably different from current needs assessments. Wastewater treatment plants in Redlands and Colton would not be significantly affected.

Solid Waste. On-site generation of solid waste would increase from 8,000 to 23,000 cubic yards between 2000 and 2015. The Proposed Action also calls for the demolition of 3,600,000 square feet of buildings. The demolition activities would generate approximately 154,200 cubic yards of Group 3 solid waste material (non-water soluble, non-decomposable) that would require disposal in county or private landfills. This figure does not include street pavement, utility infrastructure, or other non-building debris. Although the county landfills will accept construction and demolition debris, county projections indicate that most demolition debris does not enter the public waste stream in the San Bernardino Valley area (the county charges a fee by weight for construction debris entering the landfills). Several private landfills in the area will accept clean (non-hazardous and inert) construction and demolition debris. ACM (greater than 1 percent by weight) is no longer disposed at the three county sites and would need to be disposed in accordance with state and federal regulations (see Section 4.3).

In the short term, there would be little increase in the amount of solid waste entering the area landfills in the ROI. The long-term project-related increase (2015) would be 130,000 (cubic yards) per year, or an increase of 2.4 percent over projections without base reuse. Most of this would be in areas served by the San Bernardino County SWMD. This would result in a minimal shortening (less than 1 year) of the life span of the Mid-Valley and San Timoteo landfills. However, the county is actively pursuing state approval of SWMD plans to expand the Mid-Valley and San Timoteo landfills. Several county landfills in the San Bernardino Valley area are nearing capacity. The Milliken landfill is anticipated to close in 1993. Fifty percent of the waste currently disposed in this facility is expected to be diverted to the Colton landfill starting in June 1993 (San Bernardino County Solid Waste Management Department, 1991). This will accelerate the closure of the Colton landfill. The SWMD is considering reactivation of inactive landfills (Cajon and Yucaipa) and emplacement of transfer stations to facilitate the collection of waste material to be transferred to larger landfills in the region.

Impacts on the city of Redlands landfill would be minimal, since no solid wastes generated by base reuse activities would be disposed at this facility. The only project-related increase would be from employees and their families who live in Redlands, who would generate an increase of about 17 thousand cubic yards per year by 2015.

Energy

Electricity. The future project-related on-site load requirement for the Proposed Action would amount to approximately 64 MW by the year 2015. The average daily demand estimates exclude very small amounts of electricity consumption required for direct construction activities (e.g., incidental loads for operating electrically-powered tools and equipment, and temporary security lighting).

Infrastructural changes would be needed on the site to accommodate new development associated with the Proposed Action. New high-voltage supply lines, substations, and a distribution network that could accommodate the electric load would be needed. The existing supply system could be rehabilitated for short-term reuse but would need to be completely renovated in the long term. Individual facilities would need to be metered to monitor costs and charge individual users, and appropriate utility corridors and easements would also need to be established.

The total electricity consumption in the ROI due to the Proposed Action would be about 10,200 MWH/day by the year 2015. The increase in electricity consumption associated with the Proposed Action would not require SCE to make additional infrastructure changes in the Inland District. Communities around the site would not be negatively impacted due to the Proposed Action. Service to interruptible customers would not be curtailed due to additional demand of the Proposed Action.

Natural Gas. On-site demand for natural gas would be about 8,000 therms per day in 2015. The Proposed Action calls for replacement of the entire existing natural gas distribution system. Additional gas main tie-ins would be needed to supplement the two existing SCG supply line connections to the base distribution system. SCG would require establishment of appropriate utility corridors and easements and metering of individual facilities. No additional changes beyond SCG's current and projected infrastructure improvements would be needed.

In the ROI, there would be little short-term increased demand for natural gas. By 2015, the total demand in the ROI would increase by about 29,000 therms per day, or 1.0 percent more than projected demand without base reuse. Communities in the ROI would not be negatively impacted with respect to natural gas demands being met. Interruptible customers would not experience any curtailment in service as a result of the Proposed Action.

Cumulative Impacts. Other redevelopment projects in the ROI would increase utility demand rates in the area. The utility suppliers have indicated that these future demands can be adequately met. Costs of needed infrastructure improvements would be borne by each developer. Impacts from March AFB realignment activities would not alter these conclusions.

Mitigation Measures. Potential mitigation measures for reducing impacts due to the Proposed Action are discussed in the following paragraphs.

Water Supply. No significant impacts are expected from the Proposed Action, and no mitigation measures would be necessary. Conservation in the San Bernardino area could reduce the projected total demand at the site over the next 20 years. Reductions in water use could be accomplished through various voluntary or mandatory water conservation programs, including rationing. These measures could be warranted by general conditions in the ROI, as opposed to direct project impacts.

Wastewater. Mitigation measures for industrial pretreatment of wastewater generated by future industrial/commercial reuses of the site need to be addressed. The type(s) and extent of mitigation measures cannot be specified at this time, because they would be dependent on the specific operating procedures established for the new uses, the specific products used, and the 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 SBRWTP.

Solid Waste. Recycling and/or reuse of inert demolition wastes would decrease the potential impact on landfills.

Energy. No adverse impacts are anticipated to energy utilities; therefore, no mitigation measures would be necessary.

4.2.4.2 Airport with Mixed Use Alternative. On-site utility demands for the Airport with Mixed Use Alternative are presented in Table 4.2-4. Table 4.2-6 presents a summary of utility demand changes in the ROI associated with this alternative. Although this alternative would retain many existing base facilities, the entire site would undergo rehabilitation and some replacement of the various distribution/collection systems. The existing electrical system is substandard and would need to be rehabilitated to meet short-term demand. However, the electrical system would be inadequate for meeting the long-term service demands under this alternative, and would have to be replaced.

Water Supply. By 2015, this alternative would require 3 MGD to fully meet the on-site per-capita and landscape irrigation needs. Of this total, 41 percent would be needed for lawn irrigation at the golf course, park, and recreational facilities. For fire fighting purposes, a rate of 4,827 gpm (for a period of 10 hours) would be required along with reserve storage of about 2.9 MG to support the population growth (Merritt, 1988).

Table 4.2-6. Utility Demand Changes in the ROI - Airport with Mixed Use Alternative

Utility	2000	2005	2015
Water Consumption (in MGD)			
Post-Closure Projection	93.2	101.6	113.1
Mixed Use Alternative	94.5	104.1	116.9
Change from Post-Closure Projection	1.3	2.5	3.8
Percent Change	1.4	2.5	3.4
Wastewater Treatment (in MGD)			
Post-Closure Projection	46.7	54.8	71.2
Mixed Use Alternative	47.5	56.4	73.6
Change From Post-Closure Projection	0.8	1.6	2.4
Percent Change	1.7	2.9	3.4
Solid Waste Disposal (in millions of cubic yards/year)			
Post-Closure Projection	3.77	4.35	5.52
Mixed Use Alternative	3.79	4.40	5.60
Change From Post-Closure Projection	0.02	0.05	0.08
Percent Change	0.5	1.1	1.4
Electricity Consumption (in MWH/day)			
Post-Closure Projection	7,234	7,995	9,783
Mixed Use Alternative	7,355	8,232	10,129
Change From Post-Closure Projection	121	237	346
Percent Change	1.7	3.0	3.5
Natural Gas Consumption (in thousands of therms/day)			
Post-Closure Projection	2,094	2,409	3,038
Mixed Use Alternative	2,102	2,424	3,060
Change From Post-Closure Projection	8	15	22
Percent Change	0.4	0.6	0.7

Note: Due to rounding, values in the table may not be verified by addition and simple calculation.

Sources: Projections based on Burns, 1991; California Energy Commission, 1990; Flum, 1991; City of San Bernardino Water Department, 1987; San Bernardino County Solid Waste Management Department, 1991; San Bernardino Valley Municipal Water District, 1990.

Infrastructural changes would be needed on the site to accommodate proposed development. The existing on-base water system could be used; however, rehabilitation and new construction would be necessary to tie in with the private purveyor's system. Pump stations/houses will need to be retrofitted with electromechanical systems (pumps and electricity needed to run the pumps) to maximize pumping capability. Additionally, the 174,000-gallon water storage tank located in the northeast corner of the site is in poor condition due to corrosion and will need repair and possible replacement (U.S. Air Force, 1990e).

Water consumption in the ROI would increase as a result of the Airport with Mixed Use Alternative over estimated consumption without base reuse. By 2015, the increase from this alternative would average 3.8 MGD. The availability of groundwater or other water supply resources is analyzed in Section 4.4.2, Water Resources.

Local purveyors' current improvement/expansion projects would adequately meet projected demands. Overall changes would not be substantially different from purveyors' current assessed needs. Between 2005 and 2015, however, the increased water demand may require SBVMWD and individual water purveyors to accelerate planned infrastructure improvements.

Wastewater. This alternative would generate about 1.1 MGD of wastewater on site by the year 2015. This demand would account for about 3 percent of the 33 MGD wastewater treatment capacity of the SBRWTP, thus, comprising a minimal impact to plant operations. Infrastructural changes needed on the site would be similar to those projected in the Proposed Action.

The Airport with Mixed Use Alternative would increase estimated treatment levels in the ROI. By 2015, the overall increase from this alternative would be about 2.4 MGD over the estimated demand without base reuse. Most of the increase would be in the SBRWTP service area. Redlands would experience an increase of 0.6 MGD and Colton an increase of 0.1 MGD.

Solid Waste. Under the Airport with Mixed Use Alternative, solid waste generated on site would be 21,000 cubic yards per year by 2015. This alternative also calls for the demolition of 935,000 square feet of buildings. The demolition activities would generate approximately 50,000 cubic yards of Group 3 solid waste material (non-water soluble, non-decomposable) from facility demolition that would require disposal in private or county landfills.

Solid waste generated in the ROI would increase by 80,000 cubic yards per year in 2015. Most of this increase would be in areas served by the county SWMD. Redlands would experience an increase of 12 thousand cubic yards

per year. Impacts on the area's landfills due to implementation of this alternative would be similar to those under the Proposed Action.

Energy

Electricity. The future on-site load requirement for this alternative amounts to approximately 100 MW by the year 2015. This alternative requires 35 MW more than the Proposed Action due to lodging and residential land uses. These average daily demand estimates exclude very small amounts of electricity consumption required for direct construction activities (e.g., incidental loads for operating electrically powered tools and equipment, and temporary security lighting). Curtailments of service to interruptible customers would not result from additional demand with this alternative.

Infrastructural changes similar to those projected for the Proposed Action would be needed on the site to accommodate new development which is proposed under this alternative.

Electricity consumption in the Inland District would increase as a result of the Airport with Mixed Use Alternative over the estimated consumption without base reuse. Total demand within the SCE service area associated with this alternative would reach an average of 10,100 MWH/day by 2015, or about 3.5 percent greater than without base reuse.

Natural Gas. On-site demand for natural gas would be about 8,500 therms per day in 2015 under this alternative. The Airport with Mixed Use Alternative calls for maximum reuse of existing buildings and infrastructure, but some rehabilitation and new construction of natural gas distribution would be needed on the site to accommodate development associated with this alternative.

In the ROI, the demand for natural gas would be 22,000 therms per day by 2015, or 0.7 percent over the projections without base reuse. SCG will not need to make additional infrastructure changes in the area surrounding the site, except for new tie-ins to the reuse area. Communities in the ROI would not be negatively impacted with respect to utility demands being met. Interruptible service customers would not experience any curtailment as a result of this alternative being implemented.

As with the Proposed Action, SCG would require establishment of appropriate utility corridors and easements and metering of individual facilities.

Cumulative Impacts. Cumulative impacts would be similar to those identified under the Proposed Action.

Mitigation Measures. Measures identified to mitigate utility impacts from this alternative are the same as those discussed for the Proposed Action (Section 4.2.4.1).

4.2.4.3 Aircraft Maintenance Center Alternative. On-site utility demands for the Aircraft Maintenance Center Alternative are presented in Table 4.2-4. Table 4.2-7 presents a summary of utility demand changes in the ROI associated with this alternative. On-site improvements required would be similar to the Airport with Mixed Use Alternative.

Water Supply. This alternative would require 2.8 MGD in 2015 to fully meet the on-site per-capita and land use needs. Of this total, 58 percent would be needed for the proposed aggregate mining operation and lawn irrigation at the golf course, park, and recreational facilities. For fire fighting purposes, a rate of about 4,400 gpm (for a period of 10 hours) would be required along with reserve storage of about 2.6 MG (Merritt, 1988). The aggregate mining operation would require the production of 776 af/yr or 0.7 MGD to process the aggregate and control dust. The on-site well located northeast of the airfield could meet the production demand with the current pumping capacity of 1,774 gpm.

The 174,000-gallon water storage tank near the aggregate well could be used to meet the needs of the mining site. However, repair and possible replacement may be required due to corrosion (U.S. Air Force, 1990e). The existing on-base water system could be used, but rehabilitation and new construction would be necessary to tie into the private purveyor's system. Pump stations/houses would need to be retrofitted with electromechanical systems (pumps and electricity needed to run the pumps) to maximize pumping capability for the rest of the site.

Water consumption in the ROI would increase as a result of the Aircraft Maintenance Center Alternative over estimated demand without base reuse. By 2015, the overall increase from this alternative would average 3 MGD over the estimated demand without base reuse. The availability of groundwater or other water supply resources is analyzed in Section 4.4.2, Water Resources.

Local purveyors' current improvement/expansion projects adequately meet projected growth demands related to the site. Between 2005 and 2015, the project-related water demand increase may require SBVMWD and individual water purveyors to accelerate planned infrastructure improvements.

Wastewater. This alternative would generate about 1 MGD of wastewater on site by the year 2015. This demand would account for about 4 percent of the wastewater treatment capacity of SBRWTP, thus, causing a minimal impact to plant operations. The amount of wastewater would be less than

Table 4.2-7. Utility Demand Changes in the ROI - Aircraft Maintenance Center Alternative

	2000	2005	2015
Water Consumption (in MGD)			
Post-Closure Projection	93.2	101.6	113.1
Aircraft Maintenance Center Alternative	94.5	103.9	116.1
Change from Post-Closure Projection	1.3	2.3	3.0
Percent Change	1.4	2.3	2.7
Wastewater Treatment (in MGD)			
Post-Closure Projection	46.7	54.8	71.2
Aircraft Maintenance Center	47.5	56.3	73.1
Change from Post-Closure Projection	0.8	1.5	1.9
Percent Change	1.7	2.7	2.7
Solid Waste Disposal (in millions of cubic yards/year)			
Post-Closure Projection	3.77	4.35	5.52
Aircraft Maintenance Center	3.79	4.40	5.59
Change from Post-Closure Projection	0.02	0.05	0.07
Percent Change	0.5	1.1	1.3
Electricity Consumption (in MWH/day)			
Post-Closure Projection	7,234	7,995	9,783
Aircraft Maintenance Center	7,350	8,208	10,059
Change from Post-Closure Projection	116	213	276
Percent Change	1.6	2.7	2.8
Natural Gas Consumption (in thousands of therms/day)			
Post-Closure Projection	2,094	2,409	3,038
Aircraft Maintenance Center	2,102	2,422	3,056
Change from Post-Closure Projection	8	13	18
Percent Change	0.4	0.5	0.6

Note: *Due to rounding, values in the table may not be verified by addition and simple calculation.*

Sources: Projections based on Burns, 1991; California Energy Commission, 1990; Flum, 1991; City of San Bernardino Water Department, 1987; San Bernardino County Solid Waste Management Department, 1991; San Bernardino Valley Municipal Water District, 1990.

water demand due to aggregate mining and landscape irrigation needs (accounting for 58 percent of water needs for this alternative). Infrastructural changes needed on the site would be similar to those described for the Proposed Action.

The Aircraft Maintenance Center Alternative would increase estimated treatment levels in the ROI. By 2015, the overall increase from this alternative would be about 1.9 MGD over the estimated demand without base reuse. Most would be in the SBRWTP service area; Redlands would experience an increase of 0.5 MGD and Colton and increase of 0.1 MGD. The impact would be similar to the Proposed Action.

Solid Waste. The Aircraft Maintenance Center Alternative would generate 16,000 cubic yards per year of solid waste on site by 2015. This alternative calls for the demolition of 935,000 square feet of buildings. The demolition activities would generate approximately 72,200 cubic yards of Group 3 solid waste material (non-water soluble, non-decomposable) that would require disposal in private or county landfills. Impacts on the area's landfills due to implementation of this alternative would be similar to those under the Proposed Action.

The increase in solid waste generated in the ROI would be 70,000 cubic yards per year. Most would be in areas served by the SWMD, and about 10,000 cubic yards per year would be in Redlands.

Energy

Electricity. The future on-site load required by this alternative would amount to approximately 100 MW by the year 2015. Infrastructural changes would be needed on the site to accommodate the proposed new development. Changes under this alternative would be similar to those described in the Proposed Action. The average daily demand estimates exclude very small amounts of electricity consumption required for direct construction activities (e.g., incidental loads for operating electrically powered tools and equipment and temporary security lighting).

Total demand within the SCE service area associated with this alternative would reach an average of 10,060 MWH/day by 2015, or about 2.8 percent greater than without base reuses. Interruptible service customers would not be impacted by demands of this alternative.

Natural Gas. On-site demand for natural gas would be 7,400 therms per day in 2015 under this alternative. As with the Proposed Action, SCG would require establishment of appropriate utility corridors and easements and metering of individual facilities. No additional infrastructure changes beyond SCG's current and projected infrastructure requirements are anticipated.

In the ROI, the increased demand for natural gas would be about 18,000 therms per day by 2015, or 0.6 percent over the projections without base reuse. These estimates represent less than 1 percent of the 300,800 total therms the Inland Empire Division used each day in 1990. Curtailment of service to non-core customers would not result from demands of this alternative. Communities in the ROI would not be negatively impacted with respect to utility demands being met.

Cumulative Impacts. Cumulative impacts would be similar to those identified under the Proposed Action.

Mitigation Measures. Measures identified to mitigate utility impacts from this alternative are the same as those discussed for the Proposed Action (Section 4.2.4.1).

4.2.4.4 Non-Aviation Alternative. On-site utility demands for the Non-Aviation Alternative are presented in Table 4.2-4. Table 4.2-8 presents a summary of utility demand changes in the ROI associated with this alternative. Utility demands would be extensive throughout the site given the land uses. These demands could be temporarily met by using the existing utility systems. Eventually the site would need to undergo extensive rehabilitation and replacement of the various utility distribution/collection systems. The electrical system is substandard and would need to be rehabilitated to meet short-term demand. However, this system would be inadequate for meeting the long-term service demands under this alternative, and would need to be replaced.

Water Supply. This alternative would create an on-site need for 3.1 MGD by 2015 to meet on-site needs. Of this total, 25 percent would be needed for landscape irrigation of the open/park/recreation areas. For fire fighting purposes, a rate of 6,000 gpm (for a period of 10 hours) and a reserve storage of about 3.6 MG are required to support the population growth (Merritt, 1988).

Infrastructural changes would be needed on the site to accommodate proposed development similar to those referred to in the Airport with Mixed Use Alternative. In addition, the new residential area would require a complete new distribution system.

Water consumption in the ROI would increase as a result of the Non-Aviation Alternative. By 2015, the overall increase from this alternative would average 4.2 MGD over estimated demand without base reuse. The availability of groundwater or other water supply issues is analyzed in Section 4.4.2, Water Resources.

Table 4.2-8. Utility Demand Changes in the ROI - Non-Aviation Alternative

Utility	2000	2005	2015
Water Consumption (in MGD)			
Post-Closure Projection	93.2	101.6	113.1
Non-Aviation Alternative	94.4	103.7	117.3
Change from Post-Closure Projection	1.2	2.1	4.2
Percent Change	1.3	2.1	3.7
Wastewater Treatment (in MGD)			
Post-Closure Projection	46.7	54.8	71.2
Non-Aviation Alternative	47.4	56.1	73.9
Change from Post-Closure Projection	0.7	1.3	2.7
Percent Change	1.5	2.4	3.8
Solid Waste Disposal (in millions of CY/year)			
Post-Closure Projection	3.77	4.35	5.52
Non-Aviation Alternative	3.79	4.39	5.61
Change from Post-Closure Projection	0.02	0.04	0.09
Percent Change	0.5	0.9	1.6
Electricity Consumption (in MWH/day)			
Post-Closure Projection	7,234	7,995	9,783
Non-Aviation Alternative	7,338	8,186	10,164
Change from Post-Closure Projection	104	191	381
Percent Change	1.4	2.4	3.9
Natural Gas Consumption (in thousands of therms/day)			
Post-Closure Projection	2,094	2,409	3,038
Non-Aviation Alternative	2,100	2,421	3,062
Change from Post-Closure Projection	6	12	24
Percent Change	0.3	0.5	0.8

Note: Due to rounding, values in the table may not be verified by addition and simple calculation.
Sources: Projections based on Burns, 1991; California Energy Commission, 1990; Flum, 1991; City of San Bernardino Water Department, 1987; San Bernardino County Solid Waste Management Department, 1991; San Bernardino Valley Municipal Water District, 1990.

Infrastructural changes throughout SBVMWD by private water suppliers' districts would be similar to those described for the Proposed Action and Airport with Mixed Use Alternative.

Wastewater. This alternative would generate about 2.3 MGD of wastewater on site by the year 2015. This would account for a minimal impact of about 7 percent of the wastewater treatment capacity of SBRWTP. The amount of wastewater is less than water demand due to lawn irrigation needs (which would account for 20 percent of water needs). Infrastructural changes on the site to accommodate the land use improvements would be similar to those described in the Proposed Action. In addition, a new distribution system would be required for the housing.

The Non-Aviation Alternative would increase estimated treatment levels in the ROI. By 2015, the overall increase from the Non-Aviation Alternative would be about 2.7 MGD, or 3.8 percent, over the estimated demand without base reuse. Most of the increase would be in the SBRWTP service area. Redlands would experience an increase of 0.7 MGD and Colton an increase of 0.1 MGD.

Solid Waste. Under the Non-Aviation Alternative, 34,000 cubic yards per year of solid waste would be generated on site by 2015. This alternative calls for the demolition of 2,972,000 square feet of buildings. The demolition of buildings would generate approximately 158,430 cubic yards of Group 3 solid waste material that would require disposal in county or private landfills. Development of the single-family residential area would require demolition and removal of the runway, taxiway, and concrete apron surfaces. The runway demolition would produce approximately 115,600 cubic yards of concrete debris (at an average thickness of 18 inches), and the demolition of the taxiways and aprons would create about 307,400 cubic yards of concrete debris (at an average thickness of 12 inches). This material would require disposal or recycling as a building aggregate.

The increase in solid waste generated in the ROI would be about 90,000 cubic yards per year by 2015. Most would be in areas served by the SWMD; about 14,000 cubic yards per year would be in Redlands. Impacts on the area's landfills due to implementation of this alternative would be similar to those under the Proposed Action.

Energy

Electricity. The future on-site load associated with this alternative would amount to approximately 50 MW by the year 2015. This alternative requires 15 MW less power than the Proposed Action because residential uses require less power than industrial uses. The average daily demand estimates exclude very small amounts of electricity consumption required for

direct construction activities (e.g., incidental loads for operating electrically powered tools and equipment and temporary security lighting).

The infrastructural changes needed on the site to accommodate new development under this alternative would be similar to those discussed in the Proposed Action. In addition, power would need to be distributed to the new housing.

Total demand within the SCE service area associated with this alternative would reach an average of 10,160 MWH/day by 2015, 3.9 percent greater than without base reuse. These added demands would not impact interruptible service customers.

Natural Gas. The on-site Non-Aviation Alternative demand for natural gas would be about 14,000 therms per day by 2015. Development of approximately 5,300 residential units would require installation of natural gas lines and meters. A minimum of 15,200 linear feet of 4-inch pipeline operating at standard distribution pressure (15 to 40 psi) would be required to meet the anticipated on-site residential demand of 9,950 therms per day. Non-residential development would also require rehabilitation and replacement of the natural gas system, similar to the Proposed Action. SCG will not need to make additional infrastructure changes in the surrounding area off site, except for new tie-ins to the reuse area.

The increase in demand in the ROI would be 24,000 therms per day or 0.8 percent over the projections without base reuse. This would represent less than 1 percent of the 300,800 total therms the Inland Empire Division used each day in 1990. Communities in the ROI would not be negatively impacted with respect to utility demands being met. SCG interruptible service customers would not be impacted by the added demands of this alternative.

Cumulative Impacts. Cumulative impacts would be similar to those identified under the Proposed Action.

Mitigation Measures. Measures identified to mitigate utility impacts from this alternative are the same as those discussed for the Proposed Action (Section 4.2.4.1).

4.2.4.5 Other Land Use Concepts. Changes in project utility demand resulting from the other land use concepts would generally be commensurate with population changes resulting from those activities (see Table 4.2-1). In estimating effects, population in-migration was assumed to increase by the same proportion as the net change in jobs.

U.S. Department of Interior. With the Proposed Action, this proposal would result in a net decrease of 9.9 percent in the utility demands of the

Proposed Action. With the Airport with Mixed Use Alternative, there would be a net decrease of 3.4 percent in the alternative's utility demands. With the Aircraft Maintenance Center Alternative, the impact would be negligible with respect to utility demands. In conjunction with the Non-Aviation Alternative, this proposal would also have negligible results on utility demands.

U.S. Department of Agriculture. This proposal involves several areas of the base. Use of the site adjacent to the west apron of the airfield would cause an estimated net reduction of 2 percent of the utility demands of the Proposed Action, 1.6 percent of the utility demands of the Airport with Mixed Use Alternative, 2 percent of the utility demands of Aircraft Maintenance Center Alternative, and 1.1 percent of the utility demands of the Non-Aviation Alternative. The east site would result in an estimated net decrease of 4 percent of the utility demands of the Proposed Action, 2.9 percent of the utility demands of the Airport with Mixed Use Alternative, and 0.6 percent of the utility demands of the Non-Aviation Alternative. The Aircraft Maintenance Center Alternative would experience a net increase of 0.8 percent in its utility demands. Use of select buildings on the west side of the base would result in an estimated net decrease of less than 1 percent of the utility demands of any of the reuse alternatives.

U.S. Department of Education. This proposal in conjunction with any of the reuse alternatives would result in a net decrease of less than 1 percent in utility demands.

U.S. Department of Veterans Affairs. This proposal would result in a net decrease of 3.3 percent in the utility demands of the Proposed Action, and less than 1 percent in the utility demands of the Airport with Mixed Use, Aircraft Maintenance Center, and Non-Aviation alternatives.

U.S. Postal Service. This proposal would result in an estimated net decrease of about 0.2 percent of the utility demands of the Proposed Action, 1.4 percent of the utility demands of the Airport with Mixed Use Alternative, 1.8 percent of the utility demands of the Aircraft Maintenance Center Alternative, and 0.9 percent of the utility demands of the Non-Aviation Alternative.

McKinney Act Housing. This land use would result in an estimated net decrease of less than 0.5 percent of the utility demands of the Proposed Action. There would be no change in the utility demands of the Airport with Mixed Use, Aircraft Maintenance Center, or Non-Aviation alternatives.

San Bernardino County. The work furlough program would result in a net decrease of 0.8 percent of the utility demands of the Proposed Action, 1 percent of the utility demands of the Airport with Mixed Use Alternative, 1.3 percent of the utility demands of the Aircraft Maintenance Center

Alternative, and 0.6 percent of the utility demands of the Non-Aviation Alternative.

Aggregate Mining. Aggregate mining in conjunction with the Proposed Action or Airport with Mixed Use Alternative would result in a negligible decrease in utility demand. In conjunction with the Non-Aviation Alternative, utility demand would be 3.4 percent less than without aggregate mining.

Cumulative Impacts. Other land use concepts would not result in additional cumulative impacts.

Mitigation Measures. No additional mitigation measures would be required for other land use concepts.

4.2.4.6 No-Action Alternative. Under the No-Action Alternative, the U.S Government would retain ownership of the Norton AFB property. A DMT (with a crew of approximately 50 personnel) would maintain the facilities and grounds. Utility usage on site would be minimal in comparison to the Proposed Action and other alternatives. The disuse of utility systems, however, could result in their degradation over the long term.

In the absence of any reuse actions at Norton AFB, post-closure utility demand in the study area is projected to increase with the increase in population. The following utility usage is forecast using per-capita demand factors provided by the utility purveyors in the study area:

- Water consumption in the SBVMWD's service area is projected to increase from 84.8 MGD in 1995 to 113.1 MGD in 2015.
- Wastewater treatment volume in the San Bernardino County Water Quality Division's service area is projected to increase from 38.5 MGD in 1995 to 71.2 MGD in 2015.
- Solid waste generated in the San Bernardino area is expected to increase from approximately 3 million cubic yards/year in 1995 to 6 million cubic yards/year in 2015.
- Electricity consumption in SCE Inland District service area is projected to increase from 6,536 MWH/day in 1995 to 9,783 MWH/day in 2015.
- Natural gas use in the SCG's Inland Empire Division is projected to increase from 1,779 thousand therms per day in 1995 to 3,038 thousand therms per day in 2015.

Cumulative Impacts. Utility demands in the area would increase as a result of other developments, even without reuse of Norton AFB. The suppliers have indicated that these demands could be adequately met.

Mitigation Measures. No mitigation measures are required for the No-Action Alternative.

4.3 HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT

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/wastes, IRP sites, storage tanks, asbestos, pesticides, PCBs, radon, and medical/biohazardous wastes are discussed within this section.

The U.S. Air Force is committed to the remediation of all contamination at Norton AFB due to past Air Force activities. The DMT will remain after base closure to coordinate remedial actions. 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 were applied in determining the impacts caused by hazardous materials and hazardous 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 100 kilograms (or more) of hazardous waste or 1 kilogram (or more) of an acutely (California Health and Safety Code Chapter 6.95, Section 25532) hazardous waste in a calendar month, resulting in increased regulatory requirements
- Compliance with new operational requirements or service for all UST and tank systems
- Any spill or release of a reportable quantity of hazardous material
- Manufacturing of any compound subject to regulatory notification requirements
- Exposure of the environment or public to any hazardous material through release or disposal practices.

Redevelopment plans for the Proposed Action and alternatives do not specify whether there would be any manufacturing operations that produce or use hazardous substances in quantities sufficient to be subject to notification requirements. SARA, Section 313, Title III requires any manufacturer to make annual reports if it produces 75,000 pounds or more of a listed toxic chemical. Industrial facilities which use more than 10,000 pounds per year of a listed toxic chemical are also subject to reporting requirements. These requirements may apply to new industrial uses associated with the Proposed Action and alternatives.

4.3.1 Proposed Action

Hazardous Materials Management. The hazardous materials applicable to the operation of an airport with OIP are summarized in Table 4.3-1. The types of hazardous materials used in the Proposed Action would be similar to those currently in use, specifically for aviation-related maintenance and fuel transportation. The quantities of hazardous materials utilized under this Proposed Action would likely be greater than those currently used at Norton.

Currently, handling of hazardous materials on the base is managed by DOD. If the Proposed Action were implemented, each separate organization within the airport and OIP structure would be responsible for the management of hazardous materials according to applicable regulations. Additionally, each organization would have to comply with SARA, Section 311, Title III, which requires that local communities be informed of the use of hazardous materials.

The storage and handling of hazardous materials and wastes would present a potential for spills. This could have adverse effects if adequate response capability is not provided. Airport operations would likely involve the largest quantities of hazardous materials and have the most extensive emergency response capability.

Hazardous Waste Management. The proposed land use zones would host many operations that are yet to be defined. Once the responsibilities of hazardous waste management are allocated to individual organizations, proficiency with those materials and spill responses are required by OSHA regulations (29 CFR). Mutual aid agreements with surrounding communities may require additional scrutiny and training of emergency staff.

The presence of numerous independent owner/operators on the base would change the regulatory requirements and probably increase the regulatory burden relative to hazardous waste management. Activities associated with the Proposed Action would lead to an increase in the amount of hazardous waste generated compared to the closure baseline.

Table 4.3-1. Proposed Action (Airport with Office/Industrial Park) Hazardous Material Usage

Land Use Zones	Operation Process	Hazardous Materials
Airfield	Refueling; aircraft loading/parking	Aviation fuels, POL, propylene glycol, ethylene glycol, heating oils
Aviation Support	Operations associated with aircraft maintenance and manufacturing, air transportation related industry and warehousing, airport terminal parking, administration offices, corporate and private aviation facilities	Fuels, POL, solvents, paints, degreasers, corrosives, heavy metals, reactives, thinners, ignitables, heating oils, plating waste, cyanides, laboratory wastes
Industrial	Activities associated with offices, light industry, research and development, warehousing	Fuels, POL, solvents, corrosives, ignitables, heating oils, pesticides
Commercial	Operation of retail/office, service industries, restaurants	Solvents, POL, ignitables, corrosives, pesticides, fuels, heating oils, dry cleaning wastes
Public/Recreation	Maintenance of existing recreational facilities, golf course, undeveloped open areas	Pesticides, chlorine, heating oils

Installation Restoration Program Sites. The extent of contamination at some sites has not been delineated and neither the risk assessment nor the remedial designs is completed. Additional IRP sites may also be identified during ongoing studies and investigations. The U.S. Air Force is required by DERP, CERCLA, and the FFA between the U.S. Air Force, U.S. EPA, and the state of California, to continue the IRP activity, regardless of the reuse. IRP activities will be coordinated by the DMT and the aforementioned agencies.

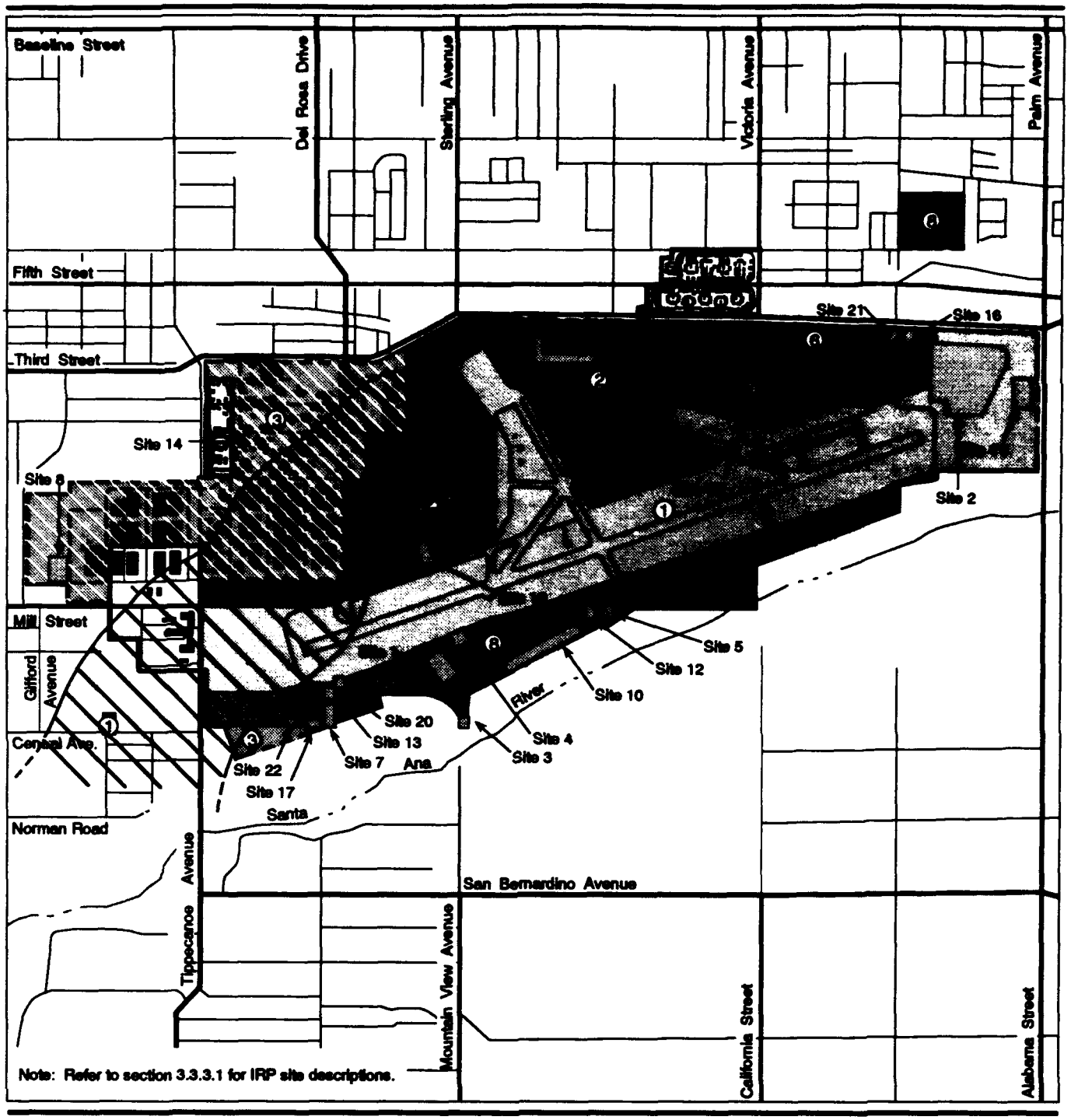
Ultimate decisions on what type of future land use will be implemented at areas overlying or adjacent to an IRP site will greatly depend on the overall characterization of risk to human health posed by the IRP site. This risk assessment is an integral part of the remedial investigation to be conducted 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.

Conveyance of some Norton AFB properties from federal ownership may be delayed as a result of required remediation efforts. Ongoing activities at identified IRP sites may delay or limit some proposed reuses. Figure 4.3-1 shows the Proposed Action land use areas relative to the known IRP sites.

- **Airfield** - Two IRP sites, associated with the proposed airfield land use area, are located in the northeast corner of the base: the base landfill (Site 2) and the sludge drying area (Site 11). The extent of contamination for these sites will be determined during the RI/FS. A portion of the base landfill exists within the RPZ for runway 24. Remediation associated with this landfill could cause a delay in property conveyance and possibly impact flight operations if remedial actions extend into the runway area or object-free zone. If remedial actions are confined to areas outside the object-free zone, they should be manageable without inhibiting airfield use. Currently no known IRP site contamination extends beneath the existing runways identified under the Proposed Action; the RI/FS will determine the extent of contamination. Installation and use of long-term monitoring devices following remediation should not affect airfield operations. Site 11 is farther east and not within the RPZ; therefore, associated remedial actions should not affect flight operations. Remediation of the AAVS evaporation basins will not affect flight operations.

- **Aviation Support** - Numerous spill sites are located within the proposed aviation support area. These sites are widely distributed and remedial actions could delay property conveyance for many different areas within this land use area. On the west side of the airfield, remediation of the waste drum storage area (Site 19) south of the main hangar could involve excavating the apron itself. These activities should not impact aircraft activity along the southwest taxiway; exact site dimensions are under investigation. Conveyance of the main hangar (Building 763) or a section of the hangar could incur a delay due to remediation of the electroplating shop spill (Site 9) within the facility and TCE contaminated soils under the hangars. Remediation activities associated with the underground waste oil storage tank (Site 6) may delay conveyance of this site.

  On the northeast side, completion of remedial activities associated with the base service station (Site 15) could delay construction of the proposed passenger terminal, to be located in the northeast apron area. The remediation activities of the aviation gas spill (Site 18) could delay conveyance of the main aboveground fuel storage tanks, possibly affecting flight operations due to limited on-site fuel storage. These remedial actions should not impact the reuse of the AAVS building.



EXPLANATION

- ① Airfield
- ② Aviation Support
- ③ Industrial (Warehouse)
- ③ Industrial (OIP)
- ③ Industrial (Aggregate Mining)*
- ④ Institutional (Medical)*
- ⑤ Institutional (Education)*
- ⑥ Commercial
- ⑦ Residential*
- ⑧ Public/Recreation
- ⑨ Agriculture*
- Retained by Air Force
- Base Boundary
- IRP Site
- TCE Groundwater Plume (Exceeds 5 Parts Per Billion Maximum Contaminant Level) Dashed Line Indicates Undefined Plume Edge

0 650 1300 2600 Feet

* Not Applicable

IRP Sites- Proposed Action

Figure 4.3-1

vicinity, delaying proposed demolition and reconstruction of the facilities. Contaminated soil associated with the PCB spill (Site 8) was immediately removed; therefore, no impacts to reuse should be encountered.

The remedial actions associated with the TCE-contaminated groundwater plume in the central base area will probably encounter utility lines passing under Sixth Street; if proper construction precautions are taken, the proposed realignment of Del Rosa Drive and Tippecanoe Avenue should not be adversely impacted. Details will be worked out through the FFA process, but it may be possible to remediate the subsurface contamination without delaying conveyance of the property.

- Commercial - Some proposed commercial land use activities in the northeast area of the base could be delayed due to the extent of remediation associated with the underground ferricyanide tank (Site 21) and AAVS Evaporation Tanks (Site 16).

- Public/Recreation - Public/recreation land use areas along the southern base perimeter include the golf course and undeveloped open areas. These areas contain numerous IRP sites of various types and sizes (Sites 1, 3, 4, 5, 7, 10, 12, 13, 17, 20, 22). Remedial actions are often conducted simultaneously over numerous IRP sites. Should this approach be used for the golf course and IWTP IRP sites, a possible long-term delay in property conveyance could occur, resulting in a delay in the reuse of both the golf course and the IWTP, due to the large number of IRP sites located in these areas. Reuse of the 30-acre parcel in Highland will not be impacted by IRP activities.

Determination of future base land uses will be, to a certain extent, dependent upon a regulatory review of the remedial design of the IRP sites. This review will identify current monitoring well locations and future 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.

Storage Tanks. Air flight and maintenance operations associated with the Proposed Action would require the use of aboveground storage tanks and USTs. These tanks must be in compliance with federal, state, and local regulations regarding leak, spill and overfill protection, and liability insurance.

Asbestos. Extensive renovation and demolition of existing structures which could contain ACM would occur with the Proposed Action. Such activities are required to comply with all applicable federal, state, and local regulations. Results of the basewide asbestos survey are currently available for review from the Norton AFB Environmental Management Office.

Asbestos. Extensive renovation and demolition of existing structures which could contain ACM would occur with the Proposed Action. Such activities are required to comply with all applicable federal, state, and local regulations. Results of the basewide asbestos survey are currently available for review from the Norton AFB Environmental Management Office.

Pesticide Usage. Pesticide, usage associated with the Proposed Action would increase over amounts currently used, as a result of the combined increase in public/recreation and OIP land uses involving extensive landscaping. Management practices would be required to conform with FIFRA and state regulations.

PCBs. All federally regulated PCB and PCB-contaminated equipment (50 to 499 ppm) will be removed prior to base closure. There may still be PCB items (5 to 49 ppm) which would be regulated under state regulations. If removed from service, this equipment would require disposal as a hazardous waste. It is not anticipated that new PCB-containing equipment would be brought in by the Proposed Action.

Radon. All radon-screening survey results were below the U.S. EPA's recommended mitigation level of 4 pCi/l of air; therefore, no further action is required, and radon would have no impact on reuse activities.

Medical/Biohazardous Waste. All medical/biohazardous waste will be removed from Norton AFB prior to closure. As a result, these materials would not impact the Proposed Action. The Proposed Action does not include any medical uses; therefore, it is not anticipated that new medical biohazardous wastes would be generated.

Cumulative Impacts. No cumulative impacts would result from the Proposed Action in combination with other projects in the area.

Mitigation Measures. A hazardous materials and waste planning committee comprising new base users could be established. This planning body could reduce the costs of environmental compliance training, waste management, and mutual spill response. Mutual aid agreements with surrounding communities could enhance the emergency response capability to handle inadvertent spills.

Not all of the IRP sites will need to be remediated; however, all of them must be addressed and properly closed out. Active coordination between the Air Force's IRP representative and new construction planning agencies would mitigate potential problems. The presence of IRP sites may limit certain land uses within overlying areas.

Coordination between asbestos removal and new construction or renovation actions would avoid any potential asbestos impacts. Compliance with the

NESHAP would avoid potential public exposure to airborne asbestos during construction and/or renovation activities.

4.3.2 Airport with Mixed Use Alternative

Hazardous Materials Management. Hazardous materials to be utilized under this alternative (Table 4.3-2) would be similar to those materials used under the Proposed Action. Potential impacts associated with hazardous materials could increase over time due to the increase in aircraft maintenance operations over the preclosure base level. Emergency response requirements would be the same as under the Proposed Action.

Hazardous Waste Management. The affects discussed under the Proposed Action would apply with implementation of this alternative. Due to the extensive aircraft maintenance operations proposed, the amount of hazardous waste generated would also increase over time.

Installation Restoration Program Sites. IRP remedial actions associated with this alternative could cause delays in property conveyance and the eventual reuse of facilities. Figure 4.3-2 shows the Airport with Mixed Use Alternative land use areas relative to the IRP sites.

Impacts to the airfield and aviation support land uses would be the same as described for the Proposed Action. Site 21 remedial actions could delay the proposed reuse of a portion of the northeast OIP; while remediation of Site 14 could delay construction in the central base residential area. Site 8, the PCB spill site, would be in an industrial land use area; no impacts from this site should occur. Impacts on the golf course would be the same as described for the Proposed Action. The 30-acre parcel in Highland would not be impacted by IRP remedial actions.

Storage Tanks. Air flight and maintenance operations associated with the Airport with Mixed Use Alternative would require the use of aboveground storage tanks and USTs. These tanks must be in compliance with federal, state, and local regulations regarding leaks, spill and overfill protection, and liability insurance.

Asbestos. Some renovation and demolition of existing structures with ACM will occur with reuse development. Such activities would comply with all applicable federal, state, and local regulations. Results of the basewide asbestos survey are currently available for review at the Norton AFB closure office.

Pesticide Usage. Usage of pesticides for the Airport with Mixed Use Alternative would increase over preclosure amounts as a result of the increase in residential development. Use would be required to conform with FIFRA and state regulations.

Hazardous Materials Management. Hazardous materials to be utilized under this alternative (Table 4.3-2) would be similar to those materials used under the Proposed Action. Potential impacts associated with hazardous materials could increase over time due to the increase in aircraft maintenance operations over the preclosure base level. Emergency response requirements would be the same as under the Proposed Action.

Hazardous Waste Management. The affects discussed under the Proposed Action would apply with implementation of this alternative. Due to the extensive aircraft maintenance operations proposed, the amount of hazardous waste generated would also increase over time.

Installation Restoration Program Sites. IRP remedial actions associated with this alternative could cause delays in property conveyance and the eventual reuse of facilities. Figure 4.3-2 shows the Airport with Mixed Use Alternative land use areas relative to the IRP sites.

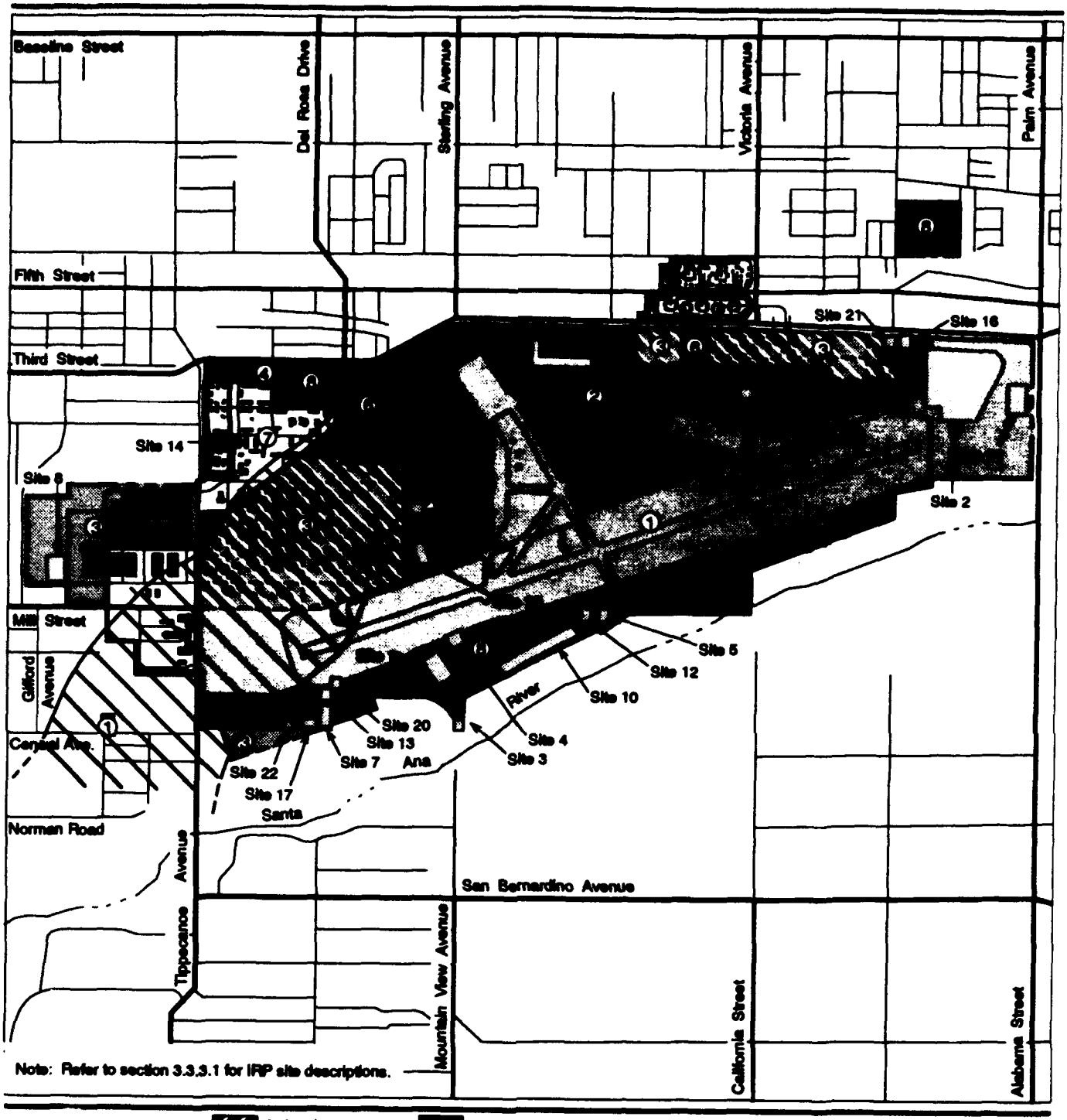
Impacts to the airfield and aviation support land uses would be the same as described for the Proposed Action. Site 21 remedial actions could delay the proposed reuse of a portion of the northeast OIP; while remediation of Site 14 could delay construction in the central base residential area. Site 8, the PCB spill site, would be in an industrial land use area; no impacts from this site should occur. Impacts on the golf course would be the same as described for the Proposed Action. The 30-acre parcel in Highland would not be impacted by IRP remedial actions.

Storage Tanks. Air flight and maintenance operations associated with the Airport with Mixed Use Alternative would require the use of aboveground storage tanks and USTs. These tanks must be in compliance with federal, state, and local regulations regarding leaks, spill and overfill protection, and liability insurance.

Asbestos. Some renovation and demolition of existing structures with ACM will occur with reuse development. Such activities would comply with all applicable federal, state, and local regulations. Results of the basewide asbestos survey are currently available for review at the Norton AFB closure office.

Pesticide Usage. Usage of pesticides for the Airport with Mixed Use Alternative would increase over preclosure amounts as a result of the increase in residential development. Use would be required to conform with FIFRA and state regulations.

PCBs. All federally regulated PCB and PCB-contaminated equipment will be removed prior to base closure. There may still be equipment with 5 to 49 ppm PCBs that would be regulated under state regulations. If removed from service, this equipment would require disposal as a hazardous waste. It is not anticipated that new PCB-containing equipment would be brought in



IRP Sites- Airport with Mixed Use Alternative

Figure 4.3-2

PCBs. All federally regulated PCB and PCB-contaminated equipment will be removed prior to base closure. There may still be equipment with 5 to 49 ppm PCBs that would be regulated under state regulations. If removed from service, this equipment would require disposal as a hazardous waste. It is not anticipated that new PCB-containing equipment would be brought in under this alternative.

Radon. All radon-screening survey results were below U.S. EPA's recommended mitigation level of 4 pCi/l of air; therefore, no action is required, and radon would have no impact on reuse activities.

Medical/Biohazardous Waste. Reuse of the clinic would generate medical/biohazardous waste; management practices would be required to conform to the California Medical Waste Management Act.

Cumulative Impacts. No cumulative impacts would result from the Airport with Mixed Used Alternative in combination with other projects in the area.

Mitigation Measures. The same mitigation measures discussed for the Proposed Action would be appropriate for activities associated with this alternative.

4.3.3 *Aircraft Maintenance Center Alternative*

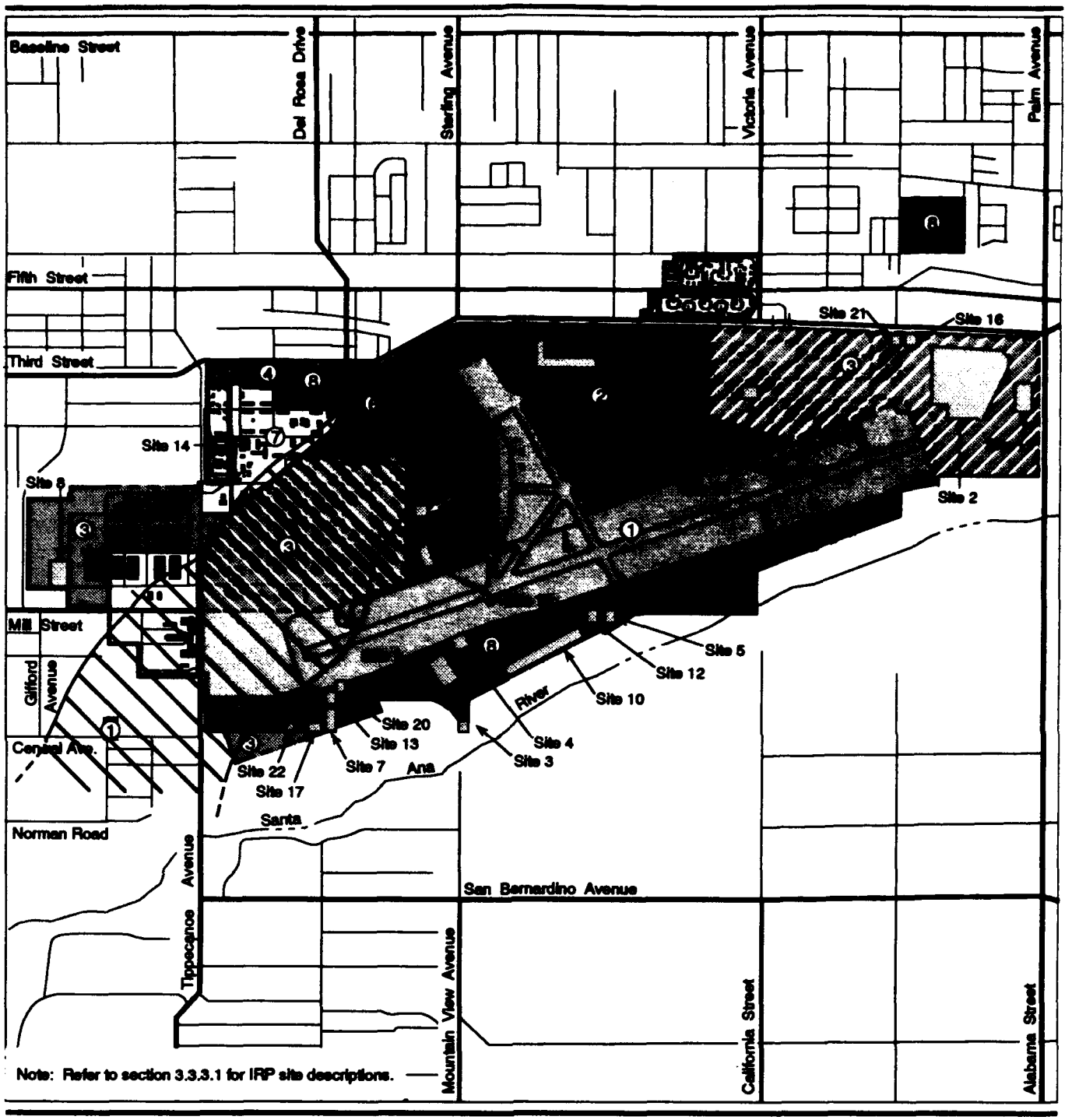
Hazardous Materials Management. Hazardous materials to be utilized under this alternative are similar to those materials used under the Airport with Mixed Use Alternative; Table 4.3-3 identifies the hazardous materials most likely to be utilized under this alternative. Potential impacts associated with hazardous materials could increase over time due to the gradual increase in aircraft maintenance operations over preclosure levels. Emergency response requirements would be the same as under the Proposed Action and Airport with Mixed Use Alternative. The inclusion of aggregate mining would also increase hazardous material usage under this alternative due to operation of processing equipment and fleet vehicles.

Hazardous Waste Management. The same conditions discussed under the Proposed Action would apply with implementation of this alternative. Due to the potential increase in aircraft maintenance and aggregate processing operations, hazardous waste could increase over time.

Installation Restoration Program Sites. IRP remedial actions associated with this alternative could cause delays in property conveyance and the eventual reuse of existing base facilities as described for the Airport with Mixed Use Alternative. Remediation of IRP sites in the northeast portion of the base could delay aggregate mining operations (Figure 4.3-3). The method to be used in closing the landfill (Site 2) has not been decided. Capping the

Table 4.3-3. Aircraft Maintenance Center Alternative Hazardous Material Usage

Land Use Zones	Operation Process	Hazardous Materials
Airfield	Refueling; aircraft loading/parking	Aviation fuels, POL, propylene glycol, ethylene glycol, heating oils
Aviation Support	Operations associated with aircraft maintenance and manufacturing, air transportation related industry and warehousing, airport terminal parking, administration offices, corporate and private aviation facilities	Fuels, POL, solvents, paints, degreasers, corrosives, heavy metals, reactives, thinners, ignitables, heating oils, plating wastes, cyanides, laboratory wastes
Industrial (Warehouse)	Operations associated with warehousing and related maintenance	Solvents, POL, aerosols, fuels, heating oils
Industrial (OIP)	Activities associated with offices, light industry, research and development, higher value warehousing	Fuels, POL, solvents, corrosives, ignitables, heating oils, pesticides
Industrial (Mining)	Aggregate mining and processing	Solvents, POL, fuels, corrosives, aerosols
Institutional (Medical)	Operation of existing clinic	Medical/biohazardous waste, heavy metals, radiological sources, laboratory waste, solvents
Commercial	Operation of retail/offices, restaurants, service industries	Heating oils, POL, solvents, corrosives, ignitables, pesticides, dry cleaning wastes
Residential	Utilization of single-family and multi-family units	Heating oil, POL, fuels, solvents, pesticides, chlorine
Public/Recreation	Maintenance of existing recreational facilities, undeveloped open lands, golf course	Pesticides, chlorine, heating oils, POL



EXPLANATION

- Airfield
- Aviation Support
- Industrial (Warehouse)
- Industrial (OIP)
- Industrial (Aggregate Mining)
- Institutional (Medical)
- Institutional (Education)*
- Commercial
- Residential
- Public/Recreation
- Agriculture*
- Retained by Air Force
- Base Boundary
- IRP Site
- TCE Groundwater Plume (Exceeds 5 Parts Per Billion Maximum Contaminant Level) Dashed Line Indicates Undefined Plume Edge

0 650 1300 2600 Feet

* Not Applicable

IRP Sites- Aircraft Maintenance Center Alternative

Figure 4.3-3

with federal, state, and local regulations regarding leaks, spill and overfill protection, and liability insurance.

Asbestos. Some renovation and demolition of existing structures with ACM would occur with this alternative. Such activities would be required to comply with all applicable federal, state, and local regulations. Results of the basewide asbestos survey are currently available for review from the Norton AFB closure office.

Pesticide Usage. Under the Aircraft Maintenance Center Alternative, pesticide usage would be similar to preclosure levels. Management would be required to conform with FIFRA and state regulations.

PCBs. All federally regulated PCB and PCB-contaminated equipment will be removed prior to base closure. There may still be equipment with 5 to 49 ppm PCBs that would be regulated under state regulations. If removed from service, this equipment would require disposal as a hazardous waste. It is not anticipated that new PCB-containing equipment would be brought in under this alternative.

Radon. All radon-screening survey results were below the U.S. EPA's recommended mitigation level of 4 pCi/l of air; therefore, no action is required, and radon would have no impact on reuse activities.

Medical/Biohazardous Waste. Reuse of the clinic would generate medical/biohazardous waste; management practices would be required to conform to the California Medical Waste Management Act.

Cumulative Impacts. No cumulative impacts would result from the Aircraft Maintenance Center Alternative in combination with other projects in the area.

Mitigation Measures. The same mitigation measures discussed for the Proposed Action would be appropriate for activities associated with this alternative.

To lessen the impacts to the aggregate mining operations, remediation of IRP sites in the northeast portion of the base could be done concurrently with mining operations. This would depend on the phasing of the mining operations and require coordination with the base DMT and all applicable regulatory agencies.

4.3.4 Non-Aviation Alternative

Hazardous Materials Management. Hazardous materials usage under the Non-Aviation Alternative (Table 4.3-4) would increase over the closure baseline. Businesses within the industrial park areas would likely utilize

4.3.4 Non-Aviation Alternative

Hazardous Materials Management. Hazardous materials usage under the Non-Aviation Alternative (Table 4.3-4) would increase over the closure baseline. Businesses within the industrial park areas would likely utilize hazardous materials, and storage and handling of these hazardous materials and wastes would present a potential for spills. The potential spill quantities would likely be smaller without aviation activities, but the on-site spill response capability would also likely be less.

Table 4.3-4. Non-Aviation Alternative Hazardous Material Usage

Land Use Zones	Operation Process	Hazardous Materials
Industrial (Warehouse)	Operations associated with warehousing and related maintenance	Fuels, POL solvents, heating oils
Industrial (OIP)	Activities associated with offices, light industry, research and development, warehousing	Fuels, POL solvents, corrosives, ignitables, heating oils, pesticides
Institutional (Medical)	Operation of existing clinic	Medical/biohazardous waste, heavy metals, radiological sources, laboratory waste, solvents
Commercial	Operation of retail/offices, restaurants, service industries	Fuels, POL, solvents, corrosives, ignitables, heating oils, pesticides, dry cleaning wastes
Residential	Utilization of single-family and multi-family units	Fuels, POL, heating oil, solvents, pesticides, chlorine
Public/Recreation	Maintenance of existing recreational facilities, golf course, undeveloped open area	Pesticides, chlorine

Increased use of household hazardous materials would occur under this alternative (i.e., pesticides, fuels for maintenance equipment, paints, and thinners) due to the greatly expanded residential reuse.

Hazardous Waste Management. Hazardous waste generation would increase over closure baseline levels due to an increase in industrial land use. Other generators must comply with all applicable federal, state, and local disposal regulations.

Installation Restoration Program Sites. Impacts from IRP sites in the western area of the base and the golf course would be as described for the Airport with Mixed Use Alternative. In the areas proposed for new residential development under this alternative (Figure 4.3-4), remediation of Sites 2, 11, 15, 16, 18, and 21 could delay property conveyance. Location of the long-term monitoring devices could also impact complete development within this land use area. The method to be used in closing the landfill (Site 2) has not been decided. Capping the landfill is one potential solution which would allow for development of parks and greenbelts.

Impacts from IRP activities associated with the golf course and IWTP would remain the same as those under the Proposed Action. IRP remediation located in the central base area could cause delays in property conveyance, resulting in delays to scheduled demolition and construction.

The proposed residential reuse of the 30-acre parcel northeast of the main base will not be impacted by IRP activities.

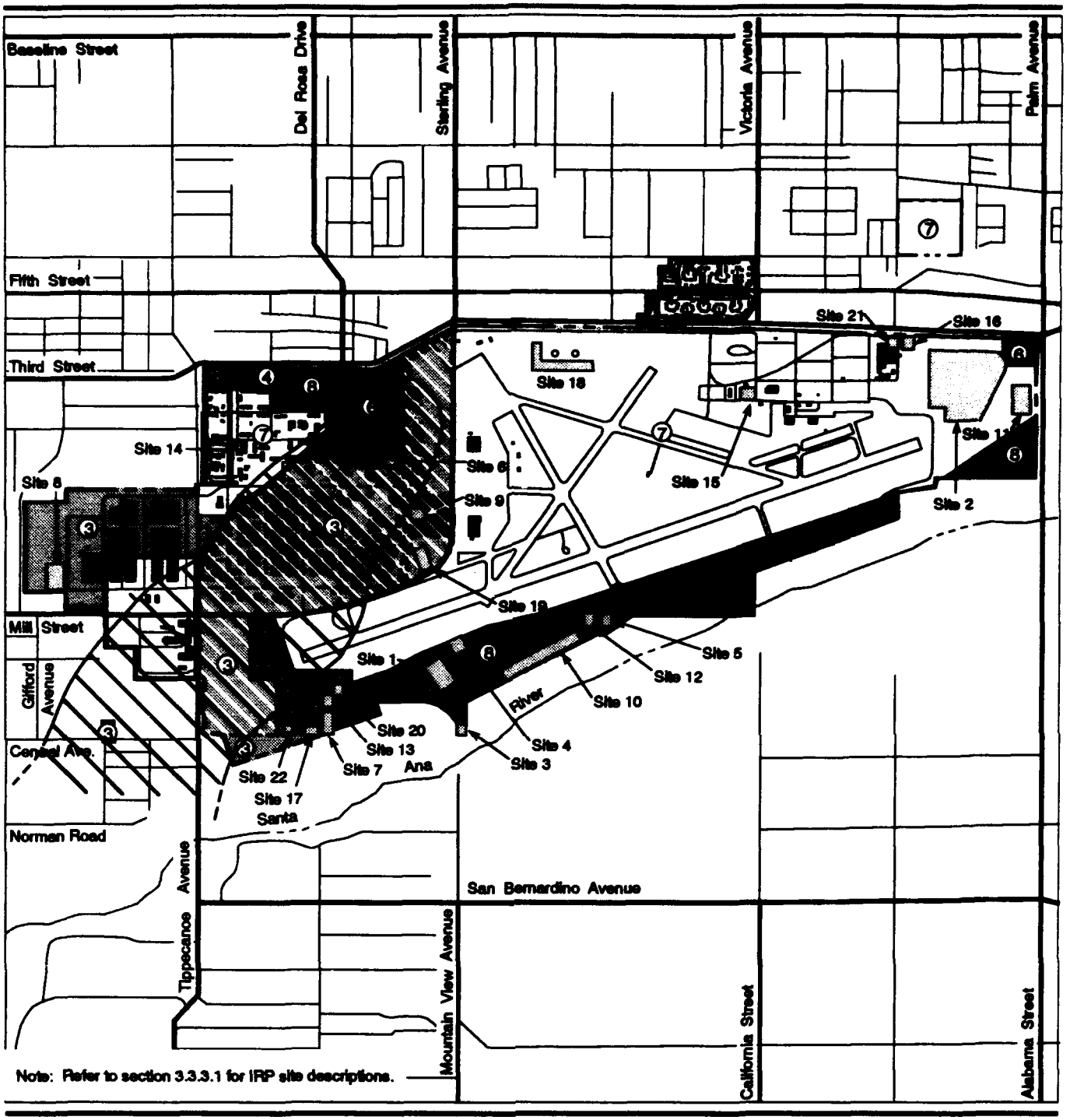
Storage Tanks. Maintenance or business operations associated with the Non-Aviation Alternative may require the use of aboveground storage tanks and USTs. These tanks must be in compliance with federal, state, and local regulations regarding leaks, spill and overfill protection, and liability insurance.

Asbestos. Some renovation and demolition of existing structures with ACM will occur with reuse development. Such activities will comply with all applicable federal, state, and local regulations. Results of the basewide asbestos survey are currently available for review from the Norton AFB closure office.

Pesticide Usage. Pesticide usage associated with the Non-Aviation Alternative would include use associated with residential areas. Management practices would be required to conform to FIFRA and state regulations.

PCBs. All federally regulated PCB-contaminated equipment will be removed prior to base closure. There may still be equipment with 5 to 49 ppm PCBs that would be regulated under state regulations. If removed from service, this equipment would require disposal as a hazardous waste. It is not anticipated that new PCB-containing equipment would be brought in under this alternative.

Radon. All radon-screening survey results were below the U.S. EPA's recommended mitigation level of 4 pCi/l of air; therefore, no action is required, and radon would not create any impact on reuse activities.



IRP Sites- Non-Aviation Alternative

Figure 4.3-4

Cumulative Impacts. No cumulative impacts would result from the Non-Aviation Alternative in combination with other projects in the area.

Mitigation Measures. The same mitigation measures discussed for the Proposed Action would be appropriate for activities associated with this alternative.

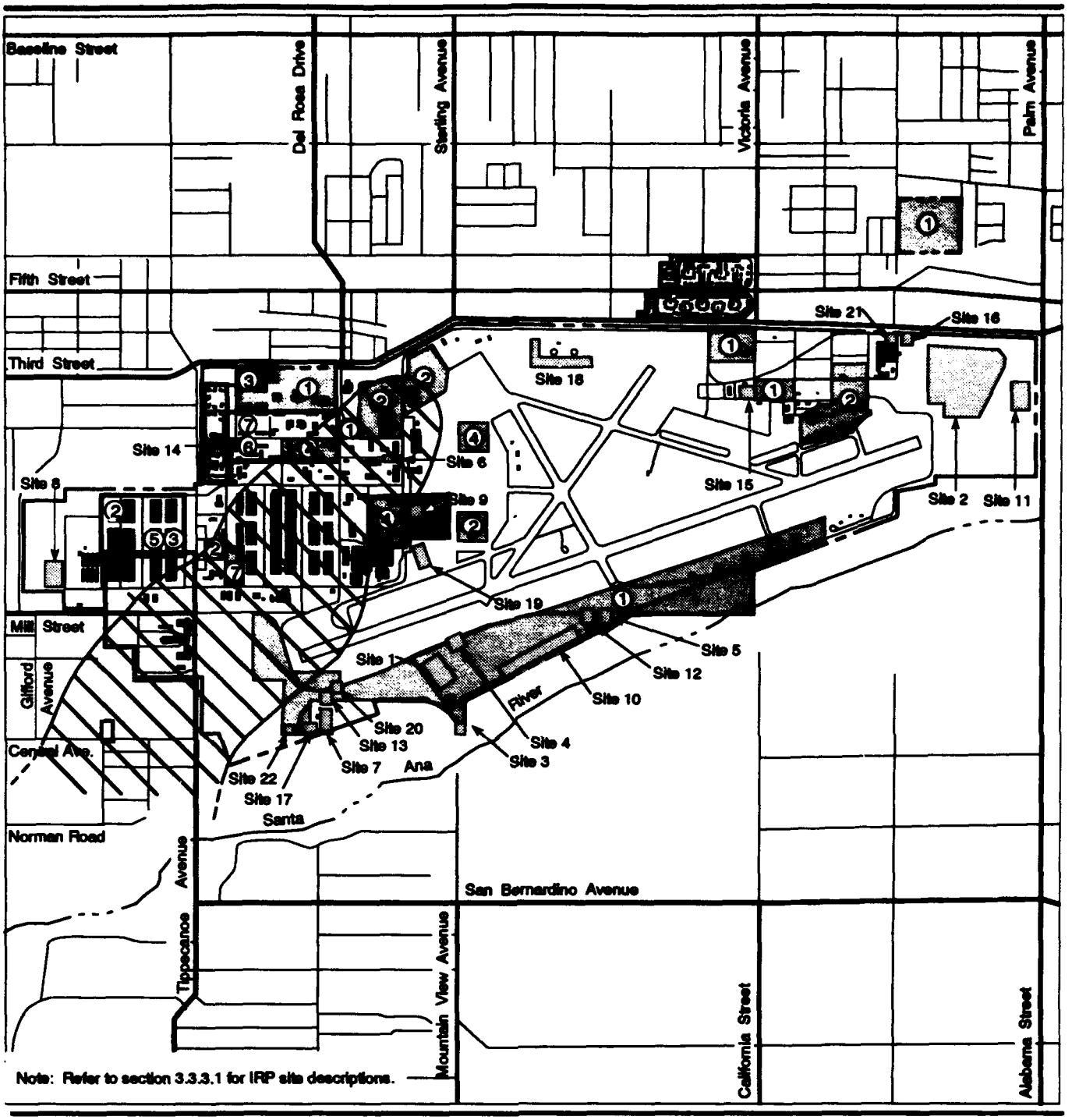
4.3.5 Other Land Use Concepts

This section discusses other land use concepts within the framework of the IRP risk assessment and remediation process, and within the context of the hazardous materials and wastes typically associated with the Proposed Action and alternatives. Figure 4.3-5 shows proposed federal transfers and other government concepts in relation to the IRP sites. Figure 4.3-6 shows the aggregate mining overlays in relation to the IRP sites.

Several of the concepts involve using existing buildings and making modifications to those buildings to accommodate the new use. Modification of existing buildings could require use of asbestos abatement measures depending on the findings of the asbestos survey under review. Asbestos removal in accordance with all applicable regulations would preclude any exposures.

U.S. Department of the Interior. Hazardous materials and wastes associated with the park and recreational disposal sponsored by the National Park Service would include paints, thinners, pesticides, fuels, waste oils, solvents, and corrosives. Management of all hazardous materials and wastes will comply with all applicable federal, state, and local regulations, thereby mitigating any environmental impacts.

No IRP sites are located in the recreation complex in the northwest area of the base (gymnasium area) or the family camping area in the northeast. IRP remedial actions could impact the golf course, where several IRP sites are located. Sites include numerous waste pits (Sites 1, 3, 4, and 12), a fire training area (Site 5), base Landfill 1 (Site 10), and a low-level radioactive waste burial site (Site 20). Sites associated with the IWTP (Sites 7, 13, 22, and 71) could also delay reuse of the golf course. Long-term remediation and monitoring activities of these sites could delay golf course reuse activities/operations. The city of Highland's request through the National Park Service for the 30-acre parcel northeast of the base would not be affected.



EXPLANATION

Government Proposals

1 U.S. Department of Interior (sponsor), County of San Bernardino, City of San Bernardino, City of Highland
2 U.S. Department of Agriculture, Forest Service, California Forestry Department
3 U.S. Department of Veterans Affairs
4 U.S. Department of Education (sponsor), California State University California Department of Youth Authority San Bernardino County Schools, Northrop University San Bernardino Community College District
5 U.S. Postal Service
6 McKinney Act Proposals
7 San Bernardino County Work Furlough Program

Areas where multiple requests may be located

Retained by Air Force

IRP Site

TCE Groundwater Plume (Exceeds 5 Parts Per Billion Maximum Contaminant Level) Dashed Line Indicates Undefined Plume Edge

0 650 1300 2600 Feet

IRP Sites- Other Land Use Concepts: Government Proposals

Figure 4.3-5

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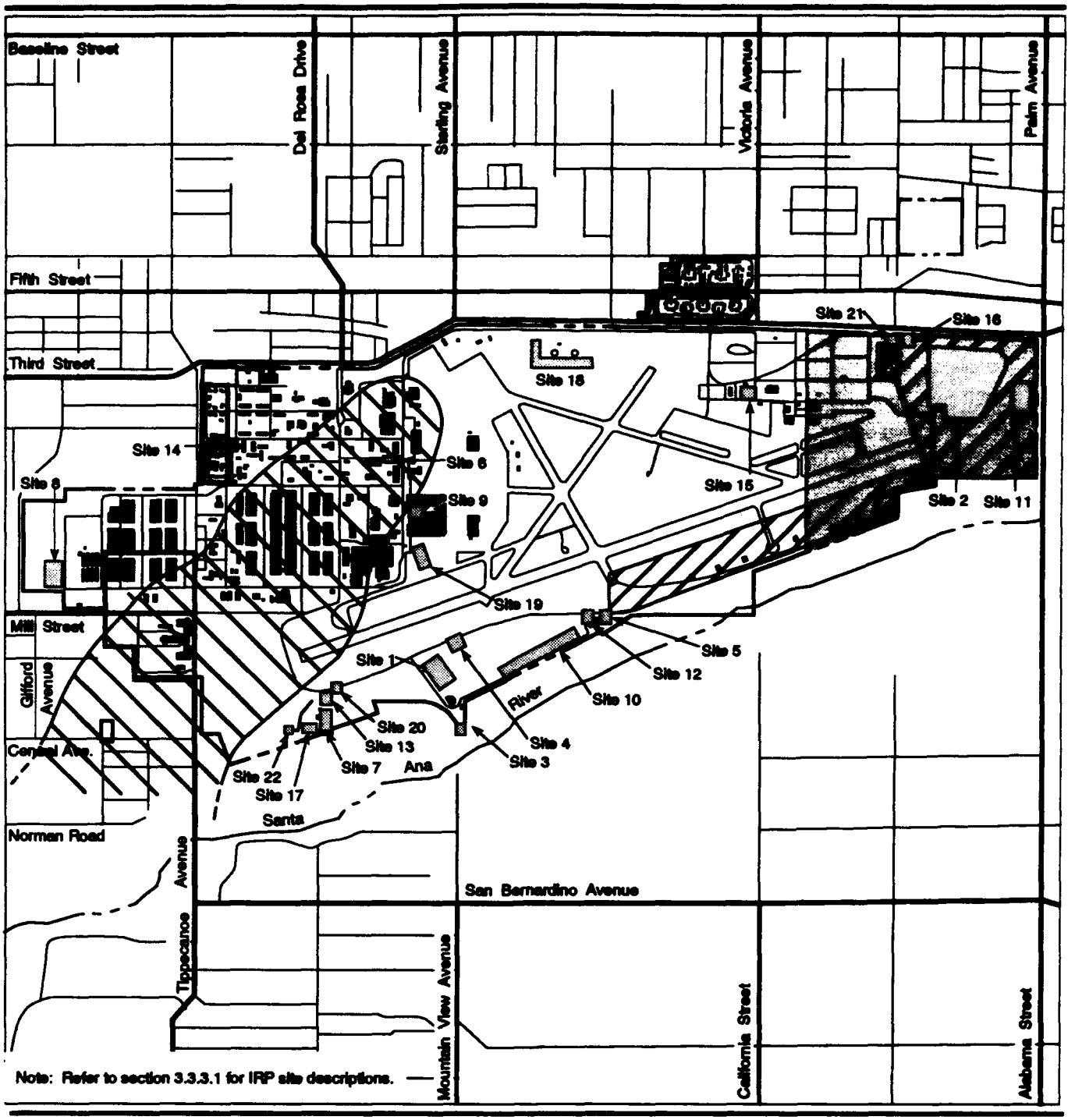


EXPLANATION

- Aggregate Mining Overlay with Proposed Action and Airport with Mixed Use Alternative
- Aggregate Mining Overlay with Non-Aviation Alternative
- Base Boundary
- Retained by Air Force
- IRP Site
- TCE Groundwater Plume (Exceeds 5 Parts Per Billion Maximum Contaminant Level) Dashed Line Indicates Undefined Plume Edge

0 650 1300 2600 Feet

IRP Sites- Other Land Use Concepts: Independent Proposals

Figure 4.3-6

U.S. Department of Agriculture. Hazardous materials used by and wastes associated with the aviation, administrative, and warehouse general operations by the USFS would include aviation fuel, diesel oil, motor fuels, POL, solvents, ignitables, degreasers, paints, and thinners. Hazardous materials, which could be stored in an on-site fire fighting equipment cache, would include road flares (fusees), signal cartridges, smoke grenades, and liquid petroleum gas (stored in 5-gallon cans). Management of these hazardous materials and any generated wastes would be the responsibility of USFS personnel and must comply with all applicable local, state, and federal regulations.

Currently, no IRP sites occupy any of the locations under consideration for this transfer.

U.S. Department of Veterans Affairs. Pesticides, paints, thinners, fuels, and waste oils would be the typical hazardous materials and hazardous wastes associated with the warehouse and dormitory maintenance operations. Handling and management of these materials would be the responsibility of the operator and must be in compliance with all applicable regulations; therefore, environmental impacts would be mitigated by compliance with the regulations. Medical/biohazardous wastes could be generated at the clinic; management practices would conform to Title 22, Article 13 of the CCR.

Currently no IRP sites exist in the vicinity of the facilities requested by the VA; thus, no impacts will be incurred through IRP actions. An injection well has been installed as part of the central base TCE groundwater contamination remediation project. The well installation is in the parking lot shared by the four dormitories. Well equipment is flush-mounted and will not impact availability of dormitory parking.

U.S. Department of Education. The only education activity likely to use hazardous substances would be aviation training. Aviation fuels, POL, solvents, degreasers, corrosives, paints, and thinners would be the hazardous materials most commonly utilized for an aviation training center; and would be handled in accordance with all applicable regulations to mitigate impacts to the environment.

Currently no IRP site is located within the proposed reuse areas; therefore, no impacts should occur as a result of IRP remedial actions.

McKinney Act Housing. Paints, thinners, pesticides, and POL will most commonly be utilized for maintenance purposes. Reuse of the dormitory facilities for housing for homeless persons should not be impacted by IRP remedial activities.

U.S. Postal Service. The hazardous materials and wastes associated with the U.S. Postal Service proposal would consist of POL, paints, and thinners.

A small amount of pesticides could be utilized for grounds maintenance. No impacts from existing IRP sites would be incurred based on the proposed location of Postal Service facilities and existing IRP sites.

San Bernardino County. Maintenance of this facility would utilize pesticides, paints, thinners, and POL. IRP remediation activities would not impact the proposed facility reuse.

Aggregate Mining. Aggregate mining in combination with the Proposed Action, Airport with Mixed Use Alternative, or the Non-Aviation Alternative would increase hazardous material use. Table 4.3-3 lists typical hazardous materials involved in equipment and vehicle maintenance associated with the operation. Similarly, quantities of hazardous waste generated could increase. The mining process itself does not generate hazardous wastes.

Remediation of IRP sites in the northeast portion of the base could delay aggregate mining operations (see Figure 4.3-6).

Cumulative Impacts. No cumulative impacts would result for the proposed land use concepts.

Mitigation Measures. The same mitigation measures discussed for the Proposed Action would be appropriate for activities associated with other land use concepts. Mitigation measures for reducing impacts from IRP activities on aggregate mining are discussed under the Aircraft Maintenance Center Alternative.

4.3.6 No-Action Alternative

Under the No-Action Alternative, the only hazardous materials and hazardous waste issues of concern would be those associated with the final phases of IRP remediation activities. This alternative would require the DMT to manage all hazardous wastes under applicable local, state, and federal regulations.

Hazardous Materials Management. Hazardous materials would be utilized in performing routine base maintenance. The materials used for such activities would include paints, thinners, pesticides, fuels, and POL. The DMT would require contractors to comply with all applicable hazardous material regulations.

Hazardous Waste Management. With the exception of facilities used by the DMT, all accumulation and satellite accumulation points will be closed prior to base closure. Disposal of all preclosure wastes would be accomplished by DRMO prior to base closure. The small amount of hazardous waste that would be generated under the No-Action Alternative may enable the DMT to

become an exempt small-quantity generator. The DMT would comply with all regulatory requirements.

Installation Restoration Program Sites. The DMT would support the utility requirements for the IRP contractor and provide security for the areas under remediation. Ongoing sampling and remedial design activities would be continued by the individual IRP contractors.

Storage Tanks. Plans to remove all remaining USTs would be implemented after closure. In-place closure of empty tanks would lead to deterioration and degradation; therefore, removal is preferred. The aboveground storage tanks would be purged to avoid fire hazards. The DMT would provide cathodic protection, repair, and maintenance of the aboveground storage tanks and piping.

Asbestos. The impacts from the No-Action Alternative would be minimal. Vacated facilities would likely be boarded up if the No-Action Alternative were implemented. All deteriorated asbestos materials will be abated if discovered; therefore, ACM would not be released into the atmosphere.

Pesticide Usage. 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 should not be an appreciable increase in the use of pesticides. Application of pesticides would be conducted in accordance with FIFRA and state regulations to assure proper and safe handling and application of all chemicals.

Polychlorinated Biphenyls. All federally regulated PCB-contaminated equipment will be removed prior to base closure. There may still be equipment with 5 to 49 ppm PCBs that would be regulated under state regulations. If removed from service, this equipment would be disposed of as a hazardous waste.

Radon. All radon-screening survey results were below U.S. EPA's recommended mitigation level of 4 pCi/l of air; therefore, no further action is required, and radon would not create any impacts.

Medical/Biohazardous Waste. All medical/biohazardous waste would be removed from Norton AFB prior to closure. As a result, these materials would not represent an impact. No new wastes would be generated under the No-Action Alternative.

Cumulative Impacts. No cumulative impacts would result from the No-Action Alternative in combination with other projects in the area.

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

This section describes the potential effects of the Proposed Action and alternatives on the natural resources in the base area and surrounding region. Natural resources include soils and geology, water resources, air quality, noise, biological resources, and cultural resources.

4.4.1 Soils and Geology

The potential effects of the Proposed Action and reuse alternatives on the local soils and geology, as well as the potential effects from regional seismicity, have been analyzed based on review of published literature.

4.4.1.1 Proposed Action. Effects of the Proposed Action on regional soils and geology would be minimal. Use of sand and gravel resources (e.g., for construction material or concrete) for new facilities and roadways is not expected to substantially reduce the availability of these materials from local producers. The Proposed Action would develop and pave over some existing vacant areas containing potential aggregate resources; however, the region offers adequate potential reserves to meet projected regional demands.

Effects on local soils and geology would result primarily from the construction activities associated with the Proposed Action, such as grading, excavating, and recontouring the soils. These activities could alter the soil profiles and the local topography. Approximate acreages to be disturbed under the Proposed Action between closure and at 5, 10, and 20 years of redevelopment are presented in Table 2.2-2.

Local soils within the potentially disturbed areas are not highly susceptible to wind or water erosion, and impacts from soil erosion are considered short term. Once the construction phase is complete, most areas would be covered by pavement or landscaped, thus, reducing the erosion potential. Demolition and reconstruction activities would affect areas that have been previously disturbed and altered.

The Proposed Action would not be subject to impacts associated with ground rupture; however, it would be subject to secondary seismic hazards such as ground shaking, subsidence, and liquefaction. Some existing facilities may not meet current Uniform Building Code design standards for Seismic Hazard Zone IV. The integrity of the existing buildings would need to be assessed by the new owner to determine whether structural upgrades will be required by the local ordinances prior to occupancy. In the long

term, the Proposed Action involves replacement of pre-1980 facilities located outside the aviation area with new facilities. New facility construction would have to comply with Uniform Building Code design standards to reduce the potential for property damage, thereby minimizing the potential impacts of secondary seismic hazards caused by ground shaking, liquefaction, and ground subsidence. As required in the San Bernardino County Development Code, the new owners would prepare site-specific geotechnical reports to assess the liquefaction potential prior to developing within areas susceptible to liquefaction (City of San Bernardino, 1989b, 1990).

Cumulative Impacts. Impacts to the aggregate supply resulting from the increased project demand for aggregate resources in the area may be greater when combined with the projected rapid growth in the San Bernardino area. Long-term impacts on supply of aggregate material should be minimal because there is an abundance of untapped aggregate sources in the region. No cumulative impacts are expected for soils or seismicity.

Mitigation Measures. Mitigation measures could be employed to minimize wind and water erosion potential, especially during the construction phase when trenches and cut slopes are exposed. During construction, the length of time vegetation and other cover are absent should be minimized. If cut slopes are exposed, any of the following measures may be useful in limiting erosion:

- Add protective covering such as mulch, straw, or other synthetic material.
- Limit the amount of area disturbed and the length of time slopes and barren ground are left exposed.
- Construct diversion dikes and interceptor ditches to divert water away from the construction areas.
- Install slope drains (conduits) and/or water velocity-control devices to reduce concentrated, high-velocity streams from developing.

While mitigation measures will help reduce the amount of erosion that could occur as a result of construction-related activities, erosion by wind and water cannot be completely eliminated. Application of mulch, straw, or synthetic material has proven very effective over the short term for controlling erosion. The application of straw at the rate of about 1,000 pounds per acre should reduce the short-term erosion potential of these soils by about 65 percent, and the application of 2,000 pounds per acre should reduce the short-term erosion potential by about 95 percent. Application of the straw would require tacking, using a modified sheepsfoot roller.

After the construction phase, long-term erosion control, if necessary, can be effectively accomplished by keeping soils under vegetative cover and planting windbreaks perpendicular to the predominant wind direction. Revegetating with short grasses, barley, or alfalfa should reduce the long-term erosion potential by greater than 50 percent. The type of vegetation used must comply with FAA standards in areas intended for aircraft runways. After construction, soils underlying facilities and pavements will not be subject to erosion.

The new developers would need to prepare site-specific geotechnical reports to determine necessary mitigation prior to new development within areas susceptible to liquefaction (City of San Bernardino, 1989b).

4.4.1.2 Airport with Mixed Use Alternative. Impacts on soils and geologic resources under this alternative would be similar to those under the Proposed Action, except that approximately 150 acres less ground disturbance is anticipated. The approximate area to be disturbed under each land use category between closure and 5, 10, and 20 years of redevelopment is presented in Table 2.3-2. Project-related demand for sand and gravel resources could be supplied from local sources. Impacts from soil disturbance and erosion are considered to be short term because exposed areas would be covered by pavement or landscaping, thus, reducing the erosion potential.

As mentioned for the Proposed Action, the site is subject to secondary seismic hazards, including ground shaking, liquefaction, and ground subsidence. The integrity of the existing buildings would need to be assessed by the new owner to determine the need for any structural upgrade required by local ordinances prior to occupancy.

Engineering design for new facilities will be required to minimize the potential for public safety hazards and property damage. Structural upgrades of some existing facilities may also be required to reduce the risk of structural failure during a seismic event.

Cumulative Impacts. Cumulative impacts would be similar to those in the Proposed Action.

Mitigation Measures. Potential mitigation measures would be similar to those discussed for the Proposed Action.

4.4.1.3 Aircraft Maintenance Center Alternative. Demand for sand and gravel resources would be less under this alternative than the other aviation alternatives because there would be less construction in the northeast portion of the base. The approximate area to be disturbed under each land use category between closure and at 5, 10, and 20 years redevelopment is presented in Table 2.3-6. Impacts from soil disturbance and erosion in

developed areas are considered to be short term because exposed areas would be covered by pavement or landscaping, thus, reducing the erosion potential.

As mentioned for the Proposed Action, the base area is subject to secondary seismic hazards, including ground shaking, liquefaction, and ground subsidence. The integrity of the existing buildings would need to be assessed by the new owner to determine structural upgrading required by local ordinances prior to occupancy. New structures would be required to meet Uniform Building Code criteria.

Impacts from soil disturbance in the aggregate mining area would be long term. The aggregate pit could expose approximately 200 to 300 acres to a depth of about 70 feet with 45-degree side slopes (bench cuts). Approximately 1.1 million short tons of raw materials are likely to be removed annually depending on market demand. On-site haul roads, including the haul road over the flood control berm and the processing area, would disturb an additional 30 to 50 acres of land. Several sand and gravel stockpiles would be located in the processing areas for loading and distribution. Berms would be located around the site and along the stream diversion in the Santa Ana Wash. The entire site would be subject to impacts associated with wind and water erosion, such as slope failure and dust generation.

The mining operations and reclamation would comply with the SMARA through approval from the county of San Bernardino of an Application for Mining/Reclamation Site Approval. The new owner would be required to file an application describing the site-specific operations and measures for grading, backfilling, resoiling, revegetation, soil compaction, soil erosion control, and other reclamation requirements.

Cumulative Impacts. As in the Proposed Action, increased project demand for aggregate resources would likely be exacerbated when combined with the projected rapid growth in the San Bernardino area; however, this alternative would supply the local area with an additional 1 million short tons of aggregate annually, thus, offsetting short-term impacts. Long-term impacts on availability of aggregate material should be minimal because there is an abundance of untapped aggregate sources in the region.

Mitigation Measures. Potential mitigation measures described for the Proposed Action would apply to this alternative.

Erosion impacts associated with the mining operations could be reduced by applying dust-binding agents to the stockpiles and haul roads; wetting down the stockpiles, conveyor transfer points, and haul roads with a water spray system; providing adequate surface drainage; or by reducing operations during adverse weather conditions.

The new owners would be required to perform site-specific geotechnical studies to determine necessary mitigations prior to developing within areas susceptible to liquefaction (City of San Bernardino, 1989b, 1990).

4.4.1.4 Non-Aviation Alternative. Impacts on soils and geologic resources under the Non-Aviation Alternative would be similar to those under the Proposed Action, except that approximately an additional 760 acres of ground disturbance is expected due to new construction. The approximate acreage to be disturbed between closure and 5, 10, and 20 years of redevelopment is presented in Table 2.3-10. New construction and existing facility demolition or renovation will occur within the OIP, commercial, and industrial areas, and the existing airfield will be removed and replaced with residential units.

Effects to sand and gravel resources would be greater than the Proposed Action because of the large amount of new construction required. Demand for sand and gravel resources could likely be supplied from local sources.

Demolition of the existing airfield would create short-term impacts to soils by exposing the ground and creating shallow excavations during the construction phase. Once construction is completed, the potential for erosion would be minimized because the majority of the area will be covered by facilities, roads, or landscaping.

As mentioned for the Proposed Action, the site is subject to secondary seismic hazards, including ground shaking, liquefaction, and ground subsidence. The integrity of the existing buildings would need to be assessed by the new owner to determine structural upgrading required by local ordinances prior to occupancy. New structures would be required to meet applicable building codes.

Cumulative Impacts. As in the Proposed Action, impacts associated with the increased project demand for aggregate resources in the area may have a larger short-term impact when combined with the projected rapid growth in the San Bernardino area. Long-term impacts on availability of aggregate material should be minimal because there is an abundance of untapped aggregate sources in the region.

Mitigation Measures. Potential mitigation measures would be similar to those discussed for the Proposed Action. In addition the new owners could recycle the demolished airfield, taxiway, and apron pavement to provide aggregate for new construction (e.g., road base), thus, reducing the net adverse effects to the aggregate resources created by the increased demand. Site-specific geotechnical studies would be performed by the new owners to determine necessary mitigations prior to developing within areas susceptible to liquefaction (City of San Bernardino, 1989b, 1990).

4.4.1.5 Other Land Use Concepts

U.S. Department of Interior. This conveyance would not create any impacts to soils or geologic resources because a minimal amount of construction would be required.

U.S. Department of Agriculture. Impacts to soils and geologic resources would likely be minimal because limited construction would be required at most of the potential sites. Use of the east site, however, would require construction; therefore, potential impacts to soils due to soil erosion may result.

U.S. Department of Education. Impacts to soils and geologic resources are expected to be minimal because very little construction would be required. Site-specific geotechnical reports may be required to assess the seismic hazards to school buildings and to provide engineering mitigations to withstand the effects of ground shaking, liquefaction, and subsidence.

U.S. Department of Veterans Affairs. Impacts to soils and geologic resources would be minimal because construction would likely be limited to minor renovation. Site-specific geotechnical reports may be required to assess the seismic hazards to the clinic and to provide engineering mitigations to withstand the effects of ground shaking, liquefaction, and subsidence.

McKinney Act Housing. This transfer would not create any impacts to soils or geologic resources because renovations will be minor and limited to existing disturbed areas. Site-specific geotechnical reports may be required to assess the seismic hazards to the high-occupancy buildings and to provide engineering mitigations to withstand the effects of ground shaking, liquefaction, and subsidence.

U.S. Postal Service. No impacts to soils or geologic resources are expected because little construction is anticipated.

San Bernardino County. Impacts to soils and geologic resources would be minimal because construction would be limited to minor renovation. Site-specific geotechnical reports may be required to assess the seismic hazards with respect to the high-occupancy building and to provide engineering mitigations to withstand the effects of ground shaking, liquefaction, and subsidence.

Aggregate Mining. Impacts from aggregate mining are similar to those discussed under the Aircraft Maintenance Center Alternative.

Cumulative Impacts. Cumulative impacts with other land use concepts would be the same as described for each alternative. Cumulative impacts

associated with aggregate mining are described for the Aircraft Maintenance Center Alternative.

Mitigation Measures. No additional mitigation measures would be required for any of the other land use concepts, except aggregate mining. Mitigation measures for aggregate mining are described for the Aircraft Maintenance Center Alternative.

4.4.1.6 No-Action Alternative. The No-Action Alternative would result in no impacts to soils and geologic resources. Minimal ground disturbance would be associated with the maintenance activities. No cumulative impacts would result, and no mitigation measures would be required.

4.4.2 Water Resources

The following section describes the potential impacts on surface water and groundwater supply as a result of the Proposed Action and reuse alternatives. Impacts on water quality from hazardous waste contamination are addressed in Section 4.3, Hazardous Materials and Hazardous Waste Management. Construction activities associated with these alternatives could alter soil profiles and natural drainages which, in turn, may alter overland flow patterns temporarily.

Non-project-related water demand projections were based on forecasts of local water purveyors to the year 2015. Assumptions used to estimate project-related water demand are discussed in Section 4.2.4, Utilities.

4.4.2.1 Proposed Action

Surface Water. Under the Proposed Action, soils will be compacted during new construction and overlain by asphalt, asphaltic concrete, or buildings, creating impervious surfaces that will cause increased storm water runoff to local storm drains. Increased runoff could overburden existing drainage and flood control facilities and cause damage to on-base and downstream properties due to increased flow and erosion.

Storm water discharge (non-point source) from the airfield and airfield support areas may contain fuels, oil, and other residual contaminants, which could degrade surface and groundwater resources.

Areas under the Proposed Action within the 100-year floodplain include warehouse space, airfield, and public/recreation (Section 4.2.2 discusses land use compatibility and local zoning/ordinances). The warehouse space function might include construction of new facilities within the floodplain that could change the floodplain or be affected by flooding.

Diversion, obstruction, or changes to the existing Santa Ana River streambed, flood control area, or embankments is not anticipated under the Proposed Action.

Groundwater. Under the Proposed Action, there would be no major impacts to water supply and availability. Projected water production for the years 2000, 2005, and 2015 is shown in Table 4.4-1. Project-related regional water demand would remain at or below preclosure on-base water demand (2.3 MGD) until the year 2004. By the year 2015, the project-related regional water demand would reach 5 MGD, or 5,600 af/yr.

Table 4.4-1. Water Supply Effects - Proposed Action

	2000	2005	2015
Projected demand without base reuse (af/yr)	319,432	336,915	361,811
Groundwater availability (af/yr)	275,000	275,000	275,000
Projected supplemental water requirement without base reuse (af/yr)	44,432	61,915	86,811
Project-related demand (af/yr)	1,010	3,020	5,600
Percent increase in total demand	0.3	0.9	1.5

As the table shows, demand for water will exceed groundwater availability with or without reuse of Norton AFB. The additional demand generated by the Proposed Action would increase the supplemental requirement provided by the SBVMWD through other sources of water (e.g., State Water Project, water reclamation programs). It is assumed that the supplemental water would be supplied by the SBVMWD through its local purveyors. The reuse-generated water requirement represents a 1.5 percent increase in total water demand in the ROI by 2015.

Cumulative Impacts. The Seven Oaks Dam Project should reduce flood hazards downstream in the base vicinity after 1997. Increased water demand associated with the rapid regional growth has been taken into account in the analysis of the Proposed Action.

Mitigation Measures. Construction designs should incorporate provisions to reduce flood hazards and storm water runoff to on-base and downstream properties. Requirements for disposal of flood zones would comply with EO 11988, Floodplain Management. Construction designs to mitigate flooding hazards will require coordination with appropriate local, state, and federal agencies to ensure the integrity of existing and planned flood control facilities.

The following practices could be implemented to reduce the impacts to surface water quality during construction:

- Create landscaped areas which are pervious to surface water;
- Minimize areas of surface disturbance;
- Control site runoff;
- Minimize time that disturbed areas are exposed to erosion;
- Schedule surface-disturbing activities during dry seasons;
- Provide regular street sweeping.

The project may also be subject to NPDES permit requirements for storm water discharges during the construction period and for the duration of airport operations. This provision is contained in the NPDES Permit Application Regulations for Storm Water Discharges issued by the U.S. EPA as a final rule on November 16, 1990. Oil-water separators could be installed to improve water quality prior to discharge to storm water drainage systems.

The SBVMWD has been investigating ways to supplement groundwater sources for several years to meet their current water demand projections. These include continued purchases from the State Water Project, water reclamation, and increased recharge spreading basins. These measures could also be used to meet the additional project demands associated with the Proposed Action.

4.4.2.2 Airport with Mixed Use Alternative

Surface Water. Effects on surface water from this alternative would be less than the Proposed Action, due to a smaller amount of construction activities in the western portion of the base. However, storm water runoff to storm drains would be increased due to compaction of soils during construction and the impervious surfaces created by new construction. As a result, drainage patterns would be altered to divert water away from facilities and airfield pavements.

As with the Proposed Action, storm water discharge (non-point source) from the airfield may contain fuels, oil, and other residual contaminants, which could degrade surface and groundwater resources.

Impacts to the 100-year floodplain would be the same as the Proposed Action.

Groundwater. This alternative would generate less demand for water than the Proposed Action. Projected water production demand for the years 2000, 2005, and 2015 is shown in Table 4.4-2. Project-related regional water demand will remain at or below preclosure on-base water demand until the year 2004. By the year 2015, the project-related regional water demand would reach 3.8 MGD or 4,260 af/yr.

Table 4.4-2. Water Supply Effects - Airport with Mixed Use Alternative

	2000	2005	2015
Projected demand without base reuse (af/yr)	319,432	336,915	361,811
Groundwater availability (af/yr)	275,000	275,000	275,000
Projected supplemental requirement without base reuse (af/yr)	44,432	61,915	86,811
Project-related demand (af/yr)	1,340	2,910	4,260
Percent increase in total demand	0.4	0.9	1.2

It is assumed that the supplemental water would be supplied by the SBVMWD through its local purveyors. The project-generated water requirement represents a 1.2 percent increase in total water demand in the SBVMWD by 2015.

Cumulative Impacts. No cumulative impacts are expected from this alternative in combination with other projects in the area.

Mitigation Measures. Mitigation measures would be the same as those identified under the Proposed Action. New sources of water would not be required as soon as under the Proposed Action.

4.4.2.3 Aircraft Maintenance Center Alternative

Surface Water. Increased storm water runoff to storm drains would be generated by this alternative due to compaction of soils during construction, increased impervious surfaces created by new development, and exposure of soils within the aggregate processing area.

As with the Proposed Action, storm water discharge (non-point source) from the airfield and aggregate mining processing area may contain fuels, oil, and other residual contaminants, which could degrade surface and groundwater resources. Drainage patterns would be altered to divert water away from facilities and airfield pavements. It is assumed that adequate surface drainage systems would be installed in the aggregate processing area to collect processed wastewater into settlement basins.

The mining site plan would require review and approval from appropriate state and local agencies to ensure that the operations would not degrade the water quality. The operations may be subject to NPDES and state Water Resources Control Board permit requirements for storm water discharge.

Mining operations in the Santa Ana Wash would likely require diversion and control of the stream channel which runs south of the flood control levee on base. In addition, the mining operations would alter the topography of the 100-year floodplain by creating an open pit, berms, and haul access roads. The integrity of the flood control levee would be ensured through engineering design of haul roads over the existing levee.

Mining operations within the floodplain would also require coordination with the Federal Emergency Management Agency and San Bernardino County Flood Control District (SBCFCD) to ensure the integrity and accessibility of the flood control levee along the southern portion of the base and to avoid obstructions to the primary flood control channel.

Permits would be required from the California Water Quality Control Board, Santa Ana Region, to excavate within the Santa Ana Wash. The mining operator would also require permission from SBCFCD and California Water Quality Control Board, Santa Ana Region, to divert the stream channel in the Santa Ana Wash to support mining operations, and would need to notify CDFG.

Diversion of the stream channel within the wash could affect sedimentation downstream. Sedimentation rates would increase in the short term during construction of the stream diversion. Increased erosion along the bank of the diverted stream could affect surface water quality.

Groundwater. This alternative would generate less demand for water supply than the Proposed Action. Projected water production demand for the years 2000, 2005, and 2015 is shown in Table 4.4-3. Project-related regional water demand would remain at or below preclosure on-base water demand until the year 2005. By the year 2015, the project-related regional water demand will reach 3.0 MGD, or 3,360 af/yr. Aggregate mining operations would require 0.7 MGD (784 af/yr) of this total, at a pumping rate of about 1,400 gpm.

It is assumed that the domestic water will be supplied by the SBVMWD through its local purveyors. The water required for aggregate mining operations would be supplied from the existing on-base well in the northeast portion of the base. The project-related water requirement (including aggregate operations demand) represents a 0.9 percent increase in total water demand in the SBVMWD by 2015.

Table 4.4-3. Water Supply Effects - Aircraft Maintenance Center Alternative

	2000	2005	2015
Projected demand without base reuse (af/yr)	319,432	336,915	361,811
Groundwater availability (af/yr)	275,000	275,000	275,000
Projected supplemental requirements without base reuse (af/yr)	44,432	61,915	86,811
Project-related demand (af/yr)	1,340	2,580	3,360
Percent increase in total demand	0.4	0.8	0.9

Groundwater quality should not be impacted by the proposed aggregate mining operations. The actual excavation of the aggregate would be confined to 10 feet above the groundwater levels and should not contact the groundwater itself. Fuels and other hazardous materials would be stored in protective areas and provisions would be in place to prevent contaminants from accessing local groundwater. The rinse water generated by the washing of gravels and sands would be partially recycled, and the remainder would be pumped into percolation ponds to provide local recharge of the groundwater. This process would also include provisions to preclude degradation of the groundwater quality. Periodic dredging of these ponds would increase the rate of percolation.

Cumulative Impacts. Procedures are assumed to be imposed to preclude discharges from aggregate mining at the Pharris property, as well as base reuse activities, from degrading surface water quality.

Mitigation Measures. Mitigation measures would be the same as those identified under the Proposed Action. New water sources would not be required as soon as under the Proposed Action.

Bulk storage and maintenance facilities associated with aggregate mining operations should be located in a bermed area with an impervious surface to prevent degradation of both surface and groundwater quality.

Engineering design of the stream channel diversion required for aggregate mining in the Santa Ana Wash should incorporate provisions such as riprap or surface stabilization to minimize erosion along the banks of the diverted channel and to maintain the stream profile. Hydraulic studies may be performed to ensure the integrity of the existing flood control embankment.

4.4.2.4 Non-Aviation Alternative

Surface Water. New residential, commercial, and industrial development would require installation of storm water drainage systems, which should be incorporated into the construction design, reducing non-point source runoff. Effects on surface and groundwater quality are expected to be less than the Proposed Action due to less use of hazardous materials associated with aviation operations.

Areas under the Non-Aviation Alternative within the 100-year floodplain include residential land, warehouse space, and public/recreation (Section 4.2.2 discusses land use compatibility and local zoning/ordinances). The residential and warehouse space function might include construction of new facilities within the floodplain that could change the floodplain or be affected by flooding.

This alternative would not result in any diversion, obstruction, or changes to the existing Santa Ana River streambed, flood control area, or embankments.

Groundwater. This alternative would generate less demand for water supply than the Proposed Action. Projected water production demand for the years 2000, 2005, and 2015, is shown in Table 4.4-4. Project-related regional water demand would remain at or below preclosure on-base water demand until after the year 2006. By the year 2015, the project-related regional water demand would reach 4.2 MGD, or 4,700 af/yr.

Table 4.4-4. Water Supply Effects - Non-Aviation Alternative

	2000	2005	2015
Projected demand without base reuse (af/yr)	319,432	336,915	361,811
Groundwater availability (af/yr)	275,000	275,000	275,000
Projected supplemental requirements without base reuse (af/yr)	44,432	61,915	86,811
Project-related demand (af/yr)	1,120	2,350	4,700
Percent increase in total demand	0.4	0.7	1.3

It is assumed that the water would be supplied by the SBVMWD through its local purveyors. The project-generated water requirement represents a 1.3 percent increase in total water demand in the SBVMWD by 2015.

Cumulative Impacts. No cumulative impacts are expected from this alternative in combination with other projects in the area.

Mitigation Measures. Mitigation measures would be the same as those identified under the Proposed Action. New sources of water would not be required as soon as under the Proposed Action.

4.4.2.5 Other Land Use Concepts. The construction proposed by the USFS would be the only government proposal to potentially impact surface or groundwater quality. If the eastern site is used by the USFS, new construction associated with this transfer would also disturb surface areas and potentially degrade surface waters. All other government proposals primarily involve reuse of existing facilities and would not impact existing surface or groundwater quality. Aggregate mining impacts are described under the Aircraft Maintenance Center Alternative.

Water demand would generally be commensurate with population changes resulting from the land use concepts. These are described in Section 4.2.4.5. There are no substantial increases in population/ employment that would result in water supply impacts. Water requirements for aggregate mining are indicated in Section 4.4.2.3.

Cumulative Impacts. No cumulative impacts are expected from the federal transfers and other uses in combination with other projects in the area.

Mitigation Measures. Mitigations to reduce potential impacts from aggregate mining and the USFS land uses would be the same as described for the Aircraft Maintenance Center Alternative. No other measures would be required.

4.4.2.6 No-Action Alternative. The No-Action Alternative would have positive effects on surface and groundwater quality. With very limited operation and no increase in population, water demands from the DMT personnel would be minimal and could be accommodated from the on-base well system.

Cumulative Impacts. No cumulative impacts are expected under the No-Action Alternative.

Mitigation Measures. No mitigation would be required.

4.4.3 Air Quality

Air quality impacts would occur during construction and operations associated with the Proposed Action and alternatives for the reuse of Norton AFB. Intermittent construction-related impacts would result from fugitive dust (particulate matter) and construction equipment emissions. Operational impacts would occur from: (1) mobile sources such as aircraft, aircraft operation support equipment, commercial transport vehicles, mining haul trucks, 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 types of air emission sources being examined. Air quality analytical methods are summarized here and presented in detail in Appendix I. Analysis during the construction phase consists of estimating the amount of uncontrolled fugitive dust emitted from disturbed areas and the combustive emissions associated with construction equipment. Analysis for point source and secondary source emissions during the operations phase consists of quantifying the emissions associated with the airport, and reuse-related employment and population. These emissions are then evaluated to determine how they would affect progress toward attainment or maintenance of the NAAQS and CAAQS.

Ambient effects to local air quality are analyzed by modeling pollutant concentrations at receptor locations likely to receive maximum air quality impacts. For aviation-related alternatives, a number of receptors are typically selected at the downwind end of the runway to analyze the impacts from airport operations. Other receptors are located at key locations and in sensitive receptor areas around the base in order to assess the air quality impact from non-aviational activities on base (vehicle traffic on major roadways).

The ambient effects of aircraft and related vehicular emissions are analyzed by modeling with the EDMS (Segal, 1991). EDMS was developed jointly by the FAA and the U.S. Air Force specifically for the purpose of generating airport and airbase emission inventories, and for calculating the ambient concentrations caused by these emissions as they disperse downwind. The model uses U.S. EPA and U.S. military emission factors for motor vehicles and aircraft and information on daily traffic and annual landing and takeoff cycles to produce an inventory of vehicle and aircraft operation emissions. Typical aircraft operations include takeoff, runway climb and approach, runway queuing, taxi-in and taxi-out, and idling at the gates.

The EDMS model is typically run in a screening mode that utilizes worst-case meteorological conditions to produce conservative 1-hour average impact concentrations. If the results of screening modeling indicate no interference with the air quality standards, further refined modeling is not necessary. However, for an area such as the SCAB in which background concentrations alone often exceed the standards, it was deemed necessary to utilize the EDMS model in the refined mode using 1 year of actual meteorological data (8,760 hours) in order to more accurately predict potential reuse-related impacts for various averaging periods. Hourly meteorological data for 1 year are therefore used in EDMS to determine downwind concentrations resulting from the vehicle and aircraft emissions.

Meteorological data from the Riverside monitoring station were obtained from the SCAQMD. The Riverside station is the nearest SCAQMD monitoring location with data representative of conditions at Norton AFB.

Air quality modeling is presented for the Proposed Action and alternatives through the year 2010 (16 years of analysis after closure). The effects of the 1990 Clean Air Act Amendments (CAAA), such as electric and other low emission vehicle ownership percentages, cannot be accurately predicted very far into the 21st century. The uncertainties of long-range population and traffic projections, future CAA changes, and the complex interaction of meteorology with emission inventories make 20-year emission and pollution concentration projections too speculative. Analysis was therefore limited to the furthest projected NAAQS attainment date for SCAB, i.e., the year 2010 (for O_3) (SCAQMD, 1991).

The following assumptions were made in estimating the emissions and effects of the Proposed Action and alternatives:

- For construction, fugitive dust emissions were based on the acreage graded each year. Combustion emissions were based on the per-capita emission factors described below.

- EDMS was used to calculate annual aircraft emissions for the airport operations associated with the reuse alternatives.

- Future reuse-related long-term emissions from sources other than aircraft and grading activities were derived using per-capita emission factors. Future reuse-related emission increases (including increases from construction equipment) were estimated by multiplying per-capita emission factors by the increases in direct and secondary population (in-migrants) related to reuse.

Because the SCAB is designated as an extreme ozone nonattainment area by the U.S. EPA, measures must be developed to show that the region will attain the ozone standard by November 15, 2010. The SCAQMD has developed the 1991 AQMP to attain the state ambient ozone standard as expeditiously as possible by implementing all feasible stationary source and mobile source emission control measures (SCAQMD, 1991). Since the CAAQS for ozone is more stringent than the NAAQS for ozone, attainment of the state standard will also result in attainment of the federal standard. In order to attain the CAAQS for ozone, stationary sources will be limited to no net increase in emissions from new or modified permit units, and BARCT will be required for existing stationary sources. The CCAA also requires consideration in the AQMP of extensive transportation control measures, namely, reducing projected increases in vehicle miles traveled, achieving a minimum of 1.5 persons per vehicle (peak commute hours), achieving no net increase in vehicle emissions, and use of alternate fuels.

In addition, under the New Source Review provisions of the federal CAAA, any new or modified major source emitting more than 10 tons per year of VOC (ROG) or NO_x in an extreme ozone nonattainment area must satisfy technology standards reflecting the lowest achievable emission rate and must provide offsets representing emission reductions from other sources at a ratio of at least 1.5 to 1.0. Another major effect of the CAAA is the establishment of new permitting requirements for new source construction. The new requirements will necessitate permit approval from the SCAQMD not only for projects that historically would have required a New Source Review permit, but also for other smaller sources that in the past would not have required a permit.

Reuse activities that require a new or modified permit to construct or permit to operate from the SCAQMD will be subject to Regulation XIV (Toxics and Other Non-Criteria Pollutants), which specifies the limits for maximum individual cancer risk and estimated excess cancer cases, and the requirements for the use of Best Available Control Technology for Toxics (T-BACT). The permit shall be denied unless the applicant can quantify the amount of potential toxic emissions and demonstrate that their release would not result in: (1) a maximum individual cancer risk greater than one in one million (1×10^{-6}) at any receptor location, if the permit unit is constructed without T-BACT; (2) a maximum individual cancer risk greater than ten in one million (1×10^{-5}) at any receptor location, if the permit unit is constructed with T-BACT; or (3) greater than 0.5 excess cancer cases in the population subject to a risk of greater than one in one million (1×10^{-6}). At this time, none of the reuse plans have identified any potential toxic emission sources.

Section 176(c) of the CAA provides that a federal agency cannot support an activity in any way unless the federal agency determines that the activity will conform to the SIP's purpose of attaining and maintaining the NAAQS. The Air Force will make the necessary conformity determination prior to disposition of the base property.

As stated in Section 3.1, the baseline conditions assumed for all environmental analyses are the conditions at base closure, since that is when reuse activities would begin to be executed. However, in assessing the level of significance of air quality impacts, it is also useful to discuss the intensity of air emissions in the context of preclosure conditions. Therefore, the following air quality analysis presents reuse emissions impacts in the context of both closure and preclosure baselines. With regard to the preclosure baseline, a comparison of existing preclosure SCAB emissions to the changes induced in overall SCAB emissions due to the reuse alternatives is discussed. The comparison is made in order to estimate the potential for reuse activities to: (1) cause or contribute to any new violation of a NAAQS, (2) increase the frequency or severity of an existing violation of a

standard, or (3) delay timely attainment of any standard or required interim milestones.

4.4.3.1 Proposed Action

Emissions. A summary of the construction and operation emissions that would occur in the SCAB as a result of the Proposed Action is presented in Table 4.4-5 for the years 2000, 2005, and 2010. Construction emissions were calculated as described in Appendix I. Aircraft operation emissions were calculated using the EDMS model. Estimates for all other categories of emissions were calculated using the per-capita forecasting methodology as described in Appendix I. The reuse-related emission increases listed in Table 4.4-5 in the preclosure columns are emission increases (or decreases, as indicated by negative numbers) that would be expected within the SCAB as a result of the Proposed Action compared to emissions that would have occurred under a scenario of continued base operations at current levels of activity, employment, and direct and indirect population. For example, in the year 2000, NO_x emissions from the reuse-related aircraft would be 0.073 ton/day less than current preclosure activity aircraft emission levels; and because a net 10,991 people would have migrated out of the SCAB, reuse-related population emissions of NO_x would be 0.474 ton/day less than the direct and indirect population emissions that would occur if the base remained open (see Appendix I for details of these calculations). The total net emission effect within the SCAB in the year 2000 would be a reduction of 0.55 ton/day of NO_x if the Proposed Action is implemented.

Likewise reuse-related emission increases within the SCAB are calculated compared to a closure baseline, which assumes no aircraft activity and a near-zero direct and indirect population associated with the closed base. In comparison to the closure level of emissions, which would have occurred in the year 2000, the Proposed Action would result in aircraft-related emission increases of 0.176 ton/day of NO_x and a population-related emission increase of 0.311 ton/day (7,220 people would migrate into the SCAB compared to the near-zero population base associated with the base under closure conditions). Therefore, as shown in Table 4.4-5, the Proposed Action would add an additional 0.49 ton/day of NO_x to the SCAB compared to emission levels that would have occurred under a closed base scenario. (See Appendix I for details of these and all other pollutant calculations.)

Potential impacts to air quality as a result operational emissions from the Proposed Action were evaluated in terms of two spatial scales: regional and local. The regional-scale analysis considered the potential for reuse-related emission increases to affect the schedule for attainment of the federal standards or cause large increases in the regional pollutant inventories (NO_2, PM_{10}, CO, and SO_2 emissions). The local-scale analysis evaluated the potential for aircraft and traffic emissions to exceed the NAAQS or CAAQS

Table 4.4-5. Emissions Associated with the Proposed Action (tons/day)

Pollutant	Estimated Attainment Level[a]	SCAB Emission Inventory Amount[b] 1997	2000	2005	2010	Reuse-Related Emissions Increase in the SCAB[c] Preclosure 2000	2005	2010	Closure 2000	2005	2010
NO_x	280[d,e]	1,208	616	495	374	-0.55	0.13	0.37	0.49	0.98	1.05
ROG	134[e]	1,375	454	316	179	-0.72	-0.34	-0.24	0.29	0.48	0.40
PM_{10}	342[e]	1,075	951	904	856	-0.71	0.11	0.49	0.53	1.23	1.51
CO	1,318[e]	4,987	2,244	1,781	1,318	-1.49	0.51	1.26	2.01	3.31	3.43
SO_2	291[f]	134	87	69	51	-0.08	0.01	0.04	0.06	0.12	0.12

Notes: (a) Attainment levels for the SCAB were estimated from information contained in the 1991 AQMP (SCAQMD, 1991).
(b) Refer to Table I-7 in Appendix I..
(c) Emission increases are presented in relation to both preclosure and closure population baselines. See Appendix I for emission information by source category.
(d) Attainment level shown here is the estimated NO_x emissions amount required to attain the state ozone standard. Attainment level of NO_x emissions required to attain the NO_2 standards is 616 tons per day.
(e) Area currently in nonattainment of O_3, NO_2, PM_{10}, and CO standards. Attainment projected to occur in: the year 2010 for the O_3 standard (federal), the year 2000 for the NO_2 standards (state and federal), the year 2006 for the PM_{10} standards (federal), the year 2000 for the CO standards (federal), and the year 2010 for the CO standards (state). Attainment for the state standards for O_3 and PM_{10} is projected to occur sometime after the year 2010; no definite date has been established (SCAQMD, 1991).
(f) Area currently attaining standards for this pollutant.

in the immediate vicinity of the base. If one of these conditions were to occur, the Proposed Action would have an adverse impact on air quality.

Regional Scale. The CCAA (Chapter 1568 of the California Health and Safety Code) and the CAAA establish a variety of air emission management and control requirements that 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 SCAB. The following paragraphs summarize the results of the regional-scale impact analysis by pollutant.

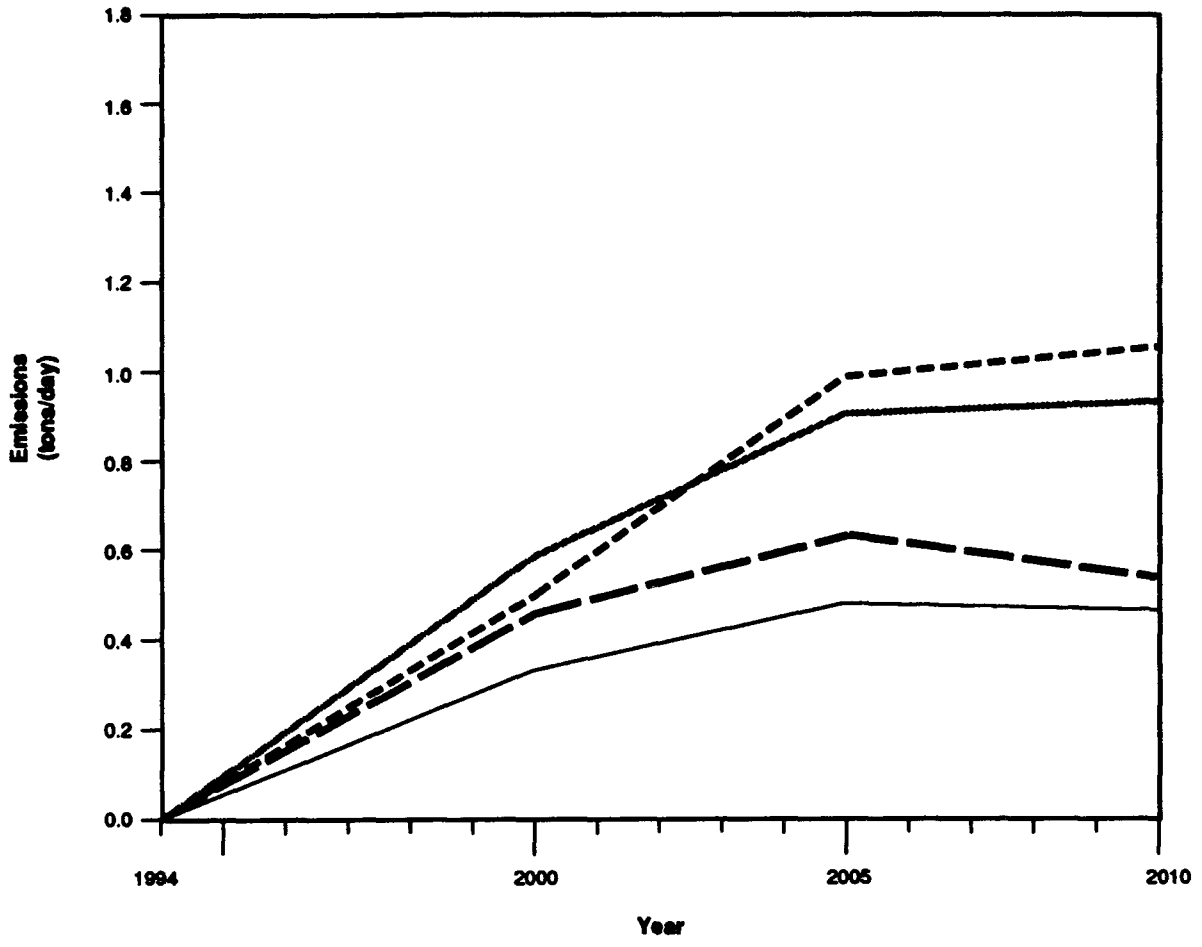
Ozone Precursors. The SCAB currently does not meet the CAAQS for O_3, and portions of the basin do not meet the NAAQS for O_3. However, since O_3 is not a directly emitted pollutant, emissions of its precursor pollutants, NO_x and ROG, are regulated instead. The SCAQMD recently released a

1991 AQMP that describes the methods by which the SCAQMD plans to reduce the emissions of NO_x and ROG in the SCAB to meet the requirements of the CCAA and achieve attainment of the ozone standard (SCAQMD, 1991). Based upon the analyses provided in the AQMP, the SCAQMD has identified the NO_x and ROG control measures that would need to be implemented to result in attainment of the ozone standard. Accounting for growth projections in the region, and factoring the effect of emission reduction measures (both existing and proposed), the SCAQMD has projected attainment of the NAAQS for ozone by the year 2010 and the CAAQS sometime after 2010. The potential NO_x and ROG emissions from the Proposed Action were evaluated in terms of how those emissions would affect the SCAQMD's progress toward attainment of the NAAQS for ozone. Emission increases of NO_x and ROG within the SCAB were calculated for the direct sources that would be directly associated with the Proposed Action, as well as for the mobile sources and other indirect sources linked to population growth, accounting for source-specific reductions associated with the SCAQMD-planned control measures.

Table 4.4-5 summarizes the results of the emission calculations for the Proposed Action for the years 2000, 2005, and 2010. This table also provides a comparison of the magnitude of the reuse-related emission increases in relation to an estimate of the attainment level (the level of emissions above which the area would be in nonattainment), the 1987 emission inventory amount for the SCAB, and the year 2000, 2005, and 2010 emission inventory projections for the SCAB. Figures 4.4-1 and 4.4-2 illustrate the relative NO_x and ROG emission increases (increases over closure baseline) for the Proposed Action and each alternative.

Since the AQMP is designed to attain the more stringent state standards, milestone emission reductions required by the federal CAAA will be bettered (see Appendix I) and the reuse alternatives will not delay attainment of NAAQS or interim milestones. However, the reuse-related emission increases may cause some delay in attainment of the state ozone standard. Therefore, NO_x and ROG emissions associated with the Proposed Action should be mitigated to the fullest extent possible by future reuse activity proponents, and, where required, the portions remaining after mitigation should 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.

$\underline{NO_2}$. The SCAB currently does not meet the NAAQS or CAAQS for NO_2. The 1991 AQMP describes the methods by which the SCAQMD plans to reduce the emissions of NO_x in the SCAB to meet the requirements of the CCAA and achieve attainment of the NO_2 standard (SCAQMD, 1991). Based on the analyses provided in the AQMP, the SCAQMD has identified sufficient NO_x control measures that would be implemented to result in attainment of the NO_2 standard.



1987 Baseline Emissions in the SCAB = 1,206 tons/day

Projected Emissions in the SCAB (Year 2000) = 616 tons/day

Projected Emissions in the SCAB (Year 2005) = 495 tons/day

Projected Emissions in the SCAB (Year 2010) = 374 tons/day

CCAA Attainment Emissions Level for NO_X (SCAB) = 280 tons/day

CCAA Attainment Emissions Level for NO_2 (SCAB) = 616 tons/day

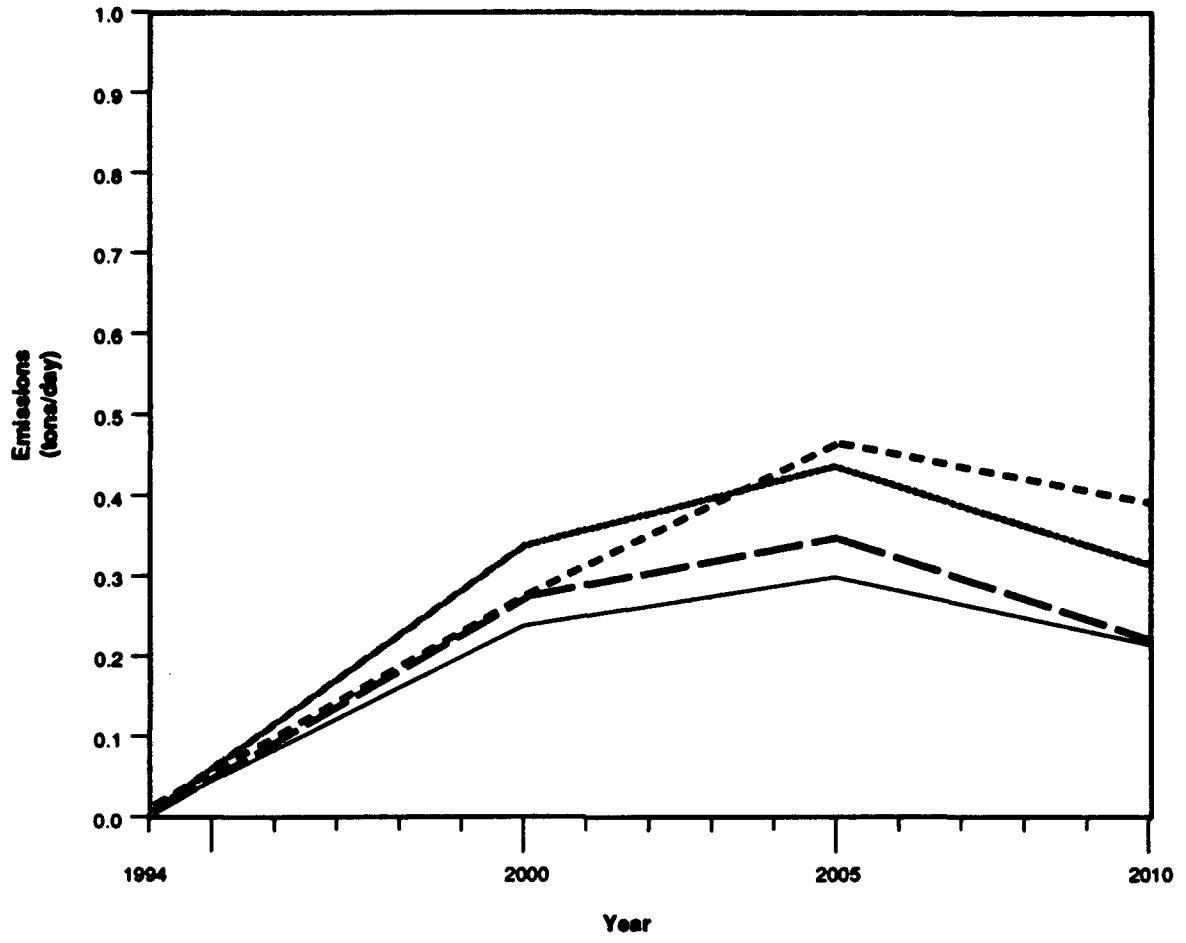
EXPLANATION

- Proposed Action
- Airport with Mixed Use
- Aircraft Maintenance Center
- Non-Aviation

Reuse-Related NO_X (As NO_2) Emission Increases* in the SCAB

* Compared to closure baseline

Figure 4.4-1



1987 Baseline Emissions in the SCAB = 1,375 tons/day

Projected Emissions in the SCAB (Year 2000) = 454 tons/day

Projected Emissions in the SCAB (Year 2005) = 316 tons/day

Projected Emissions in the SCAB (Year 2010) = 179 tons/day

CCAA Attainment Emissions Level for Ozone (SCAB) = 134 tons/day

EXPLANATION

- Proposed Action
- Airport with Mixed Use
- Aircraft Maintenance Center
- Non-Aviation

Reuse-Related ROG (VOC) Emission Increases* in the SCAB

* Compared to closure baseline

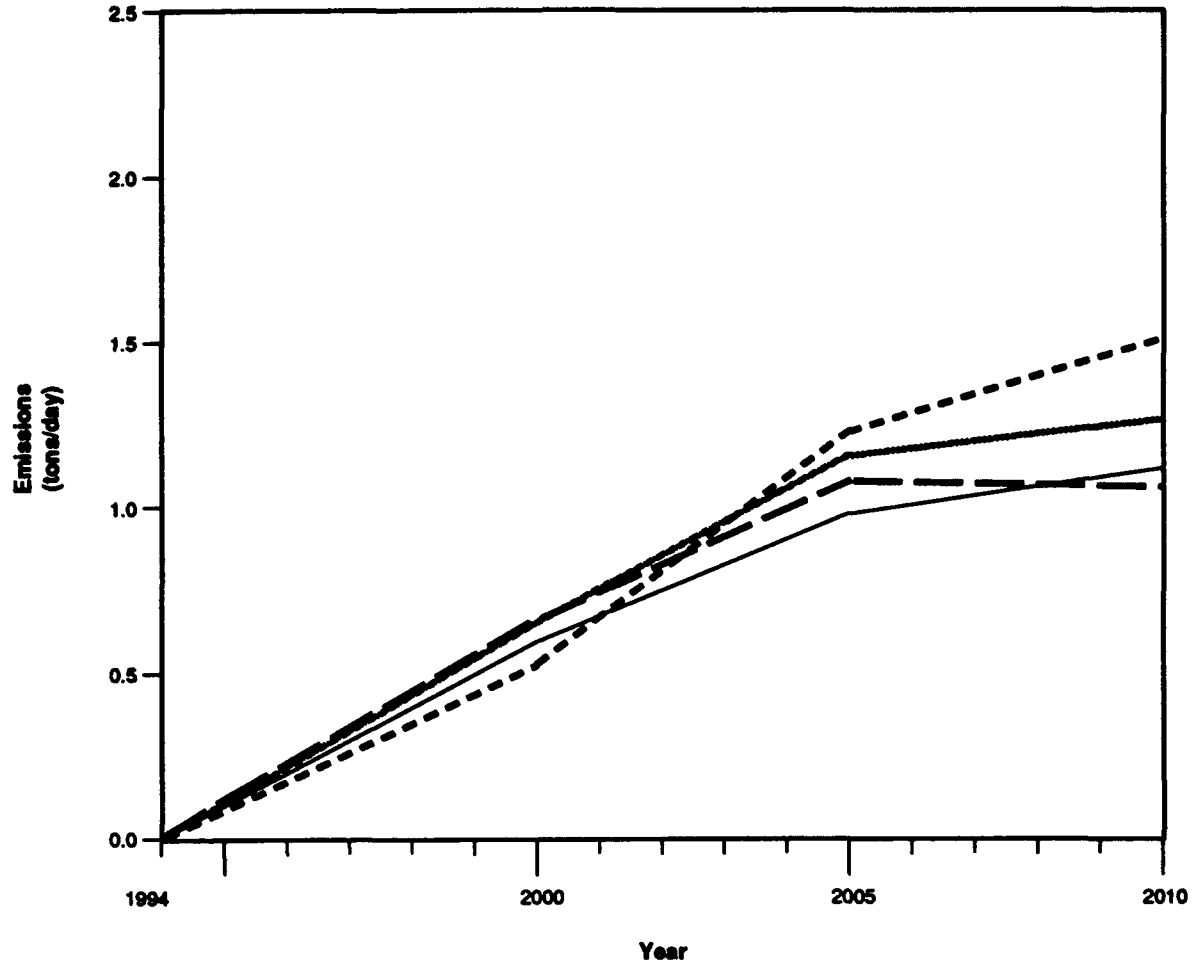
Figure 4.4-2

Accounting for growth projections in the region and factoring the effect of emission reduction measures (both existing and proposed), the SCAQMD has projected attainment of the NAAQS and CAAQS for NO_2 by the year 2000. The estimated attainment level shown in Table 4.4-5 is the amount of NO_x emissions required to attain the O_3 standards. The amount of NO_x emission reductions needed to attain the NO_2 standards is less than the amount required to attain the ozone standards. It is estimated that the NO_2 standards would be attained at an NO_x emission level of 616 tons per day (a reduction of 592 tons per day from 1987 emission levels). This is considerably less than the 928 tons per day reduction that would be required to attain the ozone standards. Since the SCAQMD has projected that NO_x emissions in the basin will drop to about 374 tons per day by the year 2010 (SCAQMD, 1991), the relatively minor amounts of NO_x emissions generated by the Proposed Action will not interfere with attainment of the NO_2 standards.

Figure 4.4-1 illustrates the relative NO_x emission increases (compared to closure baseline) associated with the Proposed Action and each alternative. Also shown in the figure are the 1987 basin emission total, the estimated NO_x emissions level required to reach NO_2 attainment, and the projected basin emission levels for the years 2000, 2005, and 2010.

$\underline{PM_{10}}$. The San Bernardino County portion of the SCAB does not currently meet the CAAQS or NAAQS for PM_{10}. The SCAQMD has prepared the 1991 AQMP, which evaluates the emission control measures necessary to achieve attainment of PM_{10} standards. Attainment of federal PM_{10} standards is predicted by the year 2006. However, attainment of the state PM_{10} standards does not appear to be feasible until sometime after the year 2010 (SCAQMD, 1991). As shown in Table 4.4-5, the estimated level of PM_{10} emissions required to reach attainment is 342 tons per day, compared to the 1987 baseline PM_{10} emission level of 1,075 tons per day. Approximately 80 percent of the PM_{10} emissions in the SCAB are attributable to area sources that are difficult to control, such as farming, construction, demolition, road and windblown dust, fires, and natural sources. Attainment of PM_{10} standards will be difficult to achieve by controlling the 20 percent contributed by other sources.

Figure 4.4-3 illustrates the relative level of PM_{10} emission increases over the closure baseline for the Proposed Action and each alternative. Emission increases from the Proposed Action are small in comparison to the existing levels of PM_{10} in the SCAB. The Proposed Action PM_{10} emissions would constitute 0.056 percent of the SCAB's projected emissions in the year 2000, 0.136 percent of the SCAB's projected emissions in the year 2005, and 0.176 percent of the SCAB's projected emissions in the year 2010. However, the Proposed Action emissions would, if not mitigated by the property recipient, delay attainment of the PM_{10} standards by some additional period of time. The PM_{10} emission increases associated with the



1987 Baseline Emissions in the SCAB = 1,075 tons/day

Projected Emissions in the SCAB (Year 2000) = 951 tons/day

Projected Emissions in the SCAB (Year 2005) = 904 tons/day

Projected Emissions in the SCAB (Year 2010) = 856 tons/day

CCAA Attainment Emissions Level (SCAB) = 342 tons/day

EXPLANATION

- Proposed Action
- Airport with Mixed Use
- Aircraft Maintenance Center
- Non-Aviation

Reuse-Related PM_{10} Emission Increases* in the SCAB

* Compared to closure baseline

Figure 4.4-3

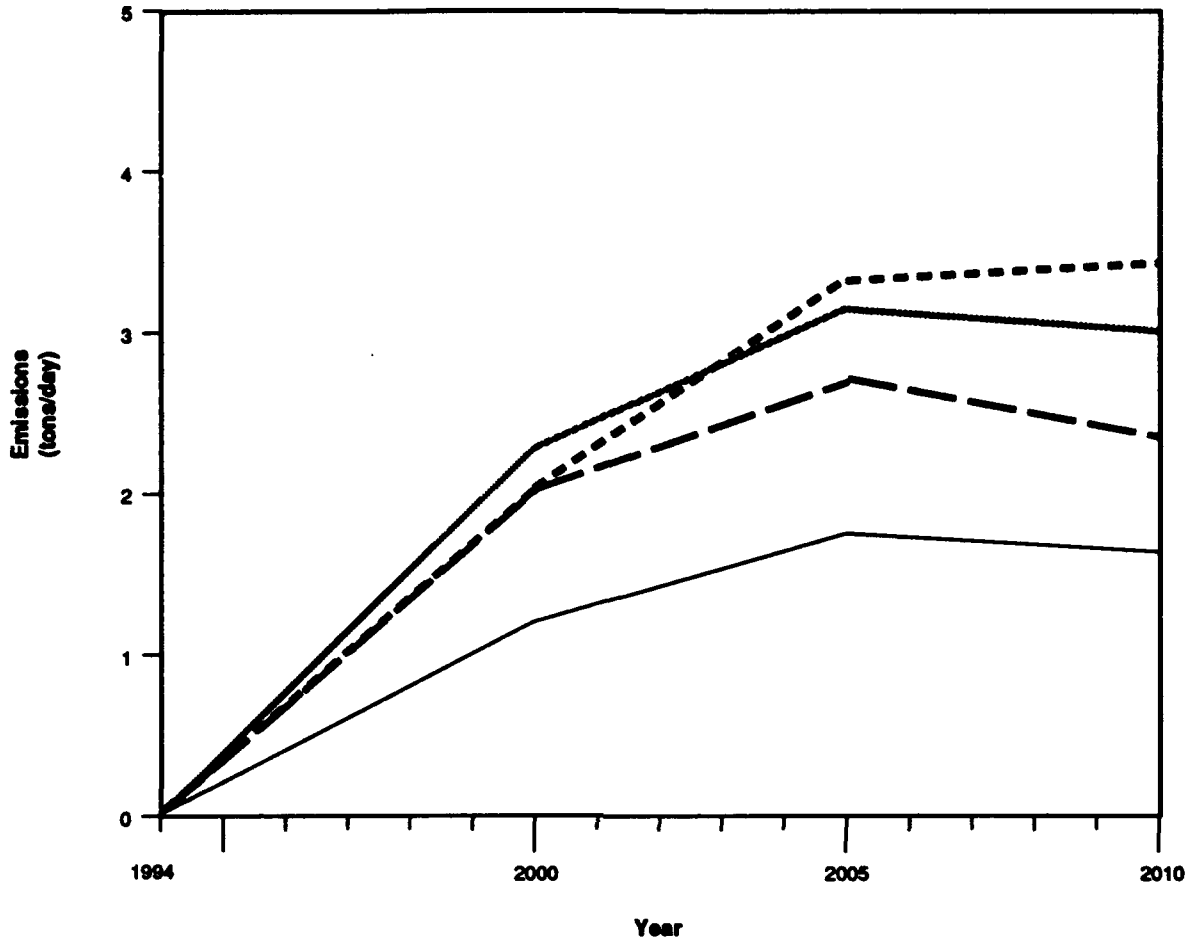
Proposed Action should be mitigated to the fullest extent possible, and the remainder offset by the reduction of PM_{10} emissions from other sources in the area.

CO. The SCAB does not currently meet the NAAQS or CAAQS for CO. Emission increases of CO were calculated for the direct, mobile, and other indirect sources and compared to the basin levels. The results are provided in Table 4.4-5. Figure 4.4-4 illustrates the relative level of CO emission increases over the closure baseline for the Proposed Action and each alternative in comparison to the 1987 and future year basin emissions totals and the estimated nonattainment 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. The Proposed Action emissions would not delay attainment of the federal CO emission reduction milestones and standards. Attainment of the CO federal and state standards is presently projected to occur in the years 2000 and 2010, respectively (SCAQMD, 1991). Since the AQMP is designed to attain the more stringent state standards, milestone emission reductions required by the federal CAAA will be exceeded (see Appendix I). The Proposed Action emissions would not affect the overall attainment schedule for the federal standards but may cause some delay in attainment of the state standards. CO emission increases associated with the Proposed Action should be mitigated to the fullest extent possible, and the remainder offset by the reduction of CO emissions from other sources in the area.

SO_2. The SCAB currently meets the NAAQS and CAAQS for SO_2. Because the area is in attainment for SO_2, the SCAQMD has not been required to establish specific emission reduction measures. The primary process by which emissions of SO_2 are prevented from creating a nonattainment condition is called PSD. PSD is a part of the CAA, which provides for the regulation of new or modified major stationary sources of air pollution so that these sources are constructed without significant adverse deterioration of clean air areas. A major source is one that emits any attainment pollutant in excess of 100 tons per year for 28 identified source types or 250 tons per year for any other source type. PSD review is also required of any new or modified major source for attainment pollutants that exceed the emission significance levels. (Only new or modified major sources of SO_2 would be subject to PSD review in the SCAB since this is the only PSD pollutant currently in attainment of the NAAQS.)

The following requirements may apply to sources subject to PSD review on a pollutant-by-pollutant basis:

- Emissions from any new or modified source must be controlled using BACT.



1987 Baseline Emissions in the SCAB = 4,987 tons/day

Projected Emissions in the SCAB (Year 2000) = 2,244 tons/day

Projected Emissions in the SCAB (Year 2005)= 1,781 tons/day

Projected Emissions in the SCAB (Year 2010) = 1,318 tons/day

CCAA Attainment Emissions Level (SCAB) = 1,318 tons/day

EXPLANATION

- Proposed Action
- Airport with Mixed Use
- Aircraft Maintenance Center
- Non-Aviation

Reuse-Related CO Emission Increases* in the SCAB

* Compared to closure baseline

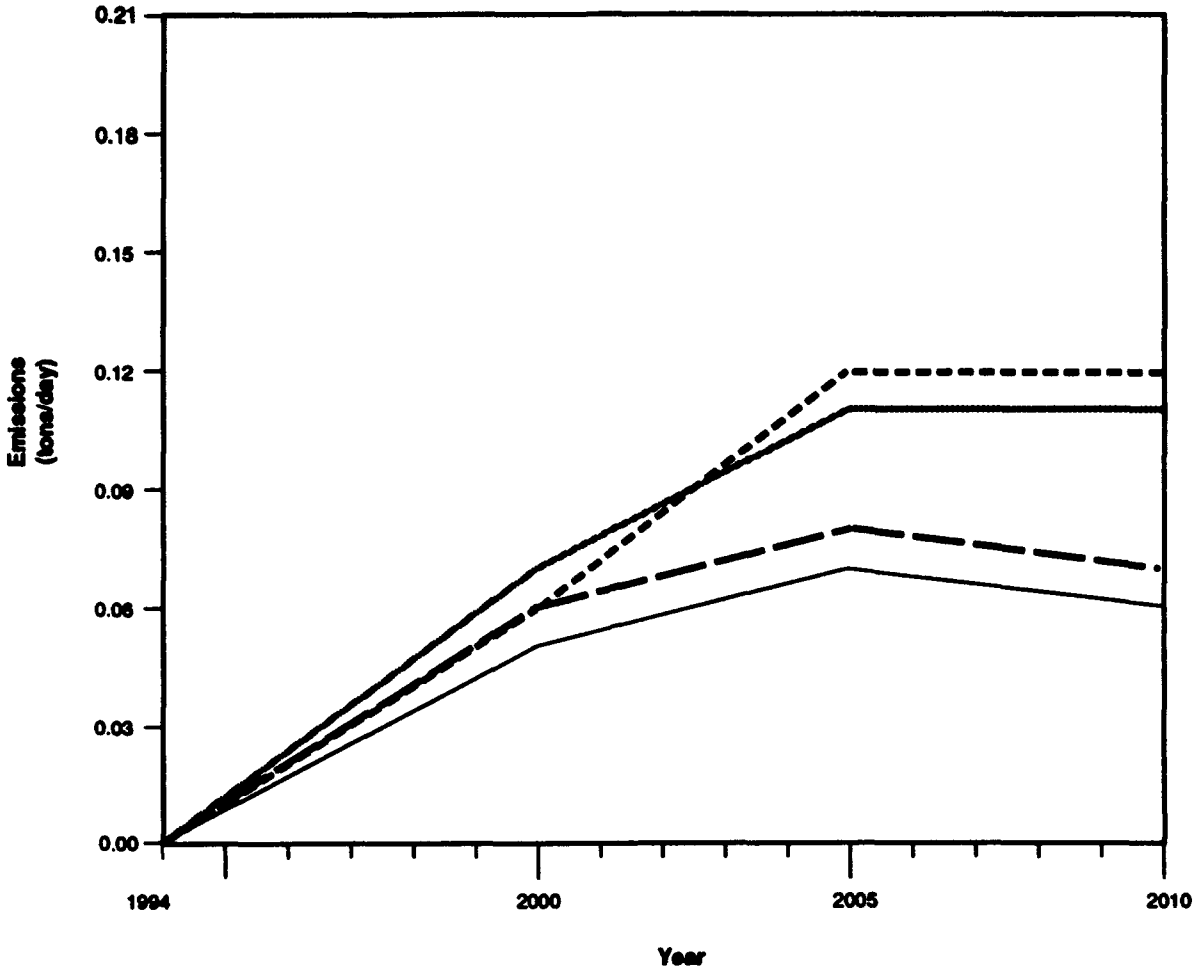
Figure 4.4-4

- The air quality impacts in combination with other PSD sources must not exceed the maximum allowable incremental increases. National parks and wilderness areas are designated as Class I areas, where any appreciable deterioration in air quality is considered significant. Class II areas are those where moderate, well-controlled industrial growth could be permitted. Class III areas allow for greater industrial development. The nearest Class I areas to the Norton AFB area are the Cucamonga Wilderness Area, approximately 20 miles to the northwest, and the San Gorgonio Wilderness Area, approximately 20 miles to the east. The Norton AFB area is designated by the U.S. EPA as a Class II area.

A large fraction of the SO_2 emissions associated with the Proposed Action and alternatives would arise from nonstationary sources such as motor vehicles and aircraft. Because these mobile sources do not trigger PSD analysis, the analysis in this EIS examines the potential for these emissions to cause a nonattainment situation at some future time. To do this, it would be necessary to estimate the emission level for SO_2, which would result in a nonattainment condition for the county. This was accomplished by assuming that there was a relationship between monitored ambient concentrations and emissions. To provide a surrogate value for SO_2 attainment level, the ratio of measured SO_2 concentration in 1987 to the SO_2 standard concentration was assumed to be the same as the ratio of actual 1987 SO_2 emissions to tho SO_2 attainment level emissions. For measured SO_2 concentrations, the monitoring station with the highest second-high measurement was used. The highest measurements of all monitoring stations are typically dismissed as potential anomalies.

Table 4.4-5 summarizes the calculated emission increases over closure baseline for SO_2 and also provides a comparison of the increases to the estimated attainment level. Figure 4.4-5 illustrates the relative level of SO_2 emission increases for the Proposed Action and each alternative in comparison to the 1987 basin emissions total, the projected basin emissions, and the estimated nonattainment level. These results show that the Proposed Action 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 levels that would cause nonattainment, and the Proposed Action emission increases would be only a small fraction of the baseline. In addition, SO_2 emissions are projected to decline even further in future years as the result of planned control measures that affect emissions of SO_2. The SCAQMD projects SO_2 emissions of only 51 tons per day by the year 2010 (SCAQMD, 1991).

Local Scale. The impacts of Proposed Action airport operations emissions were assessed by using the EDMS. Scenarios for emissions from both aircraft operations and vehicle traffic serving the airport were modeled. A summary of the EDMS analysis is presented in Table 4.4-6. The results



1987 Baseline Emissions in the SCAB = 134 tons/day

Projected Emissions in the SCAB (Year 2000) = 87 tons/day

Projected Emissions in the SCAB (Year 2005) = 67 tons/day

Projected Emissions in the SCAB (Year 2010) = 51 tons/day

CCAA Attainment Emissions Level (SCAB) = 291 tons/day

EXPLANATION

- Proposed Action
- Airport with Mixed Use
- Aircraft Maintenance Center
- Non-Aviation

Reuse-Related SO_2 Emission Increases* in the SCAB

* Compared to closure baseline

Figure 4.4-5

Table 4.4-6. Air Quality Modeling Results for Airport Operations and Vehicle Traffic Associated with the Proposed Action, ppm ($\mu g/m^3$)

Pollutant	Averaging Time	Project Impact[a] 2000	2005	2010	Preclosure Background Concentration[b]	Limiting Standard[c]
CO	8-hour	0.009 (10.0)	0.010 (11.9)	0.011 (12.7)	6.9 (8,014)	9 (10,000)
	1-hour	0.049 (57.0)	0.067 (77.3)	0.080 (93.1)	10.0 (11,600)	20 (23,000)
SO_2	Annual	<0.0001 (0.004)	<0.0001 (0.008)	<0.0001 (0.010)	<0.001 (1.0)	0.03 (80)
	24-hour	0.0001 (0.29)	0.0002 (0.55)	0.0002 (0.63)	0.007 (19)	0.04 (105)
	3-hour	0.0006 (1.54)	0.0011 (2.95)	0.0013 (3.49)	0.025 (66)	0.5 (1,300)
	1-hour	0.0014 (3.69)	0.0031 (8.09)	0.0040 (10.50)	0.025 (66)	0.25 (655)
PM_{10}	Annual (geometric)	NA (0.001)	NA (0.002)	NA (0.002)	NA (64)	NA (30)
	Annual (arithmetic)	NA (0.001)	NA (0.002)	NA (0.002)	NA (75)	NA (50)
	24-hour	NA (0.07)	NA (0.12)	NA (0.14)	NA (237)	NA (50)

Notes:
(a) Maximum impact in all cases occurred at receptors located near the property line downwind from the ends of the northeast-southwest runway. The maximum impact concentrations are assumed to be accurate within a factor of 2 (-50% to +100%). Sources of error such as accurately defining the mean wind direction and the correct atmospheric stability (turbulence) indicator account for much of the potential variations in calculating the maximum concentration. However, despite the potential variation from actual concentrations, the model predictions are considered to be "best estimates," typical of U.S. EPA guideline models such as EDMS. The U.S. EPA has stated that given the limitations of current modeling techniques, "use of the 'best estimate' is acceptable and consistent with CAA requirements" (U.S. Environmental Protection Agency, 1990).

(b) Background concentrations are assumed to equal the mean of first-high values monitored at the San Bernardino, Riverside, Redlands, and Fontana monitoring stations from 1989 to 1991. According to attainment projections in the 1991 AQMP, background concentrations of PM_{10} will fall below the federal standards by the year 2006, and below the state standards sometime after the year 2010 (SCAQMD, 1991).

(c) The limiting standard is equal to the more stringent value of the NAAQS or CAAQS.

NA = Not applicable.

show that the maximum pollutant impact concentrations would occur downwind from the ends of the runway. The primary contributing factor would be aircraft exhaust emitted during takeoffs. The modeling results indicate that PM_{10} concentrations would exceed standards when added to the background concentration. However, the standards are exceeded by the background concentrations alone. The Proposed Action maximum impacts in each case are only a fraction (0.01 to 0.3 percent) of the PM_{10} standards. The actual PM_{10} background concentrations that would occur in future years are uncertain given the large amount of difficult-to-control sources of PM_{10} (i.e., construction, demolition, and road dust) within the SCAB. However, according to the SCAQMD projections contained in the AQMP, PM_{10} background concentrations should fall below the federal standards by the year 2006, and below the state standards sometime after the year 2010.

Cumulative Impacts. Reuse proponents will have to comply with New Source Review (NSR) regulations and implement control measures contained in the AQMP. Other developments in the area would be subject to the same requirements. Successful mitigation and offsets combined with implementation of new control measures would result in no net increase in air pollution in the SCAB, and, therefore, there would be no cumulative impact in the region. Locally, emissions may increase somewhat, particularly in the vicinity of the airport, due to the cumulative impact of increased vehicle traffic associated with other projects in the area.

Despite the fact that emissions of ozone precursors within the SCAB are expected to decrease in the future, emissions from the SCAB (including emissions from the proposed reuse activities) may at times adversely impact air quality in other air basins due to downwind pollutant transport. The CARB has determined that ozone transport does take place between the SCAB and the San Diego, Southeast Desert, and South Central Coast air basins (CARB, 1989). The transport of pollutants from one basin to another occurs when there are winds of sufficient speed, duration, and direction. Transport may occur either in the surface layer or aloft. Both ozone and ozone precursors may be transported. Occurrences of transport impact should become less frequent as emissions within the SCAB are decreased in future years due to planned control measure implementation.

Mitigation Measures. The future reuse developers (e.g., redevelopment authority or airport authority) would have the responsibility of mitigating impacts from the Proposed Action. Vigorous water application during ground-disturbing activities could mitigate fugitive dust emissions by at least 50 percent (U.S. Environmental Protection Agency, 1985).

In addition, the following mitigation measures could be implemented to further reduce particulate emissions during construction by various factors directly related to the size of the disturbed surface area, the reduction in exposure time, and the particular measures selected. Emission reduction

efficiencies of the various measures are as provided by the SCAQMD in the *Draft CEQA Air Quality Handbook* (SCAQMD, 1992).

- Spread soil binders on disturbed site areas, unpaved roads, and parking areas (45 to 85 percent emission reduction efficiency).

- Apply chemical soil stabilizers according to manufacturer's specifications, to all inactive construction areas (previously graded areas which remain inactive for 96 hours) (40 to 85 percent emission reduction efficiency).

- Reestablish ground cover on the construction site through programs of seeding and watering (20 to 65 percent emission reduction efficiency).

- Pave construction roads (90 to 99 percent emission reduction efficiency), and sweep streets if silt is carried over to adjacent public thoroughfares (25 to 60 percent emission reduction efficiency).

- Reduce traffic speeds on all unpaved road surfaces to 15 miles per hour or less (40 to 70 percent emission reduction efficiency).

- Suspend all grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour (100 percent emission reduction efficiency).

- Wash off trucks leaving the site (60 to 80 percent emission reduction efficiency).

Combustion emission impacts during construction could be mitigated by implementing control measures such as the following:

- Use low emission mobile and on-site stationary construction equipment (60 percent emission reduction efficiency).

- Employ construction activity management techniques, such as: efficient scheduling of equipment use; extending or phasing the construction schedule; increasing the distance between the emission sources; and scheduling activity during off-peak hours (emission reduction efficiency not quantified).

- Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators (50 to 98 percent emission reduction efficiency).

All aviation development during the construction phase would comply with measures contained in the FAA *Standards for Specifying Construction of Airports* (Federal Aviation Administration, 1990). The amount of emission

reduction provided by these measures is not known with certainty because of the variables in scheduling. However, it is estimated that implementation of these measures could reduce combustive emissions and air quality effects from construction activities associated with the Proposed Action by as much as 10 to 25 percent.

Future reuse proponents will be responsible for complying with all applicable permitting requirements for new emission sources subject to SCAQMD Rules and Regulations. Included in these requirements may be provisions to mitigate and offset emissions and/or impacts associated with the new source. In addition, air quality 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 associated with the Proposed Action. As previously discussed, mitigations and offset purchases would be necessary to eliminate emission increases of NO_x, ROG, PM_{10}, and CO. Mitigation measures would have to be developed by reuse proponents (the redevelopment agency or the airport authority). These measures would have to be coordinated with the SCAQMD and the CARB in order to ensure consistency with local and/or regional air quality attainment plans.

Potential mitigation measures would most likely focus on land use and transportation planning and management measures to reduce motor vehicle pollution. The purpose of the measures would be to reduce vehicle miles traveled, vehicle trips, and peak-hour travel. These reductions would result in decreases in both regional and localized vehicle-related emissions of NO_x, ROG, PM_{10}, and CO. The potential measures listed below include emission reduction efficiencies, where available, as contained in the *Draft CEQA Air Quality Handbook* (SCAQMD, 1992). They could include:

1. Measures to reduce automobile emissions by reducing the number of vehicles driven to a work site on a daily basis.

    - Ensure efficient parking management (emission reduction efficiency not quantified).
    - Provide dedicated parking spaces with electrical outlets for electric vehicles (emission reduction efficiency not quantified).
    - Charge parking lot fees to low-occupancy vehicles (5 to 10 percent emission reduction efficiency).
    - Develop a comprehensive airport shuttle system (4 to 20 percent emission reduction efficiency).
    - Promote carpools, vanpools, and bicycle usage (emission reduction efficiency not quantified).

- Provide financial assistance to encourage use of public transit (emission reduction efficiency not quantified).

2. Measures to reduce automobile emissions by reducing the number of persons who must drive to a work site on a daily basis.

   - Promote Transportation Management Associations (TMAs) (emission reduction efficiency not quantified).

   - Establish telecommuting programs, alternative work schedules, and satellite work centers (up to 20 percent emission reduction efficiency).

   - Work with cities/developers/citizens in the region to implement TDM goals (emission reduction efficiency not quantified).

3. Measures to reduce vehicular emissions through traffic flow improvements.

   - Configure parking to minimize traffic interference (emission reduction efficiency not quantified).

   - Minimize obstruction of through-traffic lanes (emission reduction efficiency not quantified).

   - Provide a flag person to guide traffic properly and ensure safety at construction sites (emission reduction efficiency not quantified).

   - Schedule operations affecting traffic for off-peak hours (emission reduction efficiency not quantified).

   - Develop a traffic plan to minimize traffic flow interference from construction activities. Plan may include advance public notice of routing, use of public transportation, and satellite parking areas with shuttle service (emission reduction efficiency not quantified).

   - Schedule goods movement for off-peak hours (emission reduction efficiency not quantified).

   - Synchronize traffic signals (emission reduction efficiency not quantified).

   - Provide adequate ingress and egress at all entrances to public facilities to minimize vehicle idling at curb sides (emission reduction efficiency not quantified).

   - Provide dedicated turn lanes as appropriate (emission reduction efficiency not quantified).

4. Measures to reduce the length of work trips while expanding the supply of affordable housing and creating an urban form that efficiently utilizes urban infrastructure and services.

   - Achieve a job/housing balance compatible with the Regional Growth Management Plan (emission reduction efficiency not quantified).
   - Encourage growth in and around activity centers, transportation nodes, and corridors (10 to 30 percent emission reduction efficiency).
   - Provide site support facilities to reduce the need for off-site travel (6 to 14 percent emission reduction efficiency).
   - Promote future patterns of urban development and land use, making better use of existing facilities, and promoting mixed use development involving commercial and residential uses (25 to 50 percent emission reduction efficiency).

Mitigation measures to reduce stationary emissions of operation-related activities would include:

- Requiring development practices which maximize energy conservation as a prerequisite to permit approval (emission reduction efficiency not quantified)
- Improving the thermal integrity of buildings and reducing the thermal load with automated time clocks or occupant sensors (up to 30 percent emission reduction efficiency)
- Introducing window glazing, wall insulation, and efficient ventilation methods (up to 20 percent emission reduction efficiency)
- Introducing efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units (10 to 20 percent emission reduction efficiency)
- Incorporating appropriate passive solar design and solar heaters (40 percent emission reduction efficiency)
- Using devices that minimize the combustion of fossil fuels (emission reduction efficiency not quantified)
- Capturing waste heat and reemploy it in nonresidential buildings (emission reduction efficiency not quantified)

- Landscaping with native drought-resistant species to reduce water consumption and to provide passive solar benefits (55 percent reduction in heating emissions).

Mitigation measures to protect sensitive land uses from major sources of air pollution could include:

- Integrating additional mitigation measures into site design such as the creation of buffer zones between a potential sensitive receptor's boundary and potential pollution zone (emission reduction efficiency not quantified)

- Requiring design features, operating procedures, preventive maintenance, operator training, and emergency response planning to prevent the release of toxic pollutants (emission reduction efficiency not quantified).

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 of new or additional control equipment on emission sources beyond that currently required by regulation; and (3) use of innovative and nontraditional methods such as constructing bus shelters to induce increased mass transit ridership, buying, and removing from service older model on-road vehicles, or paving unpaved parking and road areas to reduce particulate emissions.

Emission reduction credits (ERCs) are valuable to air permit applicants for new or modified air pollutant emission sources. Under the NSR process, the applicants must provide offsetting emission reductions for anticipated emissions from new or modified stationary sources as a prerequisite to obtaining permits to construct the new source or source modification. ERCs fulfill the role of offsetting emission reductions.

The SCAQMD recently proposed regulations that would modify the current system for acquiring, banking, and transferring ERCs for nonattainment and other affected pollutants. These rules are currently under review by the SCAQMD Board of Directors. The specific air quality goal of the SCAQMD rules will remain to achieve annual emission reductions that are at least 5 percent greater than the total annual emission increase from new or modified sources.

The SCAQMD current rules would allow the owner or operator of a permitted stationary source to apply for ERCs for emission reductions that meet five criteria. They must be permanent, real, quantifiable, enforceable, and not greater than the equipment would have received if operating with the current BACT. BACT is the most stringent emission limitation or control technique that: (1) has been achieved in practice for the permitted unit category or class of source; or (2) is achievable and contained in any SIP approved by the U.S. EPA for such a permitted unit category or class of source; or (3) is any other technologically achievable and cost-effective emission limitation or control technique.

The complex method SCAQMD proposed for calculating ERCs involves many factors. Generally, the emission reductions used to calculate ERCs will be based on the decrease in averaged emissions that occur after installation of BACT. Further deductions in creditable emission reductions may be imposed depending on whether the sum of all emission increases, decreases, and offsets for the unit that have occurred since the baseline date (September 28, 1990) is greater than zero. This sum of emission increases, decreases, and offsets occurring since the baseline date is referred to as the "NSR balance."

Owners or operators of permitted stationary sources who cease to operate or reduce emissions must apply for creditable ERCs within 90 days after the emission reduction occurs. The owner of ERCs may use or transfer all or a portion of the ERCs, subject to geographical and interpollutant trading limitations.

A transfer of a permit to operate an existing facility without a change in operating conditions does not subject the new operator to the NSR rules or the need to obtain offsets. A similar exemption applies to a transfer of equipment not requiring a permit to operate.

An applicant for a permit to construct may not use ERCs derived from a source that did not originally impact the area where the new source will be constructed, unless the applicant can show that a net air quality benefit would result in the area where the new source will be constructed. This geographical limitation on the value of trading ERCs may be lessened by SCAQMD's RECLAIM plan. This program, which SCAQMD is currently developing and is expected to adopt by mid-1993, would allow emission reductions to be traded among sources to meet a prescribed emissions target for each year. The actual method of compliance would be the individual firm's responsibility. The permanent shutdown or curtailment of existing stationary and mobile sources of nonattainment air pollutants at Norton AFB could result in a significant amount of available ERCs for CO, PM, sulfates, and precursors to ozone.

In addition to the ERCs, which may be available from existing sources at Norton AFB, future reuse proponents may be eligible for emission credits from the Community Bank or Priority Reserve. The Community Bank is established by the SCAQMD to provide emission credits to sources seeking to locate or modify operations within the SCAB. Allocations from the Community Bank are made on a monthly basis subject to the provisions of SCAQMD Rule 1309.1. The Priority Reserve is established to provide credits for specific types of priority sources. For example, Priority Reserve credits would be available for: (1) sources using innovative new technology, which would result in significantly lower emissions than would have occurred with the use of BACT; (2) experimental research operations; and (3) essential public services. Limitations on sources eligible for Priority Reserve credits are described in SCAQMD Rule 1309.1(b).

Emission offsets are often difficult to obtain and may require a large commitment of time and money. Future reuse proponents must, therefore, establish a dialogue with the SCAQMD well in advance of project initiation in order to ensure that the necessary amount of offsets is obtained and properly credited.

4.4.3.2 Airport with Mixed Use Alternative. The primary differences between this alternative and the Proposed Action are reduction of the aviation support, OIP, and commercial land uses; the addition of medical and residential land uses; and increased use of existing facilities instead of demolition and new construction. Air and vehicle traffic associated with the operation and passenger use of the airfield, terminal, and aviation support areas would be approximately the same.

Emissions. Table 4.4-7 summarizes the results of the emission calculations associated with construction and operations under the Airport with Mixed Use Alternative for the years 2000, 2005, and 2010. This table provides a comparison of the magnitude of the reuse-related emission increases within the SCAB in relation to the estimated attainment level (the level of emissions above which the area would be in nonattainment), the 1987 emission inventory amount for the SCAB, and the projected emission inventory amounts for the SCAB in the years 2000, 2005, and 2010.

Table 4.4-7 shows that emission increases of NO_x, ROG, PM_{10}, and CO over the preclosure and closure baselines are small or, in some cases, negative (a negative increase indicates that reuse-related emissions would be less than emissions generated under the respective preclosure or closure conditions). Similar to the Proposed Action, the emissions from the Airport with Mixed Use Alternative would not interfere with the process of reaching and maintaining attainment of the CAAQS and NAAQS for NO_2, the NAAQS for ozone, or the NAAQS for CO. The Airport with Mixed Use Alternative emissions would cause some delay in reaching attainment of the federal and state PM_{10} standards and the state O_3 and CO standards. Therefore, all

Table 4.4-7. Emissions Associated with the Airport with Mixed Use Alternative (tons/day)

Pollutant	Estimated Attainment Level[a]	SCAB Emission Inventory Amount[b] 1997	2000	2005	2010	Reuse-Related Emissions Increase in the SCAB[c] Preclosure 2000	2005	2010	Closure 2000	2005	2010
NO_x	280[d,e]	1,208	616	495	374	-0.46	0.05	0.25	0.58	0.90	0.93
ROG	134[e]	1,375	454	316	179	-0.66	-0.37	-0.31	0.35	0.45	0.33
PM_{10}	342[e]	1,075	951	904	856	-0.59	0.02	0.24	0.65	1.15	1.26
CO	1,318[e]	4,987	2,244	1,781	1,318	-1.21	0.34	0.84	2.29	3.14	3.01
SO_2	291[f]	134	87	69	51	-0.06	<0.01	0.02	0.07	0.11	0.11

Notes: (a) Attainment levels for the SCAB were estimated from information contained in the 1991 AQMP (SCAQMD, 1991).
(b) Refer to Table I-7 in Appendix I.
(c) Emission increases are presented in relation to both preclosure and closure population baselines. See Appendix I for emission information by source category.
(d) Attainment level shown here is the estimated NO_x emissions amount required to attain the state O_3 standard. Attainment level of NO_x emissions required to attain the NO_2 standards is 616 tons per day.
(e) Area currently in nonattainment of O_3, NO_2, PM_{10}, and CO standards. Attainment projected to occur in: the year 2010 for the O_3 standard (federal), the year 2000 for the NO_2 standards (state and federal), the year 2006 for the PM_{10} standards (federal), the year 2000 for the CO standards (federal), and the year 2010 for the CO standards (state). Attainment for the state standards for O_3 and PM_{10} is projected to occur sometime after the year 2010; no definite date has been established (SCAQMD, 1991).
(f) Area currently attaining standards for this pollutant.

NO_x, ROG, PM_{10}, and CO emission increases associated with the Airport with Mixed Use Alternative should be mitigated, and the portions remaining after mitigation offset by the reduction of emissions from other sources in the area.

The Airport with Mixed Use Alternative emission increases of SO_2 would not be sufficient to jeopardize the attainment status for this pollutant. Current baseline emissions in the basin are well below the level that would cause nonattainment, and the Airport with Mixed Use Alternative emissions would be a small fraction of the baseline. In addition, projections prepared by the SCAQMD indicate that SO_2 emissions are declining and will continue to decline as a result of the implementation of planned control measures (SCAQMD, 1991).

A summary of the EDMS analysis of impacts from emissions associated with airport operations under this alternative is presented in Table 4.4-8. The maximum pollutant concentrations would occur at the same location as under the Proposed Action. PM_{10} concentrations are estimated to exceed standards when added to the background concentration. However, the standards are exceeded by the background concentrations alone. The project emissions in each case would be only a small fraction (0.01 to 0.6 percent) of the total standard. According to the SCAQMD projections contained in the AQMP, PM_{10} background concentrations should fall below the federal standards by the year 2006, and below the state standards sometime after the year 2010.

Table 4.4-8. Air Quality Modeling Results for Airport Operations and Vehicle Traffic Associated with the Airport with Mixed Use Alternative, ppm (μg/m³)

Pollutant	Averaging Time	Project Impact[a] 2000	2005	2010	Preclosure Background Concentration[b]	Limiting Standard[c]
CO	8-hour	0.010 (11.1)	0.011 (12.5)	0.013 (14.5)	6.9 (8,014)	9 (10,000)
	1-hour	0.054 (52.9)	0.060 (70.1)	0.080 (92.8)	10.0 (11,600)	20 (23,000)
SO_2	Annual	<0.0001 (0.004)	<0.0001 (0.007)	<0.0001 (0.010)	<0.001 (1.0)	0.03 (80)
	24-hour	0.0001 (0.32)	0.0002 (0.52)	0.0003 (0.75)	0.007 (19)	0.04 (105)
	3-hour	0.0007 (1.76)	0.0010 (2.77)	0.0015 (3.95)	0.025 (66)	0.5 (1,300)
	1-hour	0.0016 (4.21)	0.0025 (6.63)	0.0041 (10.80)	0.025 (66)	0.25 (655)
PM_{10}	Annual (geometric)	NA (0.001)	NA (0.002)	NA (0.004)	NA (64)	NA (30)
	Annual (arithmetic)	NA (0.001)	NA (0.002)	NA (0.004)	NA (75)	NA (50)
	24-hour	NA (0.08)	NA (0.12)	NA (0.28)	NA (237)	NA (50)

Notes: (a) Maximum impact in all cases occurred at receptors located near the property line downwind from the ends of the northeast-southwest runway. The maximum impact concentrations are assumed to be accurate within a factor of 2 (-50% to +100%). Sources of error such as accurately defining the mean wind direction and the correct atmospheric stability (turbulence) indicator account for much of the potential variations in calculating the maximum concentration. However, despite the potential variation from actual concentrations, the model predictions are considered to be "best estimates," typical of U.S. EPA guideline models such as EDMS. The U.S. EPA has stated that given the limitations of current modeling techniques, "use of the 'best estimate' is acceptable and consistent with CAA requirements" (U.S. Environmental Protection Agency, 1990).

(b) Background concentrations are assumed to equal the mean of first-high values monitored at the San Bernardino, Riverside, Redlands, and Fontana monitoring stations from 1989 to 1991. According to attainment projections in the 1991 AQMP, background concentrations of PM_{10} will fall below the federal standards by the year 2006, and below the state standards sometime after the year 2010 (SCAQMD, 1991).

(c) The limiting standard is equal to the more stringent value of the NAAQS or CAAQS.

NA = Not applicable.

Cumulative Impacts. Cumulative impacts would be as discussed for the Proposed Action.

Mitigation Measures. Mitigation measures and offset purchases are the same as those recommended for the Proposed Action.

4.4.3.3 Aircraft Maintenance Center Alternative. This alternative is similar to the Airport with Mixed Use Alternative, except in airfield operations and the replacement of some aviation support and commercial land use areas with aggregate mining operations in the area northeast of the airfield.

Emissions. Table 4.4-9 summarizes the results of the emission increase calculations associated with construction and operations under the Aircraft Maintenance Center Alternative for the years 2000, 2005, and 2010. Effects of aggregate mining operations are included in this table. This table also provides a comparison of the magnitude of the reuse-related emission increases within the SCAB in relation to the estimated attainment level (the level of emissions above which the area would be in nonattainment); the 1987 emission inventory amount for the SCAB; and the projected emission inventory amounts for the SCAB in the years 2000, 2005, and 2010.

Table 4.4-9. Emissions Associated with the Aircraft Maintenance Center Alternative (tons/day)

Pollutant	Estimated Attainment Level[b]	SCAB Emission Inventory Amount[b]				Reuse-Related Emissions Increase in the SCAB[c]					
						Preclosure			Closure		
		1997	2000	2005	2010	2000	2005	2010	2000	2005	2010
NO_x	280[d,e]	1,208	616	495	374	-0.59	-0.22	-0.16	0.45	0.63	0.53
ROG	134[e]	1,375	454	316	179	-0.71	-0.44	-0.40	0.30	0.37	0.24
PM_{10}	342[e]	1,075	951	904	856	-0.57	-0.04	0.04	0.67	1.08	1.06
CO	1,318[e]	4,987	2,244	1,781	1,318	-1.43	-0.08	0.17	2.07	2.72	2.34
SO_2	291[f]	134	87	69	51	-0.08	-0.03	-0.02	0.06	0.08	0.07

Notes: (a) Attainment levels for the SCAB were estimated from information contained in the 1991 AQMP (SCAQMD, 1991).
(b) Refer to Table I-7 in Appendix I.
(c) Emission increases are presented in relation to both preclosure and closure population baselines. See Appendix I for emission information by source category.
(d) Attainment level shown here is the estimated NO_x emissions amount required to attain the state O_3 standard. Attainment level of NO_x emissions required to attain the NO_2 standards is 616 tons per day.
(e) Area currently in nonattainment of O_3, NO_2, PM_{10}, and CO standards. Attainment projected to occur in: the year 2010 for the O_3 standard (federal), the year 2000 for the NO_2 standards (state and federal), the year 2006 for the PM_{10} standards (federal), the year 2000 for the CO standards (federal), and the year 2010 for the CO standards (state). Attainment for the state standards for O_3 and PM_{10} is projected to occur sometime after the year 2010. No definite date has been established (SCAQMD, 1991).
(f) Area currently attaining standards for this pollutant.

Table 4.4-9 shows that emission increases of NO_x, ROG, PM_{10}, and CO are small in comparison to existing and nonattainment level emissions. Nonetheless, these small emission increases would cause some delay in

efforts to attain the federal and state PM_{10} ambient air quality standards and the state O_3 and CO standards. Therefore, all NO_x, ROG, PM_{10}, and CO emissions associated with the Aircraft Maintenance Center Alternative should be mitigated to the fullest extent possible, and the remainder offset by the reduction of emissions from other sources in the area.

Emissions of SO_2 would not be sufficient to jeopardize the attainment status for this pollutant.

A summary of the EDMS analysis for this alternative is presented in Table 4.4-10. The maximum pollutant concentrations would occur at the same location as under the Proposed Action. PM_{10} concentrations are estimated to exceed standards when added to the background concentration. However, the standards are exceeded by the background concentrations alone. The project emissions in each case would be only a small fraction (0.001 to 0.05 percent) of the total standard. According to the SCAQMD projections contained in the AQMP, PM_{10} background concentrations should fall below the federal standards by the year 2006, and below the state standards sometime after the year 2010.

Emissions from the aggregate mining operations associated with this alternative are shown in Table 4.4-11. These emissions were estimated based on emission rates and production rates from the nearby Pharris Aggregate Plant (as contained in the Pharris Preannexation Agreement EIR prepared by Tom Dodson and Associates, 1991). Based on a 1 million ton/year production rate, aggregate mining under the Aircraft Maintenance Center Alternative could continue for a period of 20 years or longer.

Mining operations on the base would not cause a significant local impact. As a condition of initiating mining operations, the owner would have to obtain a permit to construct and permit to operate from the SCAQMD. These permits would not be granted unless the applicant can show that "...the equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants, is so designed, controlled, or equipped with such air pollution control equipment that it may be expected to operate without emitting air contaminants in violation of Sections 41700, 41701, or 44300 (et seq.) of the State Health and Safety Code or of the SCAQMD Rules and Regulations" (SCAQMD Rule 212[a]).

In addition, as part of the process for obtaining the new permits the mining operations would be subject to NSR and the application of BACT under the SCAQMD's Regulation XIII. The purpose of Regulation XIII is to "...set forth preconstruction review requirements for new, modified, or relocated facilities, to ensure that the operation of such facilities does not interfere with progress in attainment of the national ambient air quality standards, and that future economic growth within the District is not unnecessarily

Table 4.4-10. Air Quality Modeling Results for Airport Operations and Vehicle Traffic Associated with the Aircraft Maintenance Center Alternative, ppm ($\mu g/m^3$)

Pollutant	Averaging Time	Project Impact[a] 2000	2005	2010	Preclosure Background Concentration[b]	Limiting Standard[c]
CO	8-hour	0.0077 (9.0)	0.0085 (9.8)	0.0088 (10.2)	6.9 (8,014)	9 (10,000)
	1-hour	0.036 (41.8)	0.039 (45.7)	0.041 (47.3)	10.0 (11,600)	20 (23,000)
SO_2	Annual	<0.0001 (0.001)	<0.0001 (0.001)	<0.0001 (0.001)	<0.001 (1.0)	0.03 (80)
	24-hour	<0.0001 (0.056)	<0.0001 (0.070)	<0.0001 (0.072)	0.007 (19)	0.04 (105)
	3-hour	0.0001 (0.30)	0.0001 (0.37)	0.0001 (0.38)	0.025 (66)	0.5 (1,300)
	1-hour	0.0002 (0.58)	0.0003 (0.73)	0.0003 (0.75)	0.025 (66)	0.25 (655)
PM_{10}	Annual (geometric)	NA (<0.001)	NA (<0.001)	NA (<0.001)	NA (64)	NA (30)
	Annual (arithmetic)	NA (<0.001)	NA (<0.001)	NA (<0.001)	NA (75)	NA (50)
	24-hour	NA (0.022)	NA (0.026)	NA (0.026)	NA (237)	NA (50)

Notes: (a) Maximum impact in all cases occurred at receptors located near the property line downwind from the ends of the northeast-southwest runway. The maximum impact concentrations are assumed to be accurate within a factor of 2 (-50% to +100%). Sources of error such as accurately defining the mean wind direction and the correct atmospheric stability (turbulence) indicator account for much of the potential variations in calculating the maximum concentration. However, despite the potential variation from actual concentrations, the model predictions are considered to be "best estimates," typical of U.S. EPA guideline models such as EDMS. The U.S. EPA has stated that given the limitations of current modeling techniques, "use of the 'best estimate' is acceptable and consistent with CAA requirements" (U.S. Environmental Protection Agency, 1990).

(b) Background concentrations are assumed to equal the mean of first-high values monitored at the San Bernardino, Riverside, Redlands, and Fontana monitoring stations from 1989 to 1991. According to attainment projections in the 1991 AQMP, background concentrations of PM_{10} will fall below the federal standards by the year 2006, and below the state standards sometime after the year 2010 (SCAQMD, 1991).

(c) The limiting standard is equal to the more stringent value of the NAAQS or CAAQS.

NA = Not applicable.

Table 4.4-11. Pollutant Emissions from Aggregate Mining

Pollutant	Daily Emissions (tons)	Yearly Emissions (tons)
NO_x	0.038	9.44
ROG	0.003	0.72
PM_{10}	0.046	11.53
SO_2	0.004	1.12
CO	0.012	3.00

restricted. The specific air quality goal of this regulation is to achieve annual emission reductions that are at least five percent greater than the total annual emission increases from the new or modified equipment" (SCAQMD Rule 1301[a]).

Cumulative Impacts. Cumulative impacts would be as described for the Proposed Action.

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 Alternative. This alternative differs from the Proposed Action and other alternatives in that substantial acreage would be devoted to low-density residential use in the area currently occupied by the airfield. Air traffic and vehicle traffic associated with the operation of an airfield and aviation support areas would be eliminated under this alternative. Since these sources contributed a large portion of the emissions inventory for the Proposed Action and other alternatives, the air quality impacts associated with this alternative would be less.

Emissions. Table 4.4-12 summarizes the results of the emission increase calculations associated with construction and operations under the Non-Aviation Alternative for the years 2000, 2005, and 2010. Table 4.4-12 provides a comparison of the magnitude of the reuse-related emission increases within the SCAB in relation to the estimated attainment level (the level of emissions above which the area would be in nonattainment), the 1987 emission inventory amount for the SCAB, and the projected emission inventory amounts for the SCAB in the years 2000, 2005, and 2010.

Table 4.4-12 shows that emission increases of NO_x, ROG, PM_{10}, and CO are small in comparison to existing and nonattainment level emissions. Nonetheless, these small emission increases would cause some delay in efforts to attain the federal and state PM_{10} ambient air quality standards and the state O_3 and CO standards. Therefore, all NO_x, ROG, PM_{10}, and CO

Table 4.4-12. Emissions Associated with the Non-Aviation Alternative (tons/day)

Pollutant	Estimated Attainment Level[b]	SCAB Emission Inventory Amount[b] 1987	2000	2005	2010	Reuse-Related Emissions Increase in the SCAB[c] Preclosure 2000	2005	2010	Closure 2000	2005	2010
NO_x	280 [d,e]	1,208	616	495	374	-0.71	-0.37	-0.22	0.33	0.48	0.46
ROG	134 [e]	1,375	454	316	179	-0.77	-0.51	-0.42	0.24	0.31	0.22
PM_{10}	342 [e]	1,075	951	904	856	-0.65	-0.15	0.09	0.59	0.97	1.11
CO	1,318 [e]	4,987	2,244	1,781	1,318	-2.32	-1.08	-0.55	1.18	1.73	1.62
SO_2	291 [f]	134	87	69	51	-0.09	-0.04	-0.02	0.05	0.07	0.06

Notes: (a) Attainment levels for the SCAB were estimated from information contained in the 1991 AQMP (SCAQMD, 1991).
(b) Refer to Table I-7 in Appendix I.
(c) Emission increases are presented in relation to both preclosure and closure population baselines. See Appendix I for emission information by source category.
(d) Attainment level shown here is the estimated NO_x emissions amount required to attain the state O_3 standard. Attainment level of NO_x emissions required to attain the NO_2 standards is 616 tons per day.
(e) Area currently in nonattainment of O_3, NO_2, PM_{10}, and CO standards. Attainment projected to occur in: the year 2010 for the O_3 standard (federal), the year 2000 for the NO_2 standards (state and federal), the year 2006 for the PM_{10} standards (federal), the year 2000 for the CO standards (federal), and the year 2010 for the CO standards (state). Attainment for the state standards for O_3 and PM_{10} is projected to occur sometime after the year 2010. No definite date has been established (SCAQMD, 1991).
(f) Area currently attaining standards for this pollutant.

emissions associated with the Non-Aviation Alternative should be mitigated to the fullest extent possible, and the remainder offset by the reduction of emissions from other sources in the area. Emissions of SO_2 would not be sufficient to jeopardize the attainment status for this pollutant.

Cumulative Impacts. Emission increases due to this alternative are small, as shown in Table 4.4-12. Successful mitigation and offsets combined with implementation of new control measures would result in no net increase in pollutant emissions in the SCAB and, therefore, no cumulative impact on a regional basis. Locally, emissions may increase somewhat due to the cumulative impact of increased vehicle traffic associated with other projects in the area.

Emissions from the SCAB (including the cumulative emissions from the proposed Non-Aviation Alternative) may at times adversely impact air quality in other air basins due to downwind pollutant transport. In particular, CARB has determined that transport of ozone and ozone precursors does take place between the SCAB and the San Diego, Southeast Desert, and South Central Coast air basins (California Air Resources Board, 1989). However, occurrences of transport impact should become less frequent as emissions within the SCAB are decreased in future years due to the implementation of planned control measures.

Mitigation Measures. With the exception of measures related specifically to the presence of an airport and aircraft operations, mitigations for this alternative would be the same as those previously described for the

Proposed Action (Section 4.4.3.1). In particular, all construction mitigation measures would be applicable, except those contained in the referenced FAA construction standards handbook for airports. The only operational mitigation measures that would not apply to the Non-Aviation Alternative would be those transportation planning and management measures such as charging of parking lot fees for low-occupancy vehicles and development of an airport shuttle system. The charging of parking fees for low-occupancy vehicles would be feasible only for large parking lots such as those at an airport. Such parking lots are not expected to be associated with the Non-Aviation Alternative.

4.4.3.5 Other Land Use Concepts. Potential air quality effects resulting from implementation of one or more federal transfers and other land use concepts would be primarily in the form of increased or decreased vehicle emissions associated with more or less employees or residents. The overall heating and power requirements of the Proposed Action and alternatives are assumed to be relatively unaffected by these uses.

U.S. Department of the Interior. This proposal should have no effect on air quality.

U.S. Department of Agriculture. Transfers to the USFS would involve an increase of aircraft based at the airfield (one light aircraft and two light and two heavy tankers). These aircraft would add an additional amount of emissions to the totals calculated for the Proposed Action and two aviation alternatives.

This proposal would increase the air traffic at the airport. Emissions would be generated from the aircraft, ground support equipment, the heating and power requirements, and mobile sources related to employees and operational activities. Nevertheless, there would be a reduction in emissions from the sources related to commercial and industrial uses due to the reduction in land available for these activities. Emissions would need to be mitigated as previously described.

U.S. Department of Education. The aviation training facility included in this proposal would generate stationary source air emissions associated with heating and power requirements, and mobile source emissions related to student, employee, and service vehicle traffic. These emissions would be subject to the same mitigations previously described to prevent impact on the air quality attainment schedule.

U.S. Department of Veterans Affairs. This proposal would generate stationary source emissions associated with heating and power requirements, and mobile sources related to patient, employee, student, and research personnel. These emissions would require mitigation measures to

prevent the interference with the attainment and maintenance of air quality standards.

McKinney Act Housing. This proposal should have no effect on air quality.

U.S. Postal Service. This transfer would generate stationary source air emissions associated with heating and power requirements, and mobile source emissions related to employee and service vehicle traffic. These emissions would be subject to the same previously described requirements of mitigation and offsets needed to prevent interference with the attainment and maintenance of the air quality standards.

San Bernardino County. The facility for the work furlough program would generate stationary source air emissions associated with heating and power requirements, and mobile source emissions related to inmate, employee, and service vehicle traffic. These emissions may be subject to the same requirements of mitigation and offsets needed to prevent interference with the attainment and maintenance of the air quality standards as previously described.

Aggregate Mining. An aggregate mining overlay with the Proposed Action or other alternatives would increase the air emissions by the amounts shown in Table 4.4-11. Based on a 1 million tons/year production rate, the Proposed Action and each of the alternatives could continue to produce aggregate for 20 years or longer. The emission increases from the mining activities would need to be mitigated to the fullest extent possible and the portion not mitigated would require offsets from other sources in the area.

Cumulative Impacts. Cumulative impacts with other land use concepts would be as described for the Proposed Action and alternatives.

Mitigation Measures. Mitigation measures, if required, would be the same as recommended for the Proposed Action.

4.4.3.6 No-Action Alternative. 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.

Cumulative Impacts. Since the air quality impact of the No-Action Alternative is negligible, there would be no adverse cumulative impact.

Mitigation Measures. Air quality mitigation measures are not required for the No-Action Alternative because there are no significant impacts associated with this alternative.

4.4.4 Noise

The impact analysis for noise estimates the extent and magnitude of noise levels generated by the Proposed Action and alternatives. The effects of noise such as annoyance, speech interference, sleep disturbance, hearing loss, health, and land use impacts are discussed. The predicted noise levels are assessed with respect to the land use guidelines developed by the FAA (Federal Aviation Administration, 1989).

Methods quantifying the annoyance, speech interference, sleep disturbance, health, and hearing loss effects of noise have undergone extensive scientific development during the past several decades. The most reliable measures at present are noise-induced hearing loss and annoyance. Nonauditory effects (those not directly related to hearing capability) are also important, although they are not as well understood. The current scientific consensus is that "evidence from available research reports is suggestive, but it does not provide definitive answers to the question of health effects, other than to the auditory system, of long-term exposure to noise" (National Academy of Sciences, 1981).

A more detailed description of the effects of noise is provided in Appendix H. This appendix also provides information on units used to describe noise and its effects.

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 4.4-13 presents the results of over a dozen studies of transportation modes, including airports, investigating the relationship between the DNL and annoyance to human receptors. This relationship has been suggested by the National Academy of Sciences (1977) and recently reevaluated (Fidell et al., 1988) for use in describing people's reaction to semi-continuous noise such as that from transportation sources. 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 expected to be highly annoyed by the noise.

Speech Interference. 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 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 A-weighted maximum sound level (L_{max}) interfere with speech communication (Pearsons and Bennett, 1974; Crook and Langdon, 1974). Increasing the level of the flyover noise to 80 dB will reduce the

Table 4.4-13. Percentage of Population Highly Annoyed by Noise Exposure

DNL Interval in dB	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.

intelligibility to zero even if people speak in loud voices. The interference lasts as long as the event, which is momentary for a flyover.

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 dB were associated with an absence of sleep disturbance. Lukas (1975) reviewed data available in the 1970s on sleep-stage changes and waking effects of different levels of noise. Either waking or sleep-stage changes have been found to be potentially useful as metrics of sleep disturbance.

The noise descriptor that may best describe the effect of noise on sleep is the SEL. Unlike DNL which describes the daily average noise exposure, SEL describes the noise from a single flyover called an event. 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 referenced to 1 second.

Lukas' (1975) summary and others (Goldstein and Lukas, 1980) 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. 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 review points 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 make it difficult to determine the best relationship to use. Lukas' relationship would estimate over seven times more awakening than the field results reported by Pearsons.

The relationship between percent awakened and SEL are presented in Figure H-1 in Appendix H. These relationships consider the sound

attenuation provided by a residential building with the windows open. Appendix H, Noise, contains further information on the relationship.

Hearing Loss. Hearing loss is measured in decibels and refers to permanent auditory threshold shift of an individual's hearing. The U.S. EPA (EPA, 1974) has recommended a limiting daily energy value of L_{eq} 70 dB to protect against hearing impairment over a period of 40 years. This daily energy average would translate into a DNL value of approximately 75 dB or greater. Based on U.S. EPA recommendations (EPA, 1974), hearing loss is not expected in people exposed to DNL 75 dB or less. The Federal Interagency Committee on Urban Noise (U.S. Department of Transportation, 1980) states that hearing loss due to noise: (1) may begin to occur in people exposed to long-term noise levels of DNL 75 dB and above, (2) will not likely occur in people exposed to noise levels between DNL 70 and 75 dB, and (3) will not occur in people exposed to noise levels less than DNL 70 dB.

Health. Research investigating the relationship between noise and adverse nonauditory health effects have been inconclusive. Potential nonauditory health consequences of noise exposure which have been studied include birth defects, psychological illness, cancer, stroke, hypertension, and cardiac illnesses. While hypertension appears to be the most biologically plausible of these consequences, studies addressing this issue have failed to provide adequate support. Studies that have shown negative consequences to exist have failed to be replicated, thereby causing the validity of those studies to be questioned (Frerichs et al., 1980; Anton-Guirgis et al., 1986). Studies which have controls for multiple factors have shown no, or very weak, associations between noise exposure and nonauditory health 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 amount of literature on the effects of noise on animals is small and most of the studies have focused on effects associated with dosages of continuous noise (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 mortality of livestock directly attributable to noise despite exposure to extreme noise levels.

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 the 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 exposure areas were developed by the FAA. These are

presented in Section 3.4.4. The land use compatibility guidelines are based on annoyance and hearing loss considerations described above. Part 150 of the FARs 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 which are normally compatible with various levels of exposure. The FAA guidelines were used in this study to determine noise impacts.

Noise Modeling. In order to define the noise impacts from aircraft operations at Norton AFB, the FAA-approved Noise Exposure Model (NOISEMAP) Version 6.0 was utilized to predict DNL 65, 70, and 75 dB noise contours and SEL values for receptor locations. For definitions of descriptors, see Appendix H. The contours were generated for the Proposed Action and aviation alternatives for four future year projections (1995, 2000, 2005, and 2015) and overlaid on a U.S. Geological Survey map of the base. Vicinity flight tracks assumed for the modeling are illustrated Figure 4.4-6. Input data to NOISEMAP include information on aircraft ty, runway use; 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.

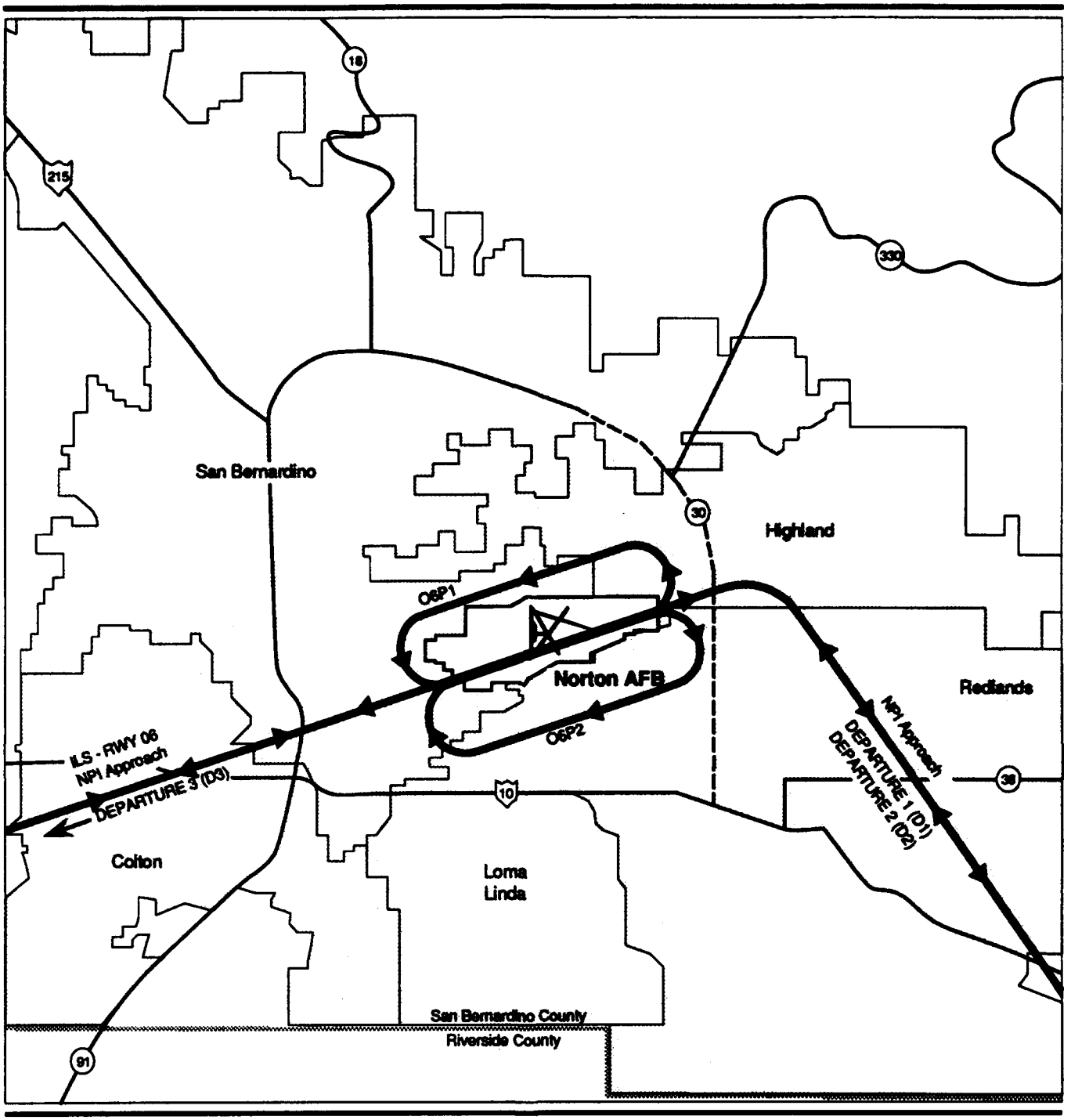
Surface vehicle traffic noise levels for roadways in the vicinity of Norton AFB were analyzed using the FHWA's Highway Noise Model (Federal Highway Administration, 1978). This model incorporates vehicle mix, traffic volume projections, and speed to generate DNL.

Major Assumptions. Half of all aircraft operations were assumed to be takeoffs and half landings. Number of aircraft operations and fleet mix are given in Sections 2.2 and 2.3. Appendix H provides more details on assumptions used. All aircraft operations were assumed to follow standard approach slopes and takeoff profiles provided by the FAA's Integrated Noise Model Database 3.9. The phasing out of Stage 2 aircraft and subsequent replacement with Stage 3 aircraft are reflected in the aircraft operations.

Major roads leading to or around the base were analyzed. Traffic data used to project future noise levels are presented in Section 4.2.3. Traffic data used in this analysis are summarized in Appendix H.

4.4.4.1 Proposed Action. The results of the aircraft noise modeling for the Proposed Action are presented as noise contours in Figures 4.4-7 through 4.4-10. The contribution from runup noise is evident as separate contours at the north end of the apron.

Table 4.4-14 presents the approximate number of acres and estimated population within each DNL range for each of the study years. Compared to the preclosure reference, this represents a decrease of 7,237 acres within



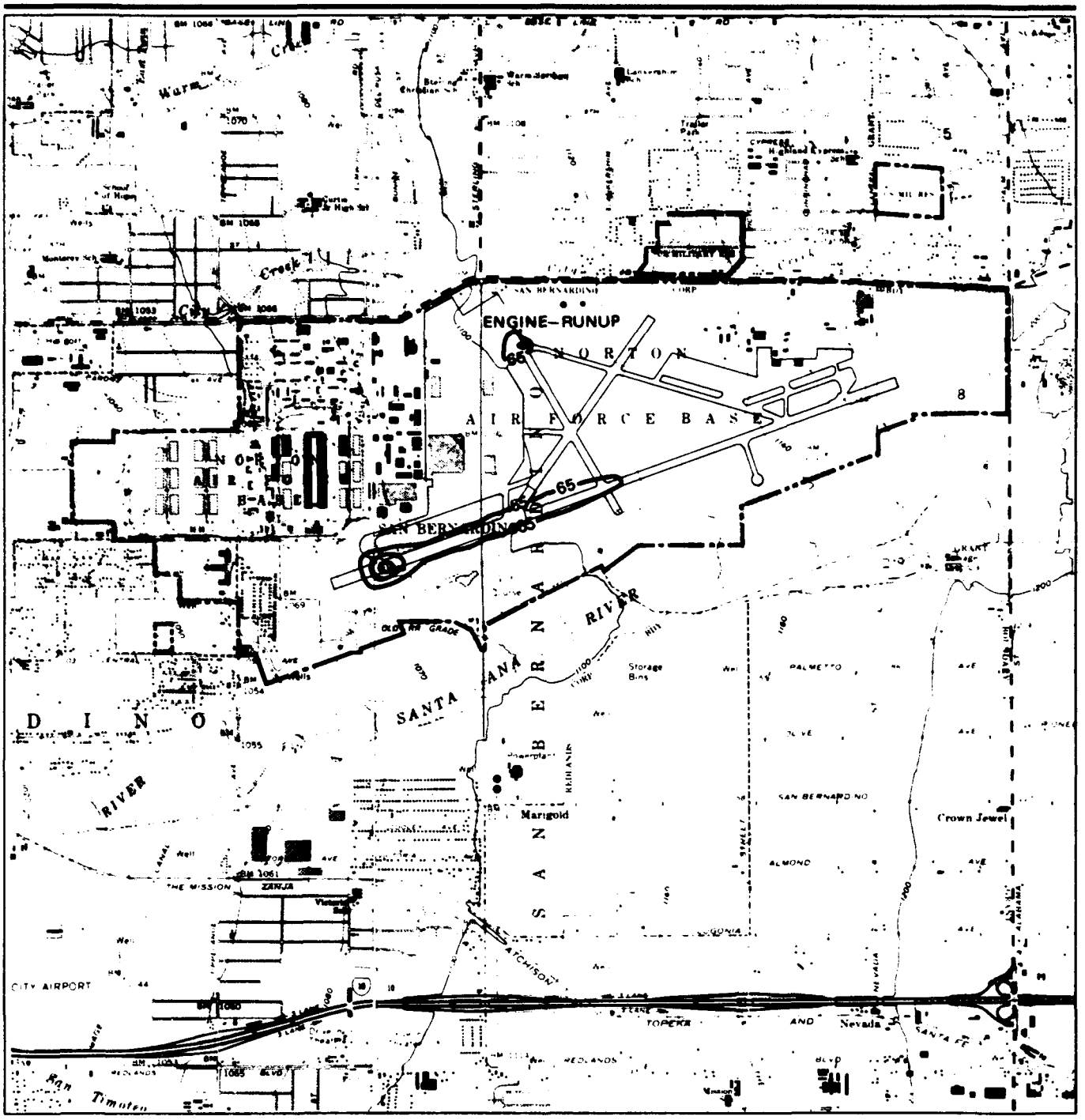
EXPLANATION

Direction of Travel on Flight Path

Flight Tracks- All Aviation Alternatives

0 2500 5000 10000 Feet

Figure 4.4-6



EXPLANATION

——— DNL Noise Contours (in 5 dB intervals)

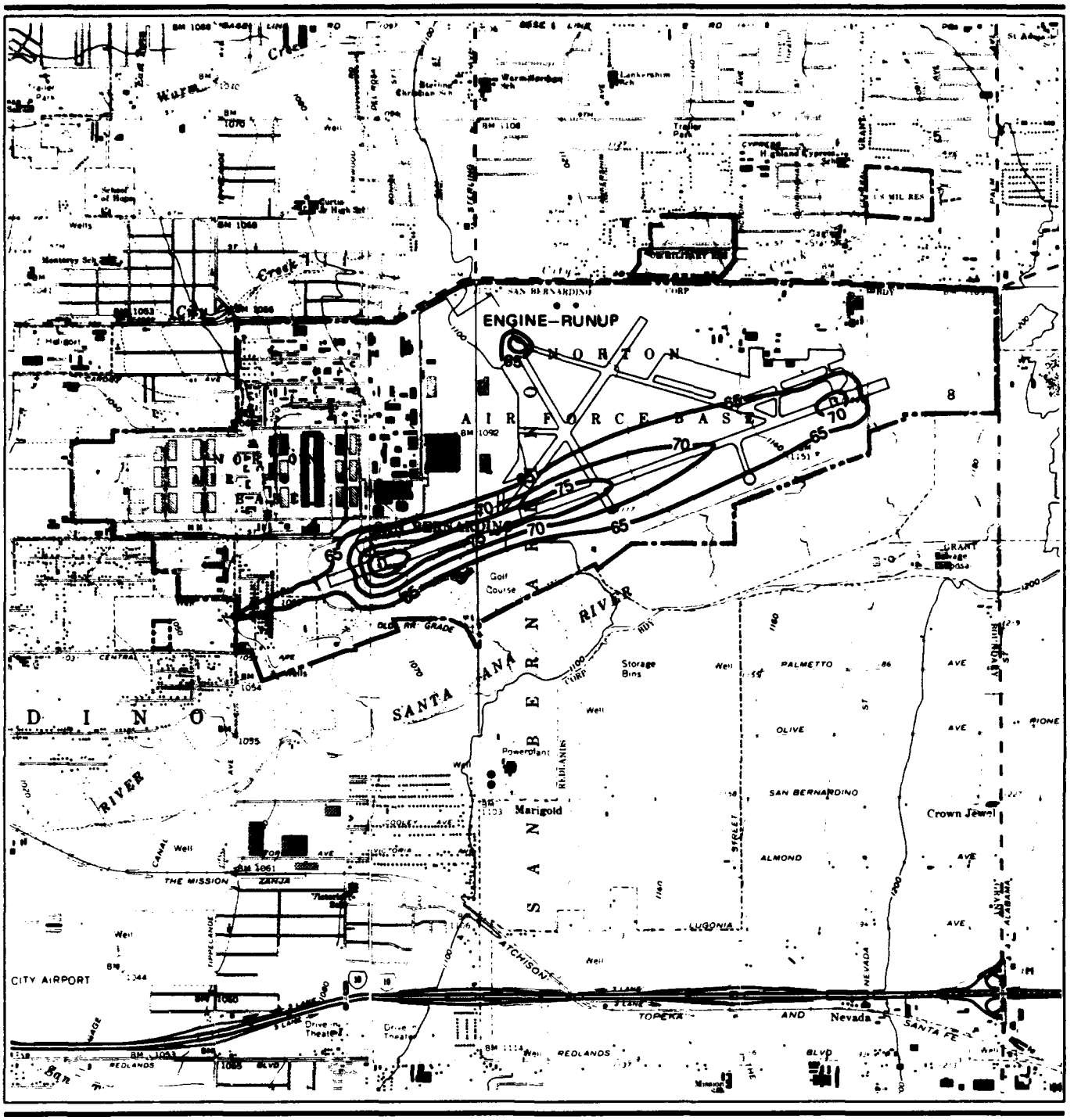
—·—·— Base Boundary

DNL Noise Contours- Proposed Action (1995)

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

Figure 4.4-7



EXPLANATION

DNL Noise Contours (in 5 dB intervals)

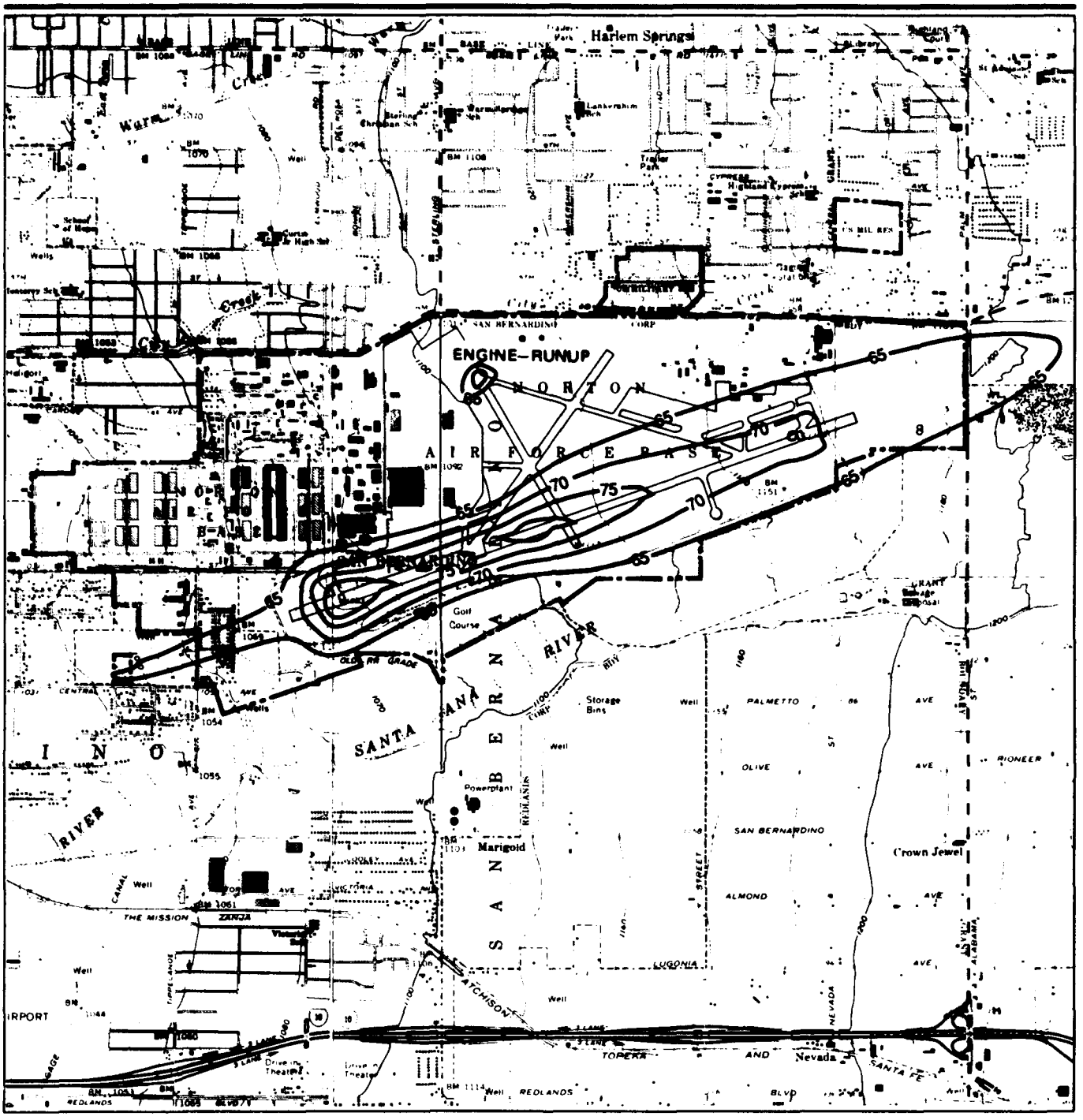
Base Boundary

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

DNL Noise Contours- Proposed Action (2000)

Figure 4.4-8



EXPLANATION

DNL Noise Contours (in 5 dB intervals)

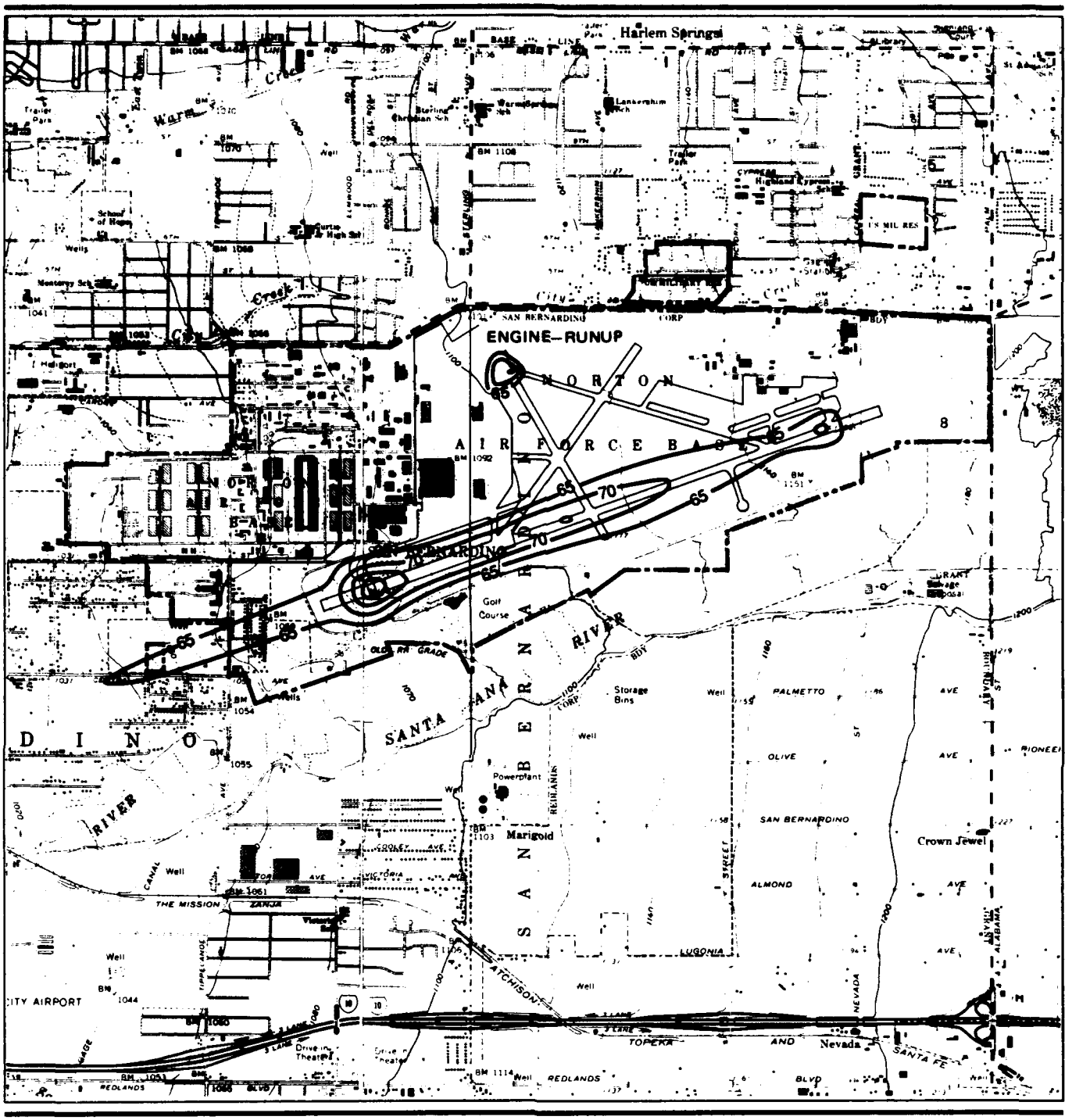
Base Boundary

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

DNL Noise Contours- Proposed Action (2005)

Figure 4.4-9



EXPLANATION

——— DNL Noise Contours (in 5 dB intervals)

—·—·— Base Boundary

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

DNL Noise Contours- Proposed Action (2015)

Figure 4.4-10

Table 4.4-14. DNL Exposure for the Norton AFB Alternative Reuse Plans

Year	Alternative	65-70 dB		70-75 dB		>75 dB	
		Acres	Population	Acres	Population	Acres	Population
1995	Proposed Action	54	0	5	0	1	0
	Airport with Mixed Use	87	0	12	0	3	0
	Aircraft Maintenance Center	65	0	11	0	2	0
2000	Proposed Action	232	0	97	0	53	0
	Airport with Mixed Use	259	0	114	0	65	0
	Aircraft Maintenance Center	74	0	11	0	3	0
2005	Proposed Action	490	9	180	0	113	0
	Airport with Mixed Use	458	9	180	0	109	0
	Aircraft Maintenance Center	84	0	11	0	4	0
2015	Proposed Action	201	9	88	0	13	0
	Airport with Mixed Use	169	9	76	0	9	0
	Aircraft Maintenance Center	48	0	9	0	3	0

DNL 65 dB in 1995, 6,915 acres in 2000, 6,514 acres in 2005, and 6,995 acres in 2015. The maximum exposure is projected for 2005, after which the complete conversion of Stage 2 to quieter Stage 3 aircraft would result in reduced noise exposure even though numbers of aircraft operations would continue to increase. By the year 2000, the FAR Part 161 actually requires the conversion from Stage 2 to Stage 3 aircraft to be complete. This requirement was officially adopted after the analysis for this EIS was conducted and is, thus, not reflected in the projected noise contours. As a result, the noise contours projected for the years 2000 and 2005 are extremely conservative. In reality, noise levels in those years are likely to be less than projected.

The criteria that define Stage 2 and Stage 3 aircraft are described in FAA Part 36 (Federal Aviation Administration, 1988b). Noise level limits are defined for takeoff, approach, and sideline measurements. The modeled aircraft operations reflect this phaseout by replacing the 737-200 (Stage 2) with 737-300 (Stage 3). Based on the certification test results presented in the FAA Advisory Circular 36-1E (Federal Aviation Administration, 1988a) the 737-300 is approximately 10 dB quieter than the 737-200 for departures and approximately 5 dB quieter for approaches.

After 2005, an area southwest of the end of the runway which currently includes six dwelling units would be exposed to DNL between 65 and 70 dB. These residences are in an area zoned for industrial use. There are nine residents living in these units.

The SEL was calculated at representative residential locations for the noisiest and most common jet aircraft; the results are presented in Table 4.4-15. The analysis suggests that, for the Proposed Action, some aircraft overflights could affect the sleep of some residents in the area. In all years, the noisiest plane would be the 747-200. In 1995, the most common aircraft would be the BAe 146. For 2000 and 2005, the most common aircraft would be the 737-200 and 737-300. In 2015, the 737-300 would be the most common aircraft. The noisiest aircraft were determined from the L_{max} as presented in FAA Advisory Circular 36-3E (Federal Aviation Administration, 1987).

Table 4.4-15. Sound Exposure Levels in Decibels at Representative Noise Receptors

		Aircraft Type				
Community	Receptor Location	737-200	737-300	747-200	Citation	BAe146
Rialto	Randall & Sycamore	75	61	66	58	59
Grand Terrace	Arliss & Kingston	74	58	64	55	58
Colton	Shasta & Ivy	92	87	90	77	84
San Bernardino	San Bernardino Community Hospital	66	46	53	44	48
San Bernardino	8th & Perris	74	55	62	52	55
Loma Linda	Loma Linda University Medical Center	75	57	64	53	57
San Bernardino County	Gould & Ferree	86	69	76	65	68
Loma Linda	Mariposa & Mountain View	69	50	58	47	50
San Bernardino	San Bernardino County Hospital	70	52	59	48	52
Norton AFB	Residential Area	92	77	81	71	75
Norton AFB	Clinic	88	72	77	67	70
Redlands	Redlands Community Hospital	66	49	55	46	49
San Bernardino	Foothill & Del Rosa	61	42	49	38	42
Highland	Cole Place	91	75	81	70	73
Highland	Patton State Hospital	73	55	62	51	54
Redlands	Sonora & Clark	76	62	68	59	61
Redlands	Dreka & Clay	85	70	76	67	69
East Highlands	Greenspot & Ypsilantha	92	76	81	72	74
Mentone	Lugonia & Opal	84	71	77	68	69

Surface traffic noise levels are presented in Table 4.4-16 for several road segments affected by the Proposed Action including the new Del Rosa-Tippecanoe corridor that would be built through the base. These levels are presented in terms of DNL as a function of distance from the centerline of the roadways analyzed.

Portions of the roadways that would carry traffic to and from base areas would pass adjacent to residential areas. Tippecanoe Avenue, which would have the most area exposed to DNL 65 dB and above, has residences near Mill Street and on the east side between the railroad crossing and I-10. There are residences on the south side of Mill Street between Tippecanoe

Table 4.4-16. Distance to DNL from Roadway Centerline - Proposed Action

Year	Roadway	Distance (feet) DNL 65dB	DNL 70dB	DNL 75dB
2000	Tippecanoe Ave	140	50	40
	Mill St	80	30	*
	Del Rosa Dr	70	40	*
	3rd St (East)	80	40	*
	3rd St (West)	80	40	*
	Victoria Ave	100	40	*
	5th St (Waterman to Victoria)	120	40	*
	5th St (Victoria to Palm)	90	40	*
	Alabama St	100	40	40
	Palm Ave	90	40	40
	Del Rosa-Tippecanoe Corridor (north half)	60	*	*
	Del Rosa-Tippecanoe Corridor (south half)	80	40	40
2005	Tippecanoe Ave	220	80	40
	Mill St	190	50	*
	Del Rosa Dr	190	50	*
	3rd St (East)	130	50	*
	3rd St (West)	130	50	*
	Victoria Ave	150	50	*
	5th St (Waterman to Victoria)	180	60	*
	5th St (Victoria to Palm)	150	50	*
	Alabama St	110	40	40
	Palm Ave	120	50	40
	Del Rosa-Tippecanoe Corridor (north half)	90	40	*
	Del Rosa-Tippecanoe Corridor (south half)	170	60	40
2015	Tippecanoe Ave	360	120	40
	Mill St	160	50	*
	Del Rosa Dr	200	70	*
	3rd St (East)	170	60	*
	3rd St (West)	170	60	*
	Victoria Ave	190	70	*
	5th St (Waterman to Victoria)	130	80	*
	5th St (Victoria to Palm)	180	60	*
	Alabama St	170	60	40
	Palm Ave	170	70	40
	Del Rosa-Tippecanoe Corridor (north half)	130	50	*
	Del Rosa-Tippecanoe Corridor (south half)	210	80	40

*Contained within roadway

and Waterman avenues, but most are more than 160 feet from the roadway centerline and would therefore not be affected. There are also residences between Allen and E streets, but noise levels there would be lower than along segments closer to the base.

Del Rosa Drive has residences at various stretches between the base and SR-30. Only those within 200 feet of the roadway centerline would be affected by project-related traffic noise. Residential uses along Third Street are sparse; the primary areas of concentration are the NCO housing and west of Tippecanoe Avenue. Fifth Street also passes through the NCO housing area and a few other clusters of homes near Sterling, Del Rosa, and Tippecanoe. Most of the land uses along Fifth, west of Waterman, are commercial. Victoria Avenue, again, passes by the NCO housing, and there are a few residences between Fifth and Sixth streets. Adjacent land uses north of that area are primarily residential. Victoria Avenue has the most residences of the roadways studied. Alabama Street has no residences between Third Street and I-10. Palm Avenue, north of City Creek, has residential areas at several points.

Cumulative Impacts. Other projects in combination with the Proposed Action would not result in cumulative impacts due to aircraft noise. The noise generated by surface traffic from cumulative development is incorporated in the basic analysis of the Proposed Action. By the year 2015, areas exposed to DNL 65 dB and above due to surface traffic would increase about 100 to 300 percent.

Mitigation Measures. Potential mitigation measures for reducing effects from aircraft noise include:

- **Management measures.** Impose curfews, impose noise-related landing fees, develop noise monitoring systems, and establish a community relations office.

- **Remedial measures.** Establish and conduct a sound attenuation program for single-family residences in areas exposed to aircraft noise of DNL 65 dB or greater.

The effectiveness of the noise mitigation measures presented above cannot be completely determined without extensive modeling and noise measurements.

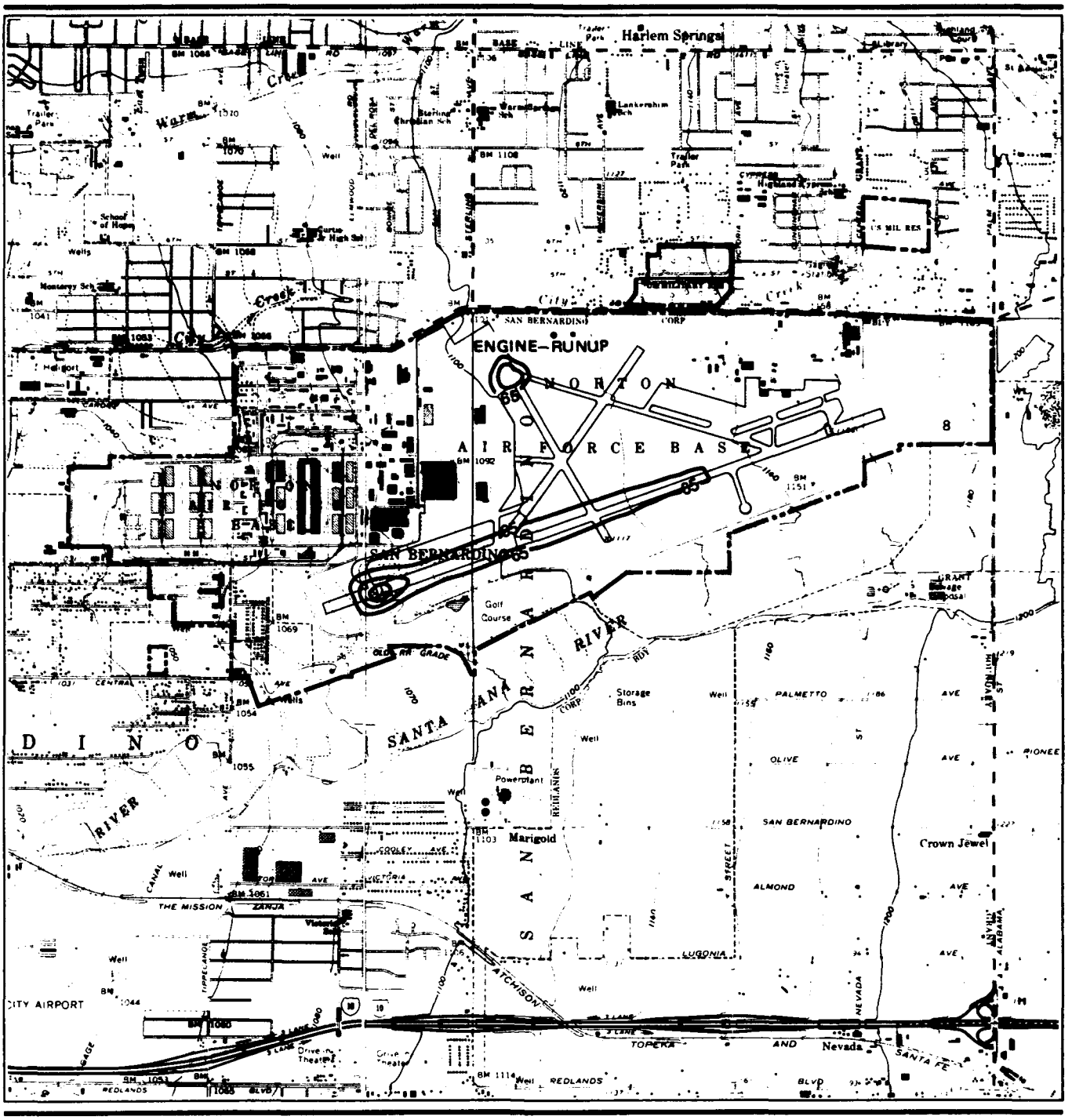
Title 21, Subchapter 6, of the CCR provides a community noise exposure level (CNEL) limit of 70 dB for residential areas. The CNEL would be approximately equal to (usually ± 1 dB) the DNL used in this study. If residential areas were found to lie within the DNL 65 dB contours, the state of California would require measurements to verify the noise contours and a study to determine if people actually reside within the contours. If a noise problem is identified, noise level monitoring would be required.

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 insulation program could be implemented to reduce interior noise levels for sensitive receptors exposed to DNL 65 or greater. For future development, land use planning should incorporate noise compatibility measures when establishing residential zoning. Measures such as restricting residential development to areas outside DNL 65 and incorporating barriers and buffer zones into community development can be used. The effectiveness of the operational and management mitigation measures presented here cannot be completely determined without extensive modeling and/or measurements. The State Building Code (Part 2, Title 24 CCR) will require an acoustical analysis for all new construction exposed to DNL 60 or greater, showing that the proposed construction has been designed to limit intruding noise to a CNEL of 45 dB in any habitable room.

4.4.4.2 Airport with Mixed Use Alternative. The results of the aircraft noise modeling for this alternative are presented as noise contours in Figures 4.4-11 through 4.4-14 for the years 1995, 2000, 2005, and 2015. Again, the analysis assumed only 50 percent of commercial aircraft would have completed the conversion from Stage 2 to Stage 3 aircraft, instead of the mandated 100 percent. As a result, the noise levels projected for the years 2000 and 2005 are conservatively high. The contribution from runup noise is evident as separate contours at the north end of the apron. The small area shown exposed to DNL 65 dB at the northeast end of the runway in 2015 is due to departures to the southwest and the slow speed of aircraft as they begin their roll.

Table 4.4-14 presents the approximate number of acres within each DNL range for each representative year. This represents a decrease of 7,195 acres exposed to DNL 65 dB in 1995, 6,859 acres in 2000, 6,550 acres in 2005, and 7,043 acres in 2015 compared to the preclosure reference. As with the Proposed Action, the noisiest time would be around 2005. The reduction in noise levels is again due to the phaseout of Stage 2 aircraft. In the Airport with Mixed Use Alternative, the phaseout is reflected not only in the replacement of 737-200s with 737-300s as in the Proposed Action, but also by the replacement of 727-200s with MD 80/83s. Based on the certification test results presented in the FAA Advisory Circular 36 1E (Federal Aviation Administration, 1988a) the MD 83 is approximately 10 dB quieter than the 727-200 for departures and approximately 12 dB quieter for approaches. The same six residences would be exposed to DNL of 65 to 70 dB, starting in 2005.

As with the Proposed Action, some aircraft overflights could affect the sleep of some residents in the area. In all years, the noisiest jet aircraft would be the 747-200. In 1995, the Cessna Citation I would be the most common



EXPLANATION

DNL Noise Contours (in 5 dB intervals)

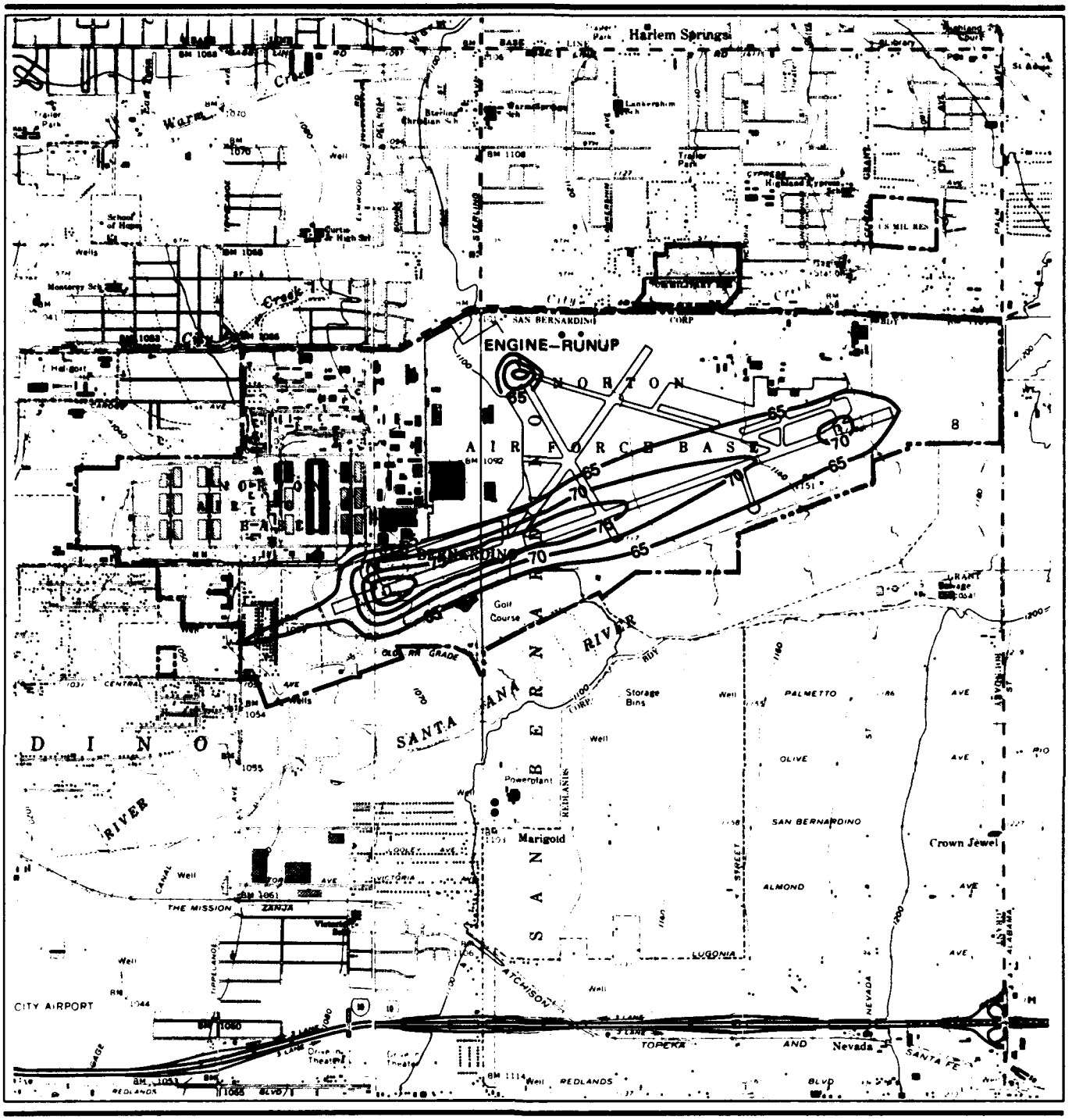
Base Boundary

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

DNL Noise Contours- Airport with Mixed Use Alternative (1995)

Figure 4.4-11



EXPLANATION

DNL Noise Contours (in 5 dB intervals)

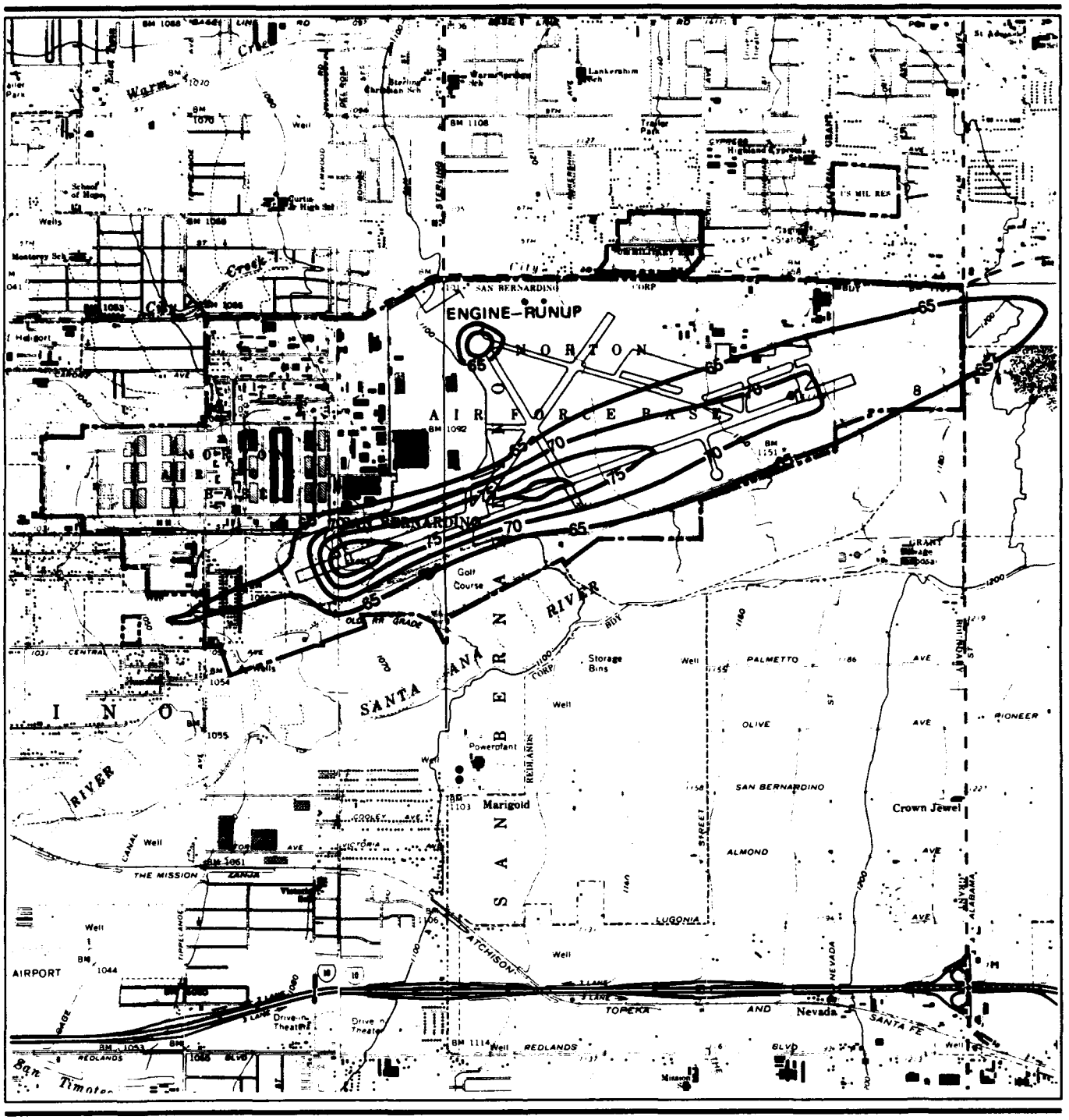
Base Boundary

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

DNL Noise Contours-Airport with Mixed Use Alternative (2000)

Figure 4.4-12



EXPLANATION

DNL Noise Contours (in 5 dB intervals)

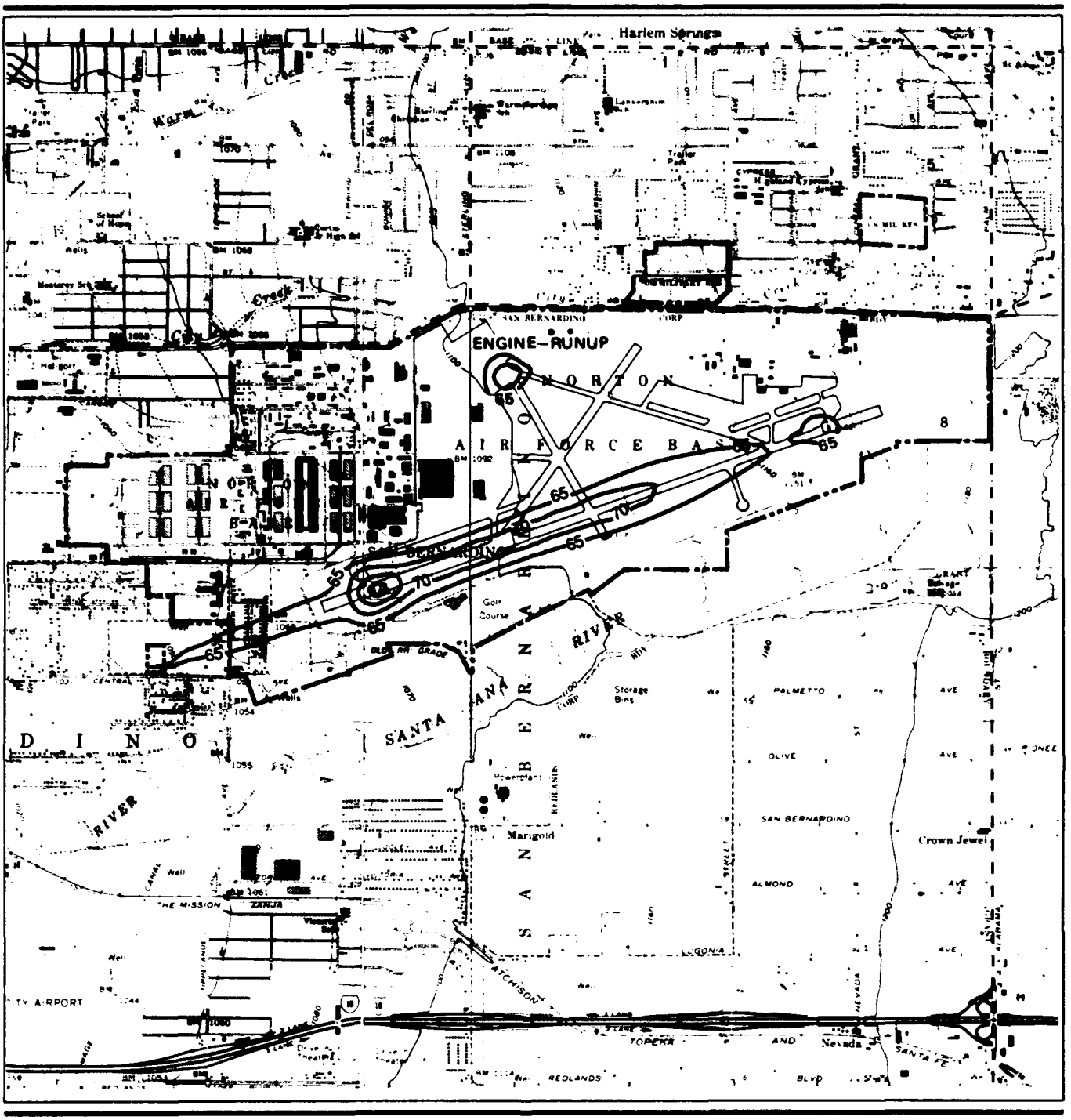
Base Boundary

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

DNL Noise Contours- Airport with Mixed Use Alternative (2005)

Figure 4.4-13



EXPLANATION

DNL Noise Contours (in 5 dB intervals)

Base Boundary

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

DNL Noise Contours- Airport with Mixed Use Alternative (2015)

Figure 4.4-14

aircraft under the Airport with Mixed Use Alternative. For the years 2000 and 2005, the most common aircraft would be the 737-200 and the 737-300. In 2015, the most common jet aircraft would be the 737-300. Surface traffic noise levels for this alternative are presented in Table 4.4-17. Residential population affects described under the Proposed Action.

Cumulative Impacts. Cumulative impacts would be the same as described for the Proposed Action.

Mitigation Measures. Mitigation measures for this alternative would be the same as those for the Proposed Action.

4.4.4.3 Aircraft Maintenance Center Alternative. The results of the aircraft noise modeling for this alternative are presented as noise contours in Figures 4.4-15 through 4.4-18.

Table 4.4-14 presents the approximate number of acres within each DNL range for each representative year. This represents a decrease of 7,219 acres within DNL 65 dB in 1995, 7,209 acres in 2000, 7,198 acres in 2005, and 7,237 acres in 2015, as compared to the preclosure reference.

All areas exposed to DNL greater than 65 dB would be confined to the immediate airport area.

Nevertheless, some aircraft overflights could affect the sleep of some residents in the area. As with the Proposed Action and Airport with Mixed Use Alternative, the noisiest jet aircraft in all years would be the 747-200 and the most common jet aircraft would be the Cessna Citation I.

Surface traffic noise levels for this alternative are presented in Table 4.4-18. Residential areas affected are described under the Proposed Action.

Mining activities on the base would also produce noise. The exact location of aggregate processing facilities has not been identified, but the DNL 65 dB contour is expected to extend approximately 1,300 feet around these facilities. The DNL 70 dB contour would extend 700 feet, and the DNL 75 dB contour would extend out 400 feet.

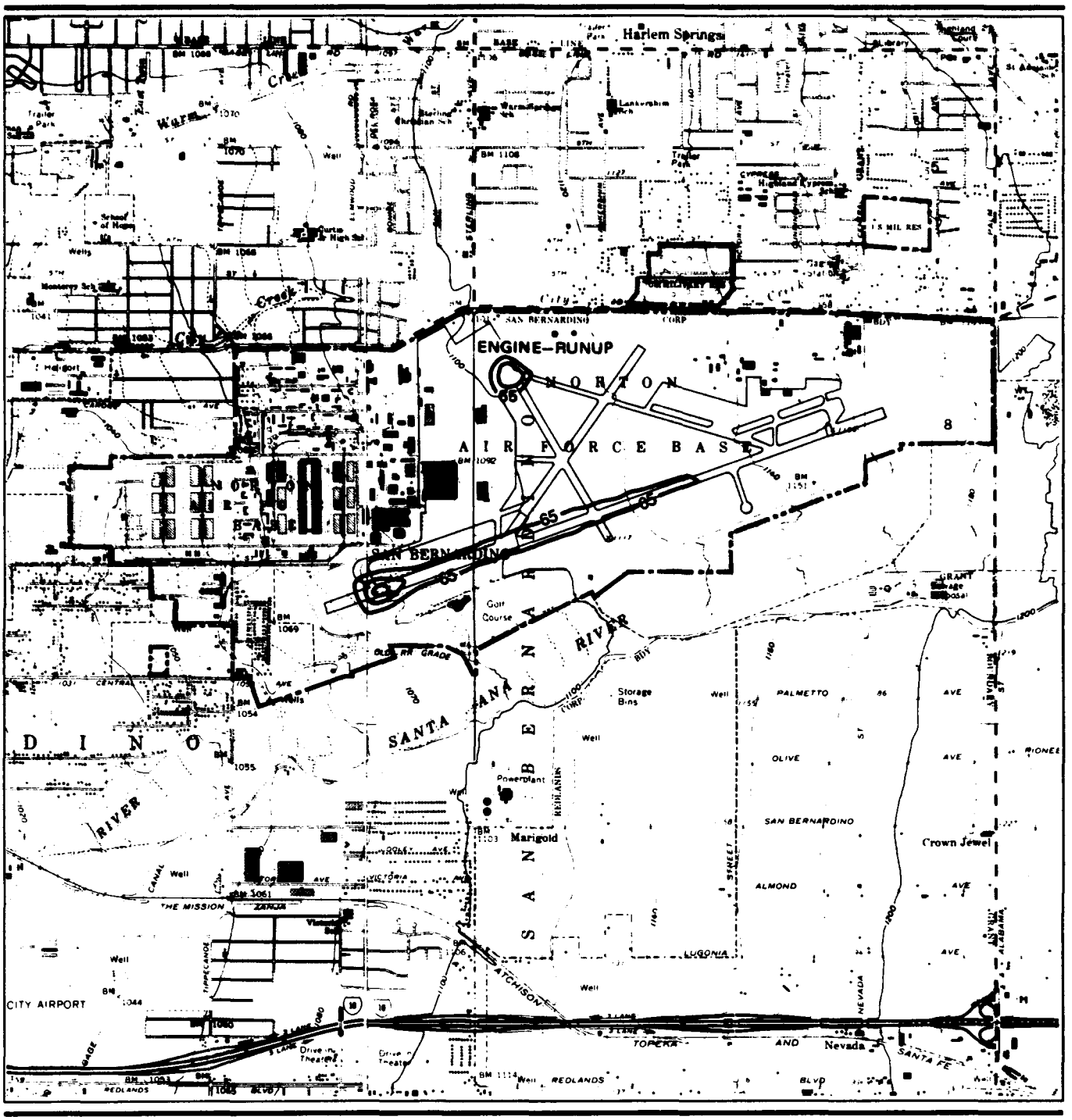
Cumulative Impacts. Cumulative impacts would be the same as described for the Proposed Action.

Mitigation Measures. Mitigation measures for this alternative would be the same as those for the Proposed Action. Potential impacts from aggregate processing could be mitigated by locating processing facilities so that noise contours would not extend into residential areas, or providing berms or other barriers to block the noise. The effectiveness of the mitigation measures

Table 4.4-17. Distance to DNL from Roadway Centerline - Airport with Mixed Use Alternative

Year	Roadway	Distance (Feet)		
		DNL 65dB	DNL 70dB	DNL 75dB
2000	Tippecanoe Ave	130	40	40
	Mill St	70	*	*
	Del Rosa Dr	60	40	*
	3rd St (East)	70	40	*
	3rd St (West)	70	40	*
	Victoria Ave	90	50	*
	5th St (Waterman to Victoria)	120	50	*
	5th St (Victoria to Palm)	80	40	40
	Alabama St	80	40	40
	Palm Ave	80	40	40
	Del Rosa-Tippecanoe Corridor (north half)	60	40	*
	Del Rosa-Tippecanoe Corridor (south half)	80	50	*
2005	Tippecanoe Ave	220	70	40
	Mill St	140	40	*
	Del Rosa Dr	110	40	*
	3rd St (East)	120	50	*
	3rd St (West)	110	40	*
	Victoria Ave	140	50	*
	5th St (Waterman to Victoria)	200	60	*
	5th St (Victoria to Palm)	130	40	*
	Alabama St	110	40	40
	Palm Ave	110	50	40
	Del Rosa-Tippecanoe Corridor (north half)	110	40	*
	Del Rosa-Tippecanoe Corridor (south half)	150	60	40
2015	Tippecanoe Ave	240	80	40
	Mill St	140	50	*
	Del Rosa Dr	130	40	*
	3rd St (East)	140	50	*
	3rd St (West)	140	50	*
	Victoria Ave	170	60	*
	5th St (Waterman to Victoria)	190	60	*
	5th St (Victoria to Palm)	150	50	*
	Alabama St	130	50	40
	Palm Ave	130	60	40
	Del Rosa-Tippecanoe Corridor (north half)	130	50	*
	Del Rosa-Tippecanoe Corridor (south half)	180	70	40

*Contained within roadway.



EXPLANATION

DNL Noise Contours (in 5 dB intervals)

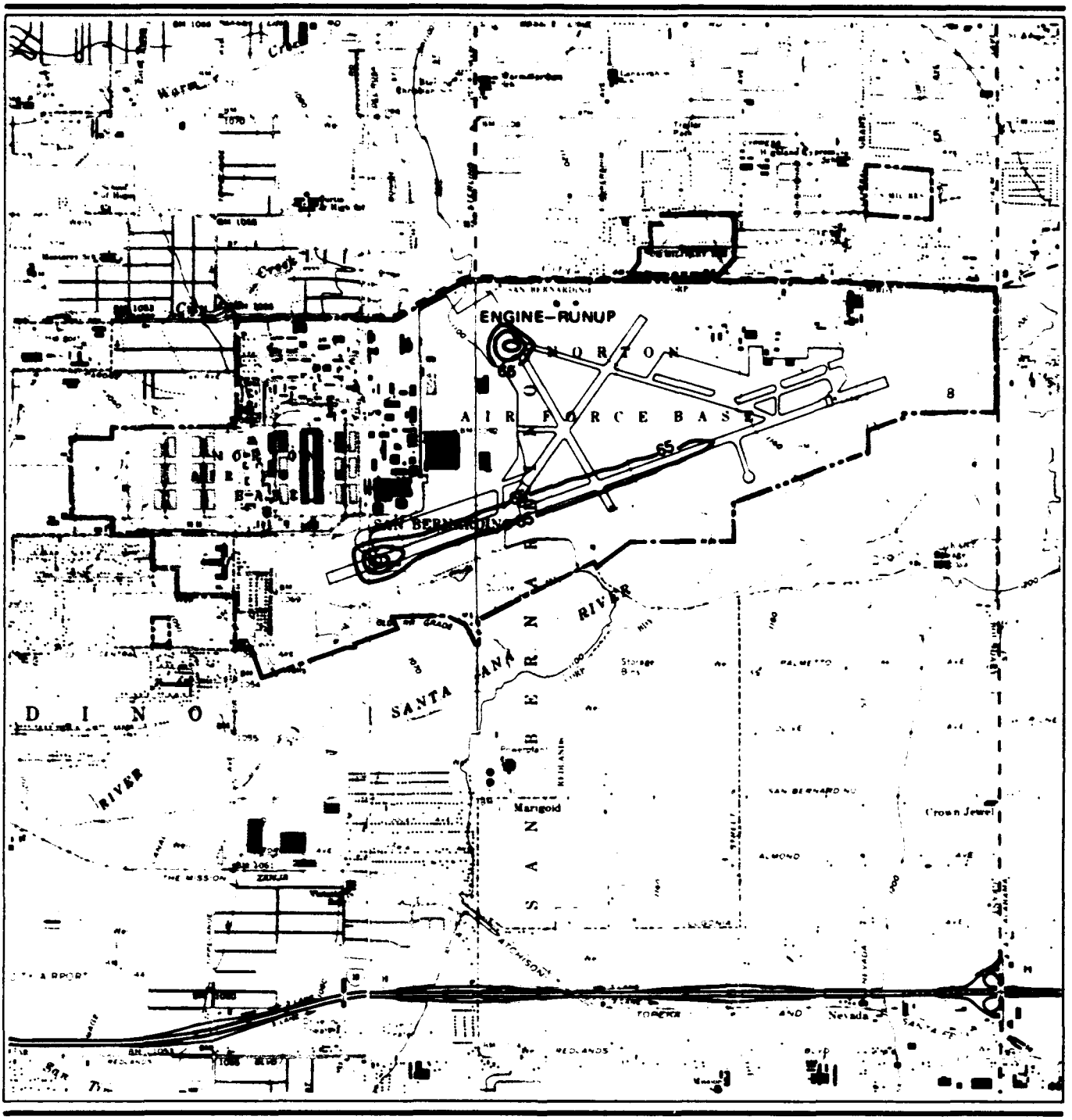
Base Boundary

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

DNL Noise Contours- Aircraft Maintenance Center Alternative (1995)

Figure 4.4-15



EXPLANATION

——— DNL Noise Contours (in 5 dB intervals)

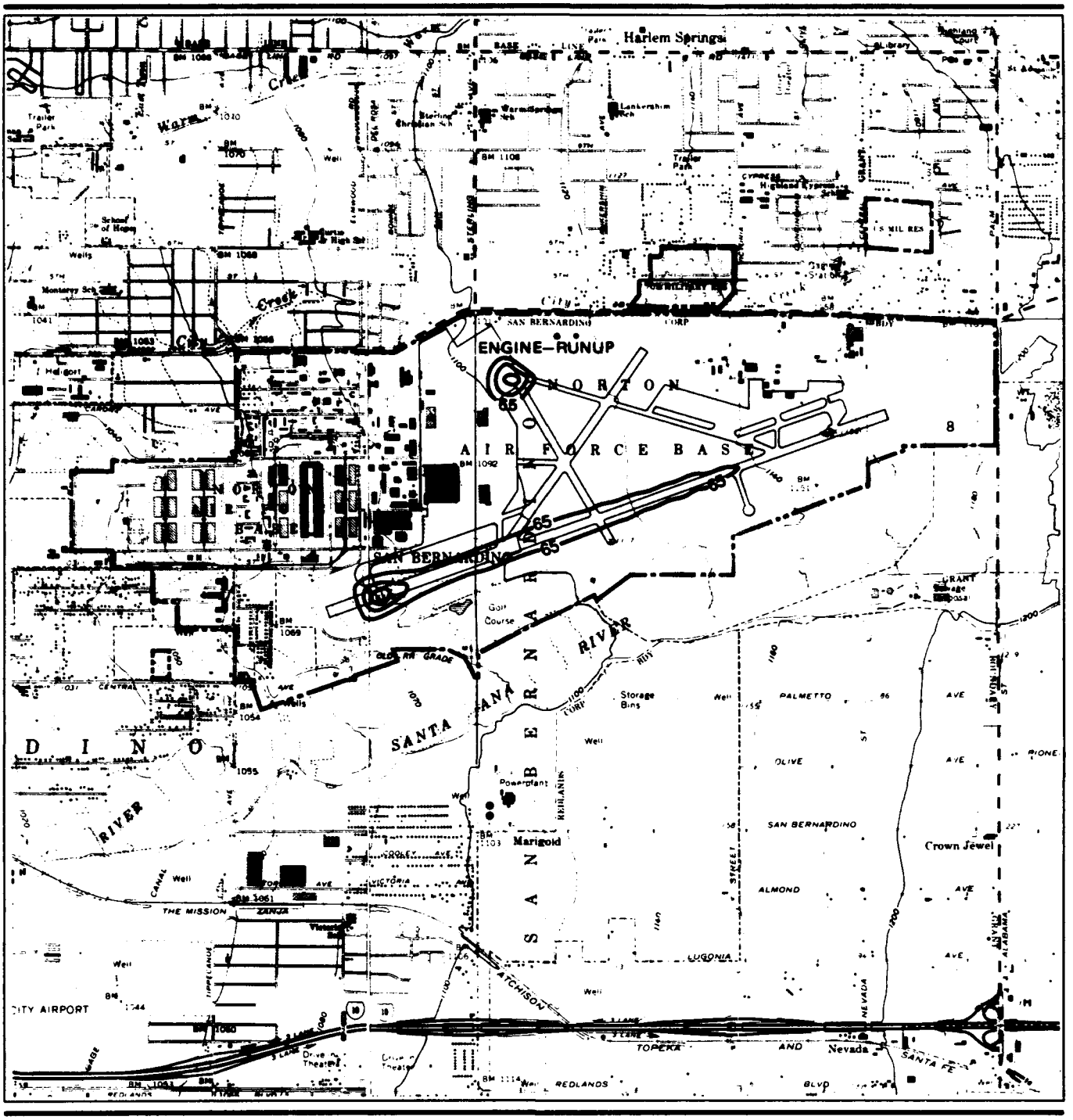
—•—•— Base Boundary

DNL Noise Contours- Aircraft Maintenance Center Alternative (2000)

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

Figure 4.4-16



EXPLANATION

DNL Noise Contours (in 5 dB intervals)

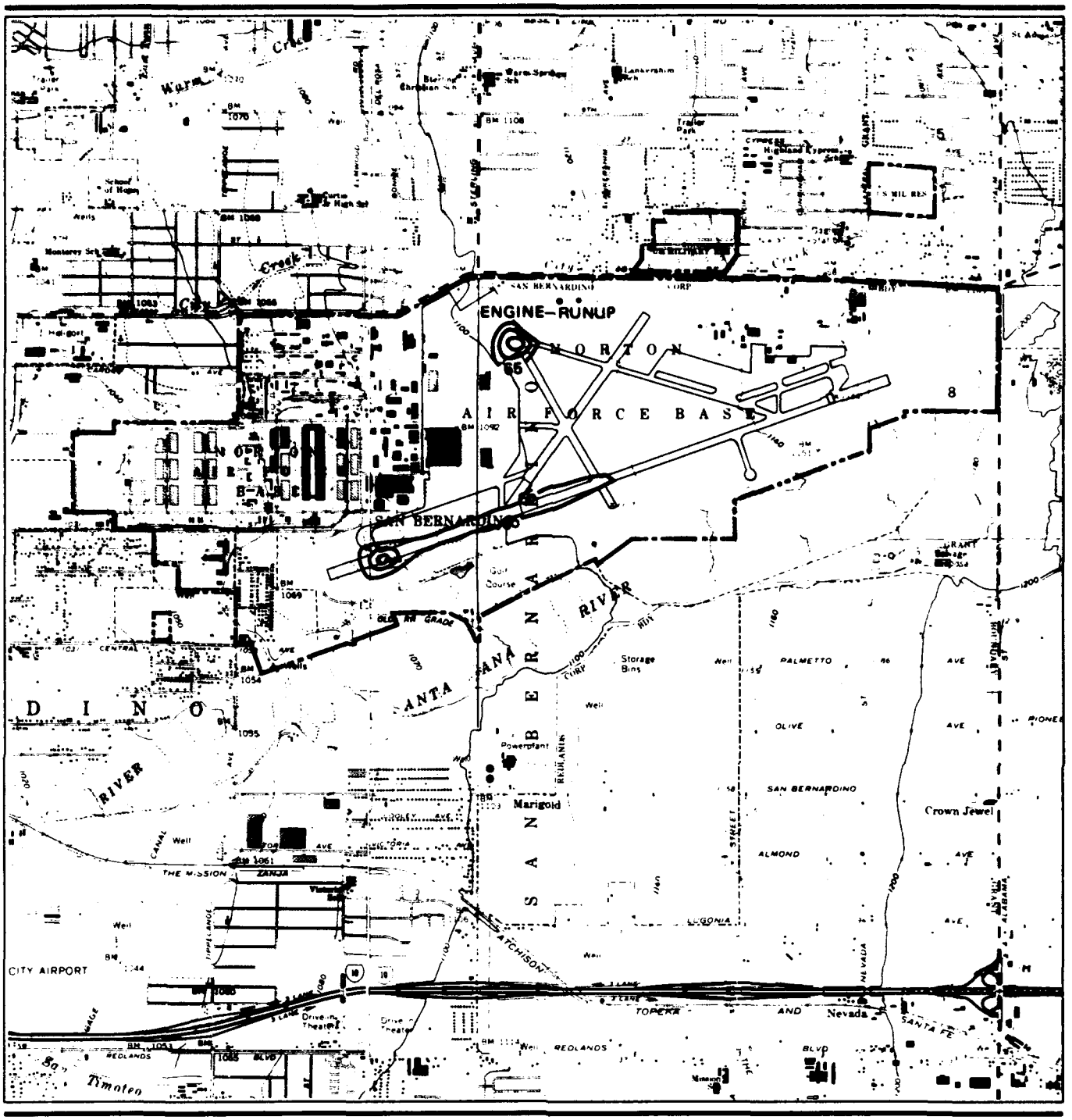
Base Boundary

DNL Noise Contours- Aircraft Maintenance Center Alternative (2005)

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

Figure 4.4-17



EXPLANATION

DNL Noise Contours (in 5 dB intervals)

Base Boundary

DNL Noise Contours-Aircraft Maintenance Center Alternative (2015)

0 750 1500 3000 Feet

Map Source: U.S. Geological Survey, 1980b, 1980c

Figure 4.4-18

Table 4.4-18. Distance to DNL from Roadway Centerline - Aircraft Maintenance Center Alternative

Year	Roadway	Distance (feet)		
		DNL 65dB	DNL 70dB	DNL 75dB
2000	Tippecanoe Ave	140	50	40
	Mill St	80	*	*
	Del Rosa Dr	70	40	*
	3rd St (East)	80	40	*
	3rd St (West)	80	40	*
	Victoria Ave	90	40	*
	5th St (Waterman to Victoria)	130	40	*
	5th St (Victoria to Palm)	90	40	*
	Alabama St	80	40	40
	Palm Ave	80	40	40
	Del Rosa-Tippecanoe Corridor (north half)	70	*	*
	Del Rosa-Tippecanoe Corridor (south half)	100	40	40
2005	Tippecanoe Ave	190	60	40
	Mill St	110	30	*
	Del Rosa Dr	110	40	*
	3rd St (East)	110	40	*
	3rd St (West)	110	40	*
	Victoria Ave	110	40	*
	5th St (Waterman to Victoria)	150	50	*
	5th St (Victoria to Palm)	130	40	*
	Alabama St	100	40	40
	Palm Ave	90	40	40
	Del Rosa-Tippecanoe Corridor (north half)	110	40	*
	Del Rosa-Tippecanoe Corridor (south half)	170	60	40
2015	Tippecanoe Ave	210	70	40
	Mill St	150	50	*
	Del Rosa	120	40	*
	3rd St (East)	120	40	*
	3rd St (West)	130	50	*
	Victoria Ave	130	50	*
	5th St (Waterman to Victoria)	140	60	*
	5th St (Victoria to Palm)	150	50	*
	Alabama St	120	50	40
	Palm Ave	110	50	40
	Del Rosa-Tippecanoe Corridor (north half)	120	50	*
	Del Rosa-Tippecanoe Corridor (south half)	190	70	40

*Contained within roadway.

presented here cannot be completely determined without extensive modeling and noise measurements.

4.4.4.4 Non-Aviation Alternative. For the Non-Aviation Alternative, there would be no airport activity. Surface traffic noise levels are presented in Table 4.4-19. Residential population effects are described under the Proposed Action.

Cumulative Impacts. There would be no cumulative impacts due to aircraft noise with this alternative. The noise generated by surface traffic is included in the basic analysis. By the year 2015, the areas exposed to DNL 65 dB and above due to surface traffic would increase approximately 100 to 200 percent.

Mitigation Measures. Mitigation measures for surface traffic noise for this alternative would be the same as those for the Proposed Action.

4.4.4.5 Other Land Use Concepts. This section discusses the noise effects of each land use concept described in Section 2.3.4. Noise effects due to traffic are estimated using data from Section 4.2.3.5 of this EIS.

U.S. Department of the Interior. The requested recreational facilities, except for the golf course, would not be located within the DNL 65 dB contours for the Proposed Action or alternatives. Portions of the golf course would lie within the DNL 65 dB contours for some years, but not within the DNL 70 dB contours. Based on the available details of this proposal, no noise impacts on the surrounding areas have been identified for any of the alternatives due to these facilities.

U.S. Department of Agriculture. The facilities identified for this proposal are not located within the DNL 65 dB contours for the Proposed Action or alternatives. As such, no noise impacts on them have been identified. From the available details of this reuse, there are estimated to be approximately six emergency and routine operations per day on a yearly average divided among three aircraft (DC-4, S-2F, and C-130). These activities would be concentrated during the fire season (approximately May 15 to November 30) and would increase noise levels for short periods of time. As a yearly average, these operations would cause an increase in area within the noise contours; however, the increase would be along the runway and would entail no additional impacts for the Proposed Action or alternatives.

U.S. Department of Education. The facilities identified for this conveyance would not be located within the DNL 65 dB contours for the Proposed Action or any alternatives. Based on the available details of this proposal, no noise impacts on the surrounding areas have been identified as a result of the classrooms, offices, or aviation training facility.

Table 4.4-19. Distance to DNL from Roadway Centerline - Non-Aviation Alternative

Year	Roadway	Distance (feet) DNL 65dB	DNL 70dB	DNL 75dB
2000	Tippecanoe Ave	150	50	40
	Mill St	80	*	*
	Del Rosa Dr	60	40	*
	3rd St (East)	80	40	*
	3rd St (West)	80	40	*
	Victoria Ave	120	40	*
	5th St (Waterman to Victoria)	170	60	*
	5th St (Victoria to Palm)	100	40	*
	Alabama St	90	40	40
	Palm Ave	90	40	40
	Del Rosa-Tippecanoe Corridor (north half)	100	40	*
	Del Rosa-Tippecanoe Corridor (south half)	120	50	40
2005	Tippecanoe Ave	200	70	40
	Mill St	140	50	*
	Del Rosa Dr	90	40	*
	3rd St (East)	120	40	*
	3rd St (West)	110	50	*
	Victoria Ave	160	50	*
	5th St (Waterman to Victoria)	160	60	*
	5th St (Victoria to Palm)	140	50	*
	Alabama St	120	50	40
	Palm Ave	110	50	40
	Del Rosa-Tippecanoe Corridor (north half)	140	50	*
	Del Rosa-Tippecanoe Corridor (south half)	190	70	40
2015	Tippecanoe Ave	280	90	40
	Mill St	150	50	*
	Del Rosa Dr	120	50	*
	3rd St (East)	150	50	*
	3rd St (West)	140	50	*
	Victoria Ave	210	70	*
	5th St (Waterman to Victoria)	280	100	*
	5th St (Victoria to Palm)	180	70	*
	Alabama St	160	60	40
	Palm Ave	140	60	40
	Del Rosa-Tippecanoe Corridor (north half)	180	60	*
	Del Rosa-Tippecanoe Corridor (south half)	240	90	40

* Contained within roadway.

U.S. Department of Veterans Affairs. The clinic and dormitory areas identified for this proposal would not be located within the 65 DNL dB contours for the Proposed Action or any alternatives. Based on the available details of this proposal, no noise impacts on the surrounding areas have been identified due to the clinic and dormitories.

McKinney Act Housing. The dormitory area identified for this proposal would not be located within the DNL 65 dB contours for the Proposed Action or any alternatives. Based on the available details of this proposal, no noise impacts on the surrounding area have been identified.

U.S. Postal Service. The office and warehouse spaces identified for this proposal would not be located within the DNL 65 dB contours for the Proposed Action or any alternatives. Based on the available details of this proposal, no noise impacts on the surrounding areas have been identified from the office and warehouse spaces.

San Bernardino County. The facilities identified for the work furlough program would not be located within the 65 dB contours for the Proposed Action or any alternatives. Based on the available details of this proposal, no noise impacts on the surrounding areas have been identified from the work furlough program facilities.

Aggregate Mining. Aggregate mining would produce noise from excavation and processing activities. The exact location of processing facilities has not been identified. The DNL 65 dB contour is expected to extend out about 1,300 feet, the DNL 70 dB contour to 700 feet, and the DNL 75 dB to 400 feet around these facilities.

Cumulative Impacts. Cumulative impacts would not be changed as a result of other land use concepts in conjunction with the Proposed Action or alternatives.

Mitigation Measures. No mitigation measures would be required for the other land use concepts, except aggregate mining. Impacts from processing operations could be mitigated by locating facilities so that noise contours would not extend into residential areas, or providing berms or other barriers to block the noise.

4.4.4.6 No-Action Alternative. There would be no airport activity and therefore no aircraft noise for this alternative. Surface traffic noise due to DMT activities would be minimal. Noise levels from surface traffic are presented in Table 4.4-20.

Cumulative Impacts. No cumulative impacts would result from the No-Action Alternative in combination with other projects. Noise from increased

Table 4.4-20. Distance to DNL from Roadway Centerline - No-Action Alternative

Year	Roadway	Distance (feet)		
		DNL 65dB	DNL 70dB	DNL 75dB
2000	Tippecanoe Ave	80	40	40
	Mill St	60	*	*
	Del Rosa Dr	40	40	*
	3rd St (East)	50	40	*
	3rd St (West)	50	40	*
	Victoria Ave	70	40	*
	5th St (Waterman to Victoria)	80	30	*
	5th St (Victoria to Palm)	50	40	*
	Alabama St	70	40	40
	Palm Ave	70	40	40
2005	Tippecanoe Ave	90	40	40
	Mill St	60	*	*
	Del Rosa Dr	40	40	*
	3rd St (East)	50	40	*
	3rd St (West)	50	40	*
	Victoria Ave	70	40	*
	5th St (Waterman to Victoria)	90	30	*
	5th St (Victoria to Palm)	50	40	*
	Alabama St	80	40	40
	Palm Ave	70	40	40
2015	Tippecanoe Ave	100	40	40
	Mill St	80	*	*
	Del Rosa Dr	40	40	*
	3rd St (East)	60	40	*
	3rd St (West)	60	40	*
	Victoria Ave	90	40	*
	5th St (Waterman to Victoria)	120	30	*
	5th St (Victoria to Palm)	70	40	*
	Alabama St	110	50	40
	Palm Ave	90	40	40

* Contained within roadway.

surface traffic due to other projects in the area would occur independent of the disposition of the base.

Mitigation Measures. Noise mitigation measures would not be required under the No-Action Alternative because there are no adverse effects associated with this alternative.

4.4.5 Biological Resources

The Proposed Action and reuse alternatives (except for the No-Action Alternative) could potentially affect biological resources through alteration or loss of vegetation and wildlife habitat. Past development of the base has altered many of the habitats from their natural condition; however, the federally and state-listed (endangered) Santa Ana River woolly-star occurs on Norton AFB and could be affected by several of the alternatives.

Assumptions used in the impact analysis for the Proposed Action and alternatives include:

- All staging and other areas disturbed temporarily by construction would be placed in previously disturbed areas (e.g., paved or cleared areas).
- Mature trees, especially coast live oaks, would be left undisturbed or transplanted to the extent feasible.
- Disturbance could occur anywhere within each land use category, consistent with the proportion estimated for that category, as described in Section 2.2.
- Rubble from demolition of facilities would be recycled or disposed of in an approved off-site disposal facility.
- Development on the base would likely result in further channelization (e.g., concrete lining) of the drainage along the northwest boundary of the base.

4.4.5.1 Proposed Action. Construction and demolition activities associated with converting Norton AFB to a commercial airport would adversely affect biological resources primarily through a permanent loss of vegetation and its associated value as wildlife habitat. The Proposed Action is estimated to result in the disturbance of approximately 829 acres, about half of which would be in previously undeveloped areas. The area disturbed under this alternative is shown in Table 2.2-2. This disturbance is assumed to occur over the 20-year study period in phases as shown in Table 4.4-21.

Vegetation. The Proposed Action would result in a loss of approximately 12 acres of native vegetation, comprised of 5 acres of Riversidean alluvial

Table 4.4-21. Direct Impacts of the Proposed Action on Vegetation

Habitat	Acres of Impact			
	1995-2000	2000-2005	2005-2015	Total
Native Vegetation[a]	11	0	1	12
Weedy Vegetation	125	200	65	390
Previously Disturbed[b]	95	215	117	427
Total	231	415	183	829

Notes: (a) Includes wetland vegetation and Riversidean alluvial fan sage scrub.
(b) Includes landscaped, developed (buildings and pavement), and barren areas.

fan sage scrub, as a result of airfield development, 6 acres of the scrub from golf course development, and less than 1 acre of wetland vegetation due to aviation support. This represents approximately 17 percent of the existing native vegetation on base. About 390 acres of weedy vegetation would also be lost due to development within various land use areas, about 40 percent of the weedy vegetation on base. Much of this has a relatively low biological value due to past disturbances, but some areas have received less disturbance and still contain a number of native species, including the Santa Ana River woolly-star. Potential impacts to this endangered species are discussed in the Threatened and Endangered Species subsection, below. The remainder of the development would be in previously disturbed or landscaped areas.

The 11 acres of Riversidean alluvial fan sage scrub would be lost in the first phase of construction (1995-2000) due to fencing or other minor disturbances in open space areas and to golf course development. The remaining scrub is located along the Santa Ana River in areas that would not be developed. The wetland vegetation could be lost, probably in the third phase of construction (2005-2010), as a result of extending the current concrete channel in the drainage in the northwest portion of the base. No riparian vegetation would be affected (see Sensitive Habitats subsection below).

At least some of the mature coast live oak trees that have been planted along base streets would be lost during OIP construction (some in each phase), although many could be retained for landscaping. Loss of these slow-growing native trees would be an adverse impact. Other non-native species of landscape trees and shrubs would also be lost, but new landscaping would replace these in a relatively short time.

Replacement of vegetation with facilities would result in a long-term loss of some vegetation; however, most of this would be in previously disturbed areas. Maintenance of vegetation near the runway and runoff of pollutants would have minimal effects.

Wildlife

Habitat Alteration and Loss. The long-term loss of vegetation would affect wildlife by removing or altering habitat within the base boundary. This would result in mortality of less mobile species, as well as displacement of mobile species to adjacent areas which are at carrying capacity for the species. In addition to the 390 acres of ruderal vegetation that would be lost, another 110 acres would be fragmented by development in the previously undisturbed airfield and aviation support areas. Species that would be affected include the burrowing owl, greater roadrunner, reptiles, deer mouse, and California ground squirrel. Foraging habitat for birds such as the American kestrel, red-tailed hawk, and turkey vulture would be decreased as well. This would result in a decrease in the local populations of these species.

Effects on populations of most species would be negligible because the area lost would likely be replaced with new landscaping once construction is complete.

Development associated with the Proposed Action would cause an increase in the abundance of species tolerant of such changes such as American crow, house finch, Brewer's blackbird, house sparrow, and non-native rodents. Greater numbers of these species could adversely affect remaining native species through increased competition for limited resources.

Noise/Activity. Construction would temporarily reduce the habitat available for those species adapted to urban settings. Although some of the mature trees would remain, noise and activity associated with construction would temporarily discourage many species from using this habitat while construction activities are ongoing nearby. This includes roosting by black-crowned night herons. Activities and noise associated with demolition and construction would have short-term effects on local wildlife in adjacent areas by causing those intolerant of such disturbances to avoid the area. For example, black-crowned night herons have a traditional winter roost near the northwest end of the runway in an area to be developed for aviation support. This roost is used year after year. The herons could be adversely affected in the short to long term.

Noise, activity, and lighting associated with operation of the airport and industrial/commercial facilities would continue to discourage intolerant species and attract tolerant species, as under preclosure conditions. The type and frequency of noise events, however, would change because the aircraft would be different from preclosure. Most flight activity would occur between 7 a.m. and 10 p.m., and most (95 percent in 1995 decreasing to about 60 percent in 2015) of the flights would involve small, general aviation aircraft that produce much less noise than military jet aircraft. Overall effects on wildlife populations on and adjacent to the base would be

short term because most species would be expected to habituate to the more frequent noise disturbances and return to their former habitats.

Threatened and Endangered Species. Several federal and state-listed endangered or threatened species and species under review for listing (candidate species) are present on or in the vicinity of Norton AFB and could be affected by the Proposed Action. Development of airfield (e.g., antennas, transmissometers, and wind measuring equipment), aviation support, and commercial facilities for private/corporate aviation in the northeast portion of the base and of industrial facilities in the southwest part of the base would reduce habitat for the endangered (state and federal) Santa Ana River woolly-star by approximately 39 acres, or about 15 percent of the habitat on base. Foraging habitat for Swainson's hawk (state listed as threatened) would also be reduced by at least 390 acres, as would habitat for the burrowing owl (state species of special concern) and loggerhead shrike (candidate for federal listing). This represents about 40 percent of that type of habitat on base. Both species are known to be on the base. The loss of 11 acres of Riversidean alluvial fan sage scrub would reduce habitat for the Los Angeles little pocket mouse and San Bernardino Merriam's kangaroo rat (also found on the base) by about 18 percent. Other sensitive species on the base inhabit areas that would not be directly disturbed by the Proposed Action.

Loss of habitat for the Santa Ana River woolly-star, due to the Proposed Action, would constitute an adverse impact on this species. The Air Force has initiated Section 7 consultation with the USFWS in response to potential impact to the species. If portions of the property containing Santa Ana River woolly-star are transferred to another federal agency, that agency would be required to conduct additional consultation under Section 7 of the Endangered Species Act prior to committing resources to any project that could adversely affect the Santa Ana River woolly-star. For properties conveyed to non-federal and private parties, those parties would be subject to the prohibitions listed in Section 9(2)(a) of the Endangered Species Act (16 USC §1538[a][2] and 50 CFR §17.61. For certain activities involving the sale or transport of endangered plant species, non-federal and private parties may be required to obtain a permit under Section 10 of the Endangered Species Act (16 USC §1539) and 50 CFR §§17.62-.63. Non-federal and private parties that engage in activities which may damage, remove, or destroy the Santa Ana River woolly-star after the property is no longer subject to federal jurisdiction must comply with applicable state protection laws for endangered plant species.

Formal consultation under Section 7 involves preparing and submitting a Biological Assessment to the USFWS that describes potential effects of the Proposed Action on federally listed and proposed species and designated and proposed critical habitat. The USFWS reviews the assessment and issues a Biological Opinion for each species. A no-jeopardy opinion results

when the USFWS finds that the project would not jeopardize the continued existence of the species. Restrictions on incidental take and conservation recommendations, however, may be included in the opinion to reduce the potential for impact. If the USFWS finds that the project could jeopardize the continued existence of a species, a jeopardy opinion is rendered. Such an opinion must include reasonable and prudent alternatives to the action that would reduce impacts to listed species to a level that would not jeopardize their continued existence.

Non-federal and private parties who receive base property would be subject to the prohibitions listed in Section 9 of the Endangered Species Act (16 USC §1538) and 50 CFR 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 USC §1539) and 50 CFR 17, Subparts C and D. Reuse of the facilities and resultant potential impacts on state-listed species would be subject to compliance with Article 5 chapter 1.5 Division 3 Section 2090 et seq. of the State of California Fish and Game Code. If CDFG determines state-listed species will be affected by a project, a take permit (defined under Article 5 Chapter 1.5 Division 3 Section 2083 et seq. of the California Fish and Game Code) would be required.

Sensitive Habitats. As noted above, a small amount (11 acres) of Riversidean alluvial fan sage scrub would be directly affected by the Proposed Action. This plant community, listed as very threatened by the California Natural Diversity Database, occurs primarily within the airfield and on undeveloped open land.

The drainage channel wetland along the northwest border of the base would likely be directly or indirectly disturbed during OIP construction. Up to 0.9 acre of wetland could be lost as a result of further channelization for flood control. If the drainage is not channelized, indirect impacts from runoff of sediments and other materials (e.g., trash and equipment fuels or leaked or spilled lubricants) during construction could adversely affect this habitat. Loss or degradation of this wetland would have minor biological impacts because (1) the amount affected is small, (2) wetland vegetation is poorly developed due to regular clearing for flood control, (3) no riparian vegetation occurs on the banks, and (4) it is isolated from other wetland and natural habitat by development (housing to the north and warehousing to the south).

EO 11990, Section 2(1), states that a federal agency, to the extent permitted by law, shall avoid providing assistance for new construction located in wetlands unless the head of the agency concludes that there is no practicable alternative to such construction and that the proposed action includes all practicable measures to minimize harm to wetlands that may

result from such use. In determining whether an alternative is practicable, the agency may consider costs, existing technology, logistics, environmental effects, and the purpose of the project that causes the discharge of fill or dredged material into the affected wetlands.

Filling of wetland areas totaling less than 10 acres does not require an individual COE permit (unless endangered species are present), because this is an activity covered by the existing authorization of a nationwide permit. Filling a wetland between 1 and 10 acres requires prior notification to the COE, whereas filling a wetland under 1 acre does not. However, notification of the COE is recommended even when less than 1 acre is anticipated to be filled.

Riparian woodlands near the golf course clubhouse would not be affected by the proposed recreational development. Other riparian and wetland areas associated with the Santa Ana Wash along the south border of the base also would not be affected.

Cumulative Impacts. The loss of 390 acres of ruderal vegetation and fragmentation of another 110 acres as a result of the Proposed Action would add to losses of similar habitats from other planned projects in the area, such as the Seven Oaks Dam Project and East Valley Corridor developments. These combined cumulative losses would decrease foraging habitat for species such as raptors, fox, and coyote, as well as habitat for their prey (smaller mammals and reptiles) and a variety of songbirds. The Proposed Action would also incrementally add to habitat loss for sensitive species such as the Santa Ana River woolly-star, the Los Angeles little pocket mouse, San Bernardino Merriam's kangaroo rat, burrowing owl, and loggerhead shrike, and to loss of sensitive plant communities such as Riversidean alluvial fan sage scrub. Cumulative impacts of these projects would be adverse.

Mitigation Measures. Because the Santa Ana River woolly-star is federally and state-listed, the CDFG and USFWS may require mitigation or conservation measures to protect the species. Such measures could range from complete avoidance of known habitat areas to preparation and implementation of a Habitat Conservation Plan by the new property owner for habitat that would be lost to any proposed development. For the latter, the project developer would have to consult with the USFWS and CDFG to develop a Habitat Conservation Plan prior to construction. This plan could contain measures to assure avoidance of the habitat or to set aside and enhance compensation habitat. The effectiveness of these measures would depend on the specifics of the conservation plan. Complete avoidance of disturbance to known Santa Ana River woolly-star habitat would be highly effective in preventing impacts to this species.

Wetlands on the base are currently protected under EO 11990 and Section 404 of the Clean Water Act. EO 11990 requires a federal agency to reference in the conveyance of properties containing wetlands to non-federal parties ". . . those uses that are restricted under Federal, State or local wetlands regulations; and . . . attach other appropriate restrictions to the uses of properties by the grantee or purchaser and any successor . . . or withhold such properties from disposal." If such restrictions were included in the land conveyance to future project proponents, who would then be responsible for mitigating any impacts to these habitats, wetlands would be protected from future development that may not come under the jurisdiction of the Clean Water Act. Most subsequent development projects resulting in dredging or placement of fill in wetlands or waters of the United States would be subject to Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act and require a permit from the COE under 14 CCR Section 720. Stream alteration would require a stream permit from CDFG. Potential mitigations 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 COE; (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, treated, or evaporated.

Avoidance of direct and indirect impacts to wetlands would be 100 percent effective in protecting these habitats. Controlling runoff of pollutants to wetlands can be accomplished with existing techniques, but monitoring is necessary to ensure that the measures are employed correctly. Creation of compensation wetland habitat (either on- or off-site) can have varying success in mitigating wetland loss.

4.4.5.2 Airport with Mixed Use Alternative. Construction/demolition and operation activities would affect biological resources as described for the Proposed Action. The area disturbed under this alternative is shown in Table 2.3-2.

Vegetation. The amount of vegetation, particularly landscaping, lost or disturbed in this alternative would be somewhat less than for the Proposed Action because more facilities would be reused rather than demolished and replaced. As with the Proposed Action, approximately 11 acres of alluvial scrub could be lost due to airfield, golf course, and industrial development, and 1 acre of wetland vegetation could be lost to aviation support development during the first phase of development. Development would directly impact 351 acres of weedy vegetation, and the remainder would be

in previously disturbed or landscaped areas. Loss of mature oak trees and other landscape vegetation would be less than for the Proposed Action and would occur primarily in the OIP and warehousing areas during the first two phases of development. The types of vegetation disturbed in each project phase are shown in Table 4.4-22.

Table 4.4-22. Direct Impacts of the Airport with Mixed Use Alternative on Vegetation

Habitat	Acres of Impact			
	1995-2000	2000-2005	2005-2015	Total
Native Vegetation [a]	12	0	0	12
Weedy Vegetation	135	155	61	351
Previously Disturbed [b]	135	110	66	311
Total	282	265	127	674

Note: (a) Includes wetland vegetation and Riversidean alluvial fan sage scrub.
(b) Includes landscaped, developed (buildings and pavement), and barren areas.

Wildlife. Effects of habitat alteration and loss on wildlife would be as described for the Proposed Action, but the area directly affected would be about 40 acres less. The area that would be fragmented, however, would be increased by about 40 acres.

Noise and activity effects would be less than for the Proposed Action because of less construction and greater reuse of existing buildings. Airport operation would have about the same level of effect on wildlife as described for the Proposed Action.

Threatened and Endangered Species. Impacts on listed and other sensitive species would be as described for the Proposed Action.

Sensitive Habitats. Impacts would be as described for the Proposed Action.

Cumulative Impacts. Cumulative impacts would be as described for the Proposed Action, but the Norton AFB reuse would contribute slightly less loss of vegetation and wildlife habitat.

Mitigation Measures. Mitigation measures would be the same as described for the Proposed Action.

4.4.5.3 Aircraft Maintenance Center Alternative. Demolition, construction, and operations activities for aviation, industrial, commercial, and residential development would affect biological resources as described for the Proposed Action. Aggregate mining would result in vegetation and habitat loss, noise

disturbance, and a permanent alteration of habitat, including loss of habitat for the Santa Ana River woolly-star. The area to be disturbed is indicated in Table 2.3-6.

Vegetation. The total amount of vegetation lost or disturbed under this alternative would be slightly less than for the Proposed Action. A total of about 40 acres of alluvial scrub and 7 acres of wetland vegetation could be lost due to aggregate mining and warehouse development, respectively. This represents about 66 percent of the native vegetation on base. The loss of native vegetation would be adverse because these plant communities are of limited distribution. In addition, approximately 434 acres of weedy vegetation would be directly affected by development within various land use areas, which is about 45 percent of that type of vegetation on base. The remainder of the development would be in previously disturbed or landscaped areas. The disturbance would be spread over three phases, as described in Table 4.4-23.

Table 4.4-23. Direct Impacts of the Aircraft Maintenance Center Alternative on Vegetation

Habitat	Acres of Impact			
	1995-2000	2000-2005	2005-2015	Total
Native Vegetation [a]	12	0	35	47
Weedy Vegetation	163	133	138	434
Previously Disturbed [b]	131	143	50	324
Total	306	276	223	805

Notes: (a) Includes wetland vegetation and Riversidean alluvial fan sage scrub.
(b) Includes landscaped, developed (buildings and pavement), and barren areas.

Eleven acres of alluvial scrub could be lost due to aggregate mining (5 acres) and industrial development (6 acres) in the first phase of development. One acre of wetland vegetation in the drainage channel could also be lost due to warehouse development in the first phase. Another 29 acres of scrub would be lost between 2005 and 2015 due to mining. This includes 8 acres in the northeast part of the base and 21 acres in the Santa Ana Wash. In addition, 6 acres of wetland and riparian vegetation would be lost to mining in the Santa Ana Wash. Loss of mature oak trees due to OIP and warehouse development would be less than for the Proposed Action and would occur primarily in the first two development phases.

Wildlife

Habitat Alteration and Loss. Effects of habitat alteration and loss of wildlife for most of the base would be as described for the Proposed Action, but the area directly affected would be about 79 acres more. About 47 acres of

habitat lost would be relatively undisturbed native vegetation that has a much higher value to wildlife than weedy vegetation. Aggregate mining in the Santa Ana Wash would result in the loss of approximately 20 acres of habitat for the San Bernardino Merriam's kangaroo rat, burrowing owl, and various species of reptiles, small mammals, and birds.

Noise/Activity. Noise and activity effects in the western part of the base would be as described for the Airport with Mixed Use Alternative. Airport operation would have less noise effects on wildlife than any of the other aviation alternatives because of the reduced flight activity and associated noise. In the areas to be mined, however, noise effects would be greater and could affect species in the Santa Ana Wash by causing them to avoid the area for the duration of the disturbance. Use of settling ponds for aggregate processing may attract water-associated birds, particularly ducks that like to rest on still waters, providing a temporary habitat. The potential hazard of such birds to aircraft safety could be reduced by various methods to discourage the birds from using the ponds. Impacts of these methods on bird populations, however, would be minimal.

Threatened and Endangered Species. Listed and candidate species that could be affected by this alternative include the Santa Ana River woolly-star, Los Angeles little pocket mouse, San Bernardino Merriam's kangaroo rat, loggerhead shrike, Swainson's hawk, greenest tiger beetle, San Diego horned lizard, orange-throated whiptail, and slender-horned spineflower. Approximately 111 acres of habitat for the Santa Ana River woolly-star would be lost during aggregate mining, 21 acres of which would be in the wash. An additional 22 acres would be lost due to golf course and industrial development. This represents almost half of the habitat on base. Developments would affect 473 acres of foraging habitat for Swainson's hawks and year-round habitat for the burrowing owl and loggerhead shrike. This is 47 percent of the available habitat on base. Loss of scrub habitat (40 acres) would affect the Los Angeles little pocket mouse and San Bernardino Merriam's kangaroo rat. This would be 63 percent of the available habitat on base. Twenty-one of the 40 acres are in the Santa Ana Wash.

Under general state or private lands, the protection of endangered species is delegated to the USFWS and the CDFG. In addition to the NEPA and CEQA, these agencies follow specific codes and regulations that delineate the respective agency's responsibility for natural resources in their jurisdiction. The codes and regulations include specific policies on fines and permits for the take of protected plants and animals. Take of the Santa Ana River woolly star requires permitting in compliance with Section 2081 of the California Fish and Game Code and Sections 7, 9, and 10 of the Endangered Species Act. These regulations afford protection to threatened and endangered plants and animals outside of federal lands.

Sensitive Habitats. Aggregate mining would result in the loss of 8 acres of Riversidean alluvial fan sage scrub between the years 2005 and 2015. Combined with the 5 acres lost in undeveloped open area during the first phase of airfield construction and the 6 acres lost to golf course development as described in the Proposed Action, this would bring the total to 19 acres lost. In addition, 21 acres of scrub in the Santa Ana Wash would be lost due to mining. One acre of wetland in the drainage ditch would be lost as described in the Proposed Action with another 6 acres of wetland and riparian habitat lost in the Santa Ana Wash to mining along the low-flow channel. This channel would need to be relocated during the mining operations to allow storm flows to pass, and the new channel would then develop wetland and riparian vegetation over time, thereby eventually replacing the loss.

Cumulative Impacts. Cumulative impacts would be as described for the Proposed Action, but a slightly greater habitat loss for vegetation, wildlife, and sensitive species would occur as a result of this alternative.

Mitigation Measures. Measures described for the Proposed Action would also apply to this alternative. Some aggregate mining impacts would be unavoidable. Mitigation measures would be needed to offset the temporary loss of wetland and riparian habitat along the Santa Ana River channel. Consultation with USFWS and CDFG would be required and an Habitat Conservation Plan would probably be required for aggregate mining impacts to threatened and endangered species.

As a mitigation, the Air Force could require the project proponent to conduct mining operations in a manner that would avoid or minimize impacts to the wetlands' quality or ability to survive. The technological or economic feasibility of conducting aggregate mining operations in this manner will depend on feasibility studies and actual mining plans submitted by the proponent. Additionally, the proponent may offer to compensate for any lost wetlands by restoring or creating similar quality wetlands on property reclaimed after completion of mining operations. Under Section 4 of EO 11990, the Air Force has the authority to attach appropriate land use restrictions in conveyance documents pertaining to leased or disposed wetlands property. These restrictions could require the property recipient to accomplish feasibility studies and mitigations necessary to offset or minimize wetland losses.

4.4.5.4 Non-Aviation Alternative. Construction and demolition activities associated with the Non-Aviation Alternative, particularly residential development, would result in a greater loss of vegetation and wildlife habitat than for the Proposed Action. Habitat for the Santa Ana River woolly-star and other sensitive species would be included in this loss. Noise and pollutants from construction would have short-term effects on biological resources, while effects of increased human population and runoff of

pollutants from developed areas would be long term. Disturbance during the 20-year study period is shown in Table 2.3-10.

Vegetation. Demolition of existing airfield and related facilities and construction of new commercial/industrial facilities and residential units would result in a loss of 21 acres of native vegetation, or about 30 percent of the native vegetation on base, and 901 acres of weedy vegetation or 95 percent of the available weedy vegetation on base. The remainder of the development would be in previously disturbed or landscaped areas. Disturbance by phases is shown in Table 4.4-24.

Table 4.4-24. Direct Impacts of the Non-Aviation Alternative on Vegetation

Habitat	Acres of Impact			
	1995-2000	2000-2005	2005-2015	Total
Native Vegetation [a]	20	0	1	21
Weedy Vegetation	315	295	290	900
Previously Disturbed [b]	163	209	294	666
Total	498	504	585	1,587

Notes: (a) Includes wetland vegetation and Riversidean alluvial fan sage scrub.
(b) Includes landscaped, developed (buildings and pavement), and barren areas.

Riversidean alluvial fan sage scrub would be lost in the first phase of residential development. One acre of wetland would be affected somewhat in each phase due to warehouse development. Impacts on mature trees and other landscape vegetation would be similar in type and amount as described for the Airport with Mixed Use Alternative. Development of residential units adjacent to the Santa Ana River would increase indirect impacts of human activity on native vegetation associated with the river, as discussed below under Sensitive Habitats.

Wildlife. Impacts of habitat alteration and loss on wildlife would be as described for the Proposed Action but greater in extent because approximately 900 acres of weedy vegetation habitat would be lost. Construction noise and activity would have short-term impacts on wildlife, while secondary effects resulting from an increase in the human population adjacent to the river would be long term. Secondary effects on wildlife include predation by domestic cats and dogs, capture and handling by humans (particularly of lizards and snakes), and use of off-road vehicles and mountain bikes.

Threatened and Endangered Species. Habitats of threatened and endangered species that would be affected by this alternative include the

loss of 172 acres of woolly-star habitat; 913 acres of foraging area for Swainson's hawk, burrowing owl, and loggerhead shrike; and 20 acres of scrub habitat for the Los Angeles little pocket mouse and San Bernardino Merriam's kangaroo rat due to residential development. This represents about 67 percent of the woolly-star habitat on base; 90 percent of the foraging area for Swainson's hawk, burrowing owl, and loggerhead shrike; and 31 percent of the Los Angeles little pocket mouse and San Bernardino Merriam's kangaroo rat habitat on base. Increasing the human population adjacent to habitat for sensitive species would result in secondary effects to these species, as well as to greenest tiger beetle, San Diego horned lizard, orange-throated whiptail, and slender-horned spineflower.

Sensitive Habitats. Impacts on wetlands and Riversidean alluvial fan sage scrub would be the same as described for the Proposed Action, except 9 acres more of scrub would be lost.

Cumulative Impacts. Cumulative impacts would be as described for the Proposed Action, but a greater habitat loss for vegetation, wildlife, and sensitive species would occur as a result of this alternative.

Mitigation Measures. Measures described for the Proposed Action would also apply to this alternative.

4.4.5.5 Other Land Use Concepts. Impacts of each land use concept on biological resources are evaluated on an overlay on the existing land use plans for each alternative and would be additive to impacts already described for those alternatives.

U.S. Department of Interior. This conveyance would result in additional impacts to biological resources if trails or other facilities were constructed in the open area east of the golf course.

U.S. Department of Agriculture. Impacts to biological resources would be negligible because construction would be minimal or in areas of previously disturbed habitat.

U.S. Department of Veterans Affairs. No impacts to biological resources would result from the transfer of the clinic because new construction, if any, would be limited to minor renovation that would not affect any habitats.

U.S. Department of Education. Impacts to biological resources are expected to be negligible because existing facilities would be used.

McKinney Act Housing. This proposal would result in no impacts to biological resources because renovations would be minor and in previously disturbed habitats.

U.S. Postal Service. Because this reuse would not involve new construction, no impacts to biological resources are anticipated.

San Bernardino County. No impacts to biological resources would result from this action because new construction would be limited to minor renovation in previously disturbed areas.

Aggregate Mining. An aggregate mining use in combination with the Proposed Action would affect 247 acres at the eastern end of the base and the area southeast of the runway, including about 27 acres of the Santa Ana Wash. Most of this area to be mined contains weedy vegetation (208 acres); the remainder consists of Riversidean alluvial fan sage scrub (21 acres in the river and 8 acres in the airfield), riparian and wetland vegetation (6 acres in the river), and disturbed area (4 acres in the airfield). Mining would increase the loss of weedy vegetation by about 191 acres. The loss of Riversidean alluvial fan sage scrub would be increased by 29 acres, and another 6 acres of wetland/riparian vegetation would be lost. The losses of native vegetation would be adverse because these plant communities are of limited distribution.

Aggregate mining would increase the loss of wildlife habitat by about 226 acres, with about 29 acres of this being relatively undisturbed native vegetation that has a much higher value to wildlife than weedy vegetation. Noise associated with aggregate mining would add to that from other activities and could adversely affect some species of animals inhabiting the river wash adjacent to the base by causing them to avoid the area for the duration of the disturbance. Use of settling ponds for aggregate processing may attract water-associated birds, particularly ducks that like to rest on still waters, by providing a temporary habitat. Since these would be located near the end of the runway, various methods to discourage the birds from using the ponds would likely be employed. Impacts of these methods on bird populations, however, would be minimal. Impacts on wildlife due to aggregate mining are also described in the Aircraft Maintenance Center Alternative.

Aggregate mining would increase habitat loss for the endangered Santa Ana River woolly-star by 215 acres and for the candidate Los Angeles little pocket mouse and San Bernardino Merriam's kangaroo rat by 29 acres (21 acres for all three in the river wash). Foraging habitat for Swainson's hawk (state listed as threatened), the loggerhead shrike (candidate for federal listing), and nesting habitat for the burrowing owl (state species of special concern) would be reduced by 220 acres. Additional species that could be adversely affected by mining in the river wash include the greenest tiger beetle, San Diego horned lizard, orange-throated whiptail, and slender-horned spineflower.

Aggregate mining in the Santa Ana Wash would remove about 6 acres of wetland and associated riparian habitat along the low-flow channel. Impacts to this sensitive habitat would be as described for the Aircraft Maintenance Center Alternative.

In combination with the Airport with Mixed Use Alternative, the impacts of aggregate mining would be the same as those described in combination with the Proposed Action. An aggregate mining land use is already included in the Aircraft Maintenance Center Alternative. With the Non-Aviation Alternative, the mining would result in loss of 25 additional acres of native vegetation (including Riversidean alluvial fan sage scrub and wetland vegetation) and 17 additional acres of weedy vegetation. Approximately 36 additional acres of woolly-star habitat, 17 additional acres of foraging area for Swainson's hawk and habitat for the burrowing owl and loggerhead shrike, and 29 additional acres of habitat for the Los Angeles little pocket mouse and San Bernardino Merriam's kangaroo rat would be lost, compared to the Non-Aviation Alternative without mining. Mining in the river wash would result in a loss of 21 acres of potential habitat for the slender-horned spineflower, greenest tiger beetle, San Diego horned lizard, and orange-throated whiptail. Impacts from noise and mining activity would be similar to those described for mining in combination with the Proposed Action.

Cumulative Impacts. Cumulative impacts with other land use concepts would be as described for the Proposed Action and alternatives. Aggregate mining in conjunction with reuse plans would increase the loss of vegetation and wildlife habitat, especially those associated with the Santa Ana Wash.

Mitigation Measures. Mitigation measures described for the Proposed Action could apply to other land use concepts. Mitigation measures would be needed to offset the temporary loss of wetland and riparian habitat along the Santa Ana River channel if aggregate mining were conducted in the Santa Ana Wash.

4.4.5.6 No-Action Alternative. Maintenance of the base under the DMT would have beneficial effects on biological resources. A reduction in human activity and a cessation of aircraft flights would reduce disturbance (particularly by noise) to wildlife on and in the vicinity of the base. Habitat quality for many native wildlife species would improve if mowing of nonlandscaped areas were terminated, thereby allowing vegetation to grow to its natural height. Native scrub may eventually recolonize the area. It is assumed that irrigation in the officer housing area to be retained by the Air Force would continue, thereby providing water to the small wetland in the drainage ditch south of the housing area.

Cumulative Impacts. The No-Action Alternative would not add to cumulative impacts on biological resources in the area.

Mitigation Measures. No mitigation measures would be required.

4.4.6 Cultural Resources

Consultation, as required by Section 106 of the NHPA, has been completed with the SHPO concerning the disposal and reuse of Norton AFB. Concurrence was reached between the SHPO and the Air Force on the determination that no historic properties existed within the boundaries of Norton AFB (letter dated April 13, 1992).

The architectural inventory and evaluation of Norton AFB is complete, and AMC Headquarters (LEV) forwarded the Historic American Buildings Survey/Historic American Engineering Record inventory cards to the COE Construction Engineering Research Laboratory. The California SHPO has concurred in the Tetra Tech (1991) findings that the Norton World War II structures are not eligible for the *National Register*.

4.4.6.1 Proposed Action. Because there are no significant historic properties or paleontological resources on base, reuse activities will not affect cultural 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.

Under the Proposed Action, all buildings constructed prior to 1980 would be demolished, modified, or retrofitted. Since these have been determined not eligible for the *National Register*, these impacts will not be adverse.

Secondary impacts from the Proposed Action on off-base areas include those caused by road improvements (upgrading of Mill, Third, and Fifth streets) and new construction resulting from regional population growth. These activities have a potential for adversely affecting cultural resources. CEQA provisions for the consideration of cultural resources prior to any ground disturbance would apply to these projects.

Noise impacts to historic buildings off base are expected to be insignificant. The noisiest aircraft in the Proposed Action would be the 727-200. To be affected structurally by subsonic vibrations caused by this aircraft, a building would have to be located within 150 feet of the aircraft (or within 50 feet of the runway pavement) and the noise would have to reach a level of 120 dB. No buildings exist within 50 feet of the runway.

Cumulative Impacts. No cumulative impacts are anticipated in association with the implementation of the Proposed Action.

Mitigation Measures. Cultural resource investigations would be required under CEQA for projects on off-base areas. Secondary impacts could thus be eliminated or reduced to a non-adverse level.

4.4.6.2 Airport with Mixed Use Alternative. This alternative is similar to the Proposed Action, but emphasizes greater reuse of existing facilities. Impacts to cultural resources would be identical to those discussed for the Proposed Action.

Cumulative Impacts. No cumulative impacts are anticipated in association with the implementation of the Airport with Mixed Use Alternative.

Mitigation Measures. Appropriate mitigation measures are the same as those outlined for the Proposed Action.

4.4.6.3 Aircraft Maintenance Center Alternative. Potential impacts to cultural resources would be identical to those for the Proposed Action.

Cumulative Impacts. No cumulative impacts are anticipated in association with the implementation of this alternative.

Mitigation Measures. Appropriate mitigation measures are the same as those outlined for the Proposed Action.

4.4.6.4 Non-Aviation Alternative. Impacts to cultural resources would be the same as for the Proposed Action.

Cumulative Impacts. No cumulative impacts are anticipated in association with the implementation of the Non-Aviation Alternative.

Mitigation Measures. Appropriate mitigation measures are the same as those outlined for the Proposed Action.

4.4.6.5 Other Land Use Concepts. None of the proposed plans identified as other land use concepts would have an impact on cultural resources.

4.4.6.6 No-Action Alternative. Since there are no significant cultural resources on base, there would be no adverse effect resulting from implementation of the No-Action Alternative.

Cumulative Impacts. No cumulative impacts are anticipated in association with the No-Action Alternative.

Mitigation Measures. No mitigation measures would be required under this alternative.

4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that 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).

Reuse activities at Norton AFB would result in irretrievable commitment of fossil fuels and construction materials under any alternative. Increased water consumption should not cause any irretrievable commitments, as long as safe yield levels are maintained and alternate sources are used to supplement local groundwater resources. Impacts on the endangered Santa Ana River woolly-star could be irreversible if they adversely affect that species' existence. Mining in the Santa Ana Wash could result in irreversible impacts to both the endangered Santa Ana River woolly-star and the candidate Los Angeles pocket mouse.

4.6 RELATIONSHIP BETWEEN SHORT-TERM USE AND LONG-TERM PRODUCTIVITY OF THE ENVIRONMENT

Short-term use of the biophysical components of the human environment include direct construction-related disturbances and direct impacts associated with an increase in population and activity. Long-term productivity of the environment is assessed in terms of impacts that would extend beyond the 20-year analysis period and include permanent resource loss.

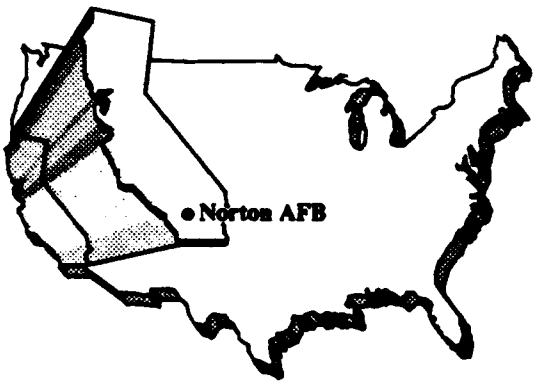
Construction activities would result in short-term use of construction materials (including natural materials used in construction), increased water consumption, and an increase in fuel consumed by construction vehicles and equipment. This would reduce the long-term availability of these resources, particularly nonrenewable resources, to a minor degree. In addition, construction would result in short-term adverse impacts on local air quality, soil, vegetation, and wildlife habitat. With the exception of the vegetation and habitat loss, most of these impacts are mitigable or reversible, and the impacts would subside after construction is complete. Loss of native vegetation, in particular, is difficult to replace, even if the disturbance is temporary. Mitigation measures, such as replanting vegetation, could be implemented to reduce the overall impacts to these resources in the long term. Aggregate mining in the Santa Ana Wash could have short-term impacts on the river channel, bank erosion, and downstream sedimentation. Adequate regulatory controls exist to preclude the short-term use from adversely affecting the long-term viability of the river or the flood zone.

Reuse of Norton AFB in itself provides an opportunity for recycling, extending, and enhancing the productivity of base resources. The Proposed Action and alternatives would provide a productive use of the property expected to endure into the long term. Because Norton AFB is already

substantially developed, redevelopment proposals involving built-up areas would not adversely affect the long-term productivity of those lands. Undeveloped portions of the base have potential for long-term productivity as habitat for a variety of species. This productivity could be lost as a result of the Proposed Action and alternatives. Loss of wetland areas could have long-term consequences if the habitat is not replaced.

Short-term mining of aggregate resources on base under the Aircraft Maintenance Center Alternative or as an independent land use overlay would eliminate the long-term availability of those resources. Conversely, developing over deposits of aggregate resources would result in a long-term, and potentially permanent, loss of those resources for extraction, particularly under the Non-Aviation Alternative. Aggregate mining is primarily an economic resource, however, and the effects would be more than offset by the economic benefits of redevelopment of Norton AFB. The IRP could have an impact on the long-term accessibility of aggregate resources underlying the old landfill site. Constraints on the redevelopment capability of IRP sites such as the landfill could also limit the long-term productivity of the affected land, depending on the remedial action selected.

Redevelopment of Norton AFB could also indirectly affect the long-term ability of resources in the region, including land, water, utilities, and earth resources, to sustain the population growth. To the extent that reuse of the base would be growth inducing and increase population in-migration, it could affect the long-term absorption capacity of the region. However, the growth-inducing impact of base redevelopment would be modest in comparison with other factors influencing the region's growth. For example, by the year 2015, the Proposed Action is projected to increase the population of the San Bernardino-Riverside county region by about 1.3 percent. SCAG has projected a 54-percent increase in the population of the two-county region by the year 2010 (SCAG, 1989). At that time, the Proposed Action's influence would be about 1.2 percent. These figures indicate that the Proposed Action and any of the alternatives would fit within the planned long-term absorption capacity of the region's resources.



CHAPTER 5
CONSULTATION AND COORDINATION

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

Federal Aviation Administration
Environmental Protection Agency
National Solid Waste Management Association
United States Air Force, March AFB
United States Air Force, Norton AFB
United States Army Corps of Engineers
United States Department of Agriculture, Soil Conservation Service
United States Bureau of Mines
United States Department of Education
United States Department of the Interior, National Park Service
United States Department of Justice, Federal Bureau of Prisons
United States Department of Transportation
United States Department of Veterans Affairs
United States Fish and Wildlife Service
United States Postal Service

STATE AGENCIES

California Department of Airports
California Department of Fish and Game
California Department of Forestry and Fire Protection
California Department of Health and Safety, Public Water Supply
California Department of Health Services
California Department of Parks and Recreation
California Department of Transportation (Caltrans)
California Department of Water Resources
California Division of Mines and Geology
California Environmental Protection Agency
California Native American Heritage Commission
California State University, Planning Department
State Office of Historic Preservation, San Bernardino Information Center

LOCAL/REGIONAL AGENCIES

City of Colton
City of Highland
City of Loma Linda
City of Redlands
City of Redlands Water Department
City of San Bernardino
City of San Bernardino Fire Department
City of San Bernardino Planning Department
City of San Bernardino Public Works Department
City of San Bernardino Water Department Water Reclamation Plant
East Valley Water District
Inland Empire Economic Council
Inland Valley Development Agency
Redlands Municipal Airport
Rialto Municipal Airport
Riverside Municipal Airport
San Bernardino Associated Governments
San Bernardino County
San Bernardino County Air Pollution Control District
San Bernardino County Department of Environmental Health Services
San Bernardino County Regional Parks Department
San Bernardino County Solid Waste Planning and Recycling
San Bernardino Valley Municipal Water District
Southern California Association of Governments

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Southern California Edison Company
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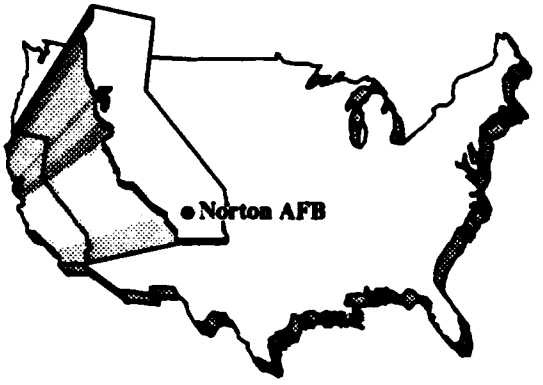

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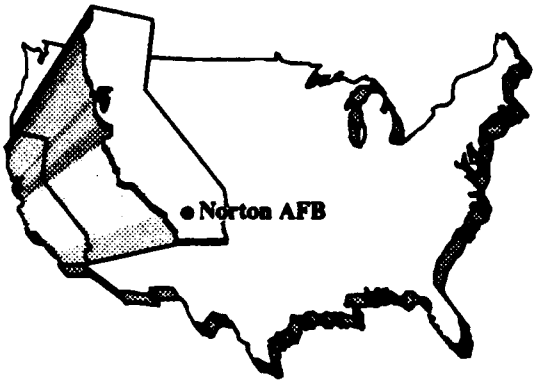

CHAPTER 7
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7.0 REFERENCES

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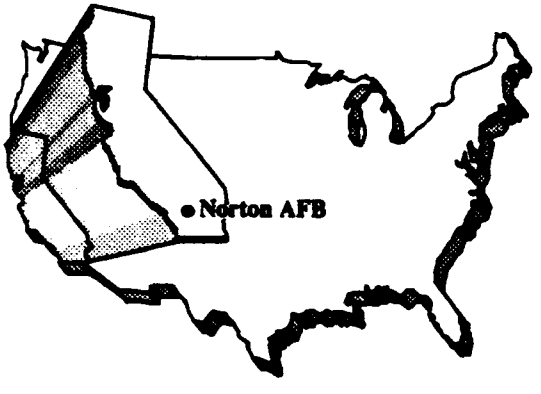

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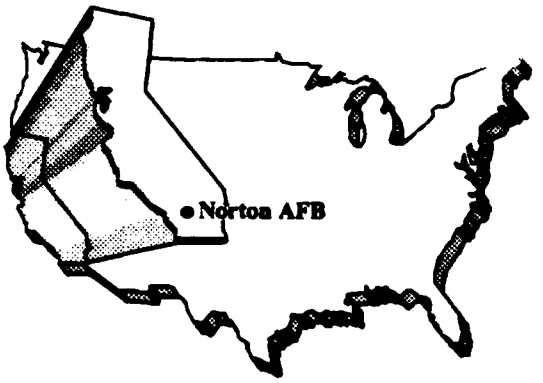
8.0 INDEX



CHAPTER 9
PUBLIC COMMENTS AND RESPONSES

9.0 PUBLIC COMMENTS AND RESPONSES

INTRODUCTION

As mandated by NEPA and CEQ Regulations, the Air Force has provided the opportunity for public participation in the environmental impact analysis process for the Disposal and Reuse of Norton AFB by:

- Conducting a public hearing in San Bernardino, California, on February 12, 1992, at which the Air Force presented the findings of the DEIS and invited public comments.
- Making the DEIS available for pubic review and comment from January to March 1992.

ORGANIZATION

This chapter includes all comments received orally at the public hearing and in writing during the review period and responds to the substantive issues raised in those comments. Several of the comments received were similar in nature or concerned similar issues. These comments have been consolidated so they could be addressed in a single, comprehensive response.

The chapter is organized into the following sections:

- This introduction, which describes the process, organization, and approach used in addressing public comments
- A compilation of the consolidated comments and responses
- An index of commentors
- A transcript of the public hearing
- Photocopies of all written comments received.

The transcript and each written correspondence have been furnished with document numbers. Within each document, individual comments have been given a subnumber. Comment 6-8, for example, refers to document 6, comment number 8. Comments that simply state a fact or an opinion, while appreciated, are not given a comment number nor provided a specific response. They are included as part of the record for the EIS, however, and will be considered in the Air Force's decision-making.

The index lists the name and title/agency of each commentor and provides the identifying document number. The document numbers and individual comment numbers are noted on the copies of the public hearing transcript and the written correspondence at the end of this chapter. Below each comment number is another reference number. The eighth comment in document 6, for example, shows number 12.1. This second number refers to the consolidated response that addresses the issue raised by that particular comment.

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 and 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 Impacts

Responses within each topic are numbered sequentially. For example, responses addressing utilities issues are numbered 9.1, 9.2, etc. Thus, comment 6-8 refers to response 12.1 because it addresses a Water Resources issue.

The consolidated responses are provided in the section immediately following this introduction. Prior to each response is a summary of the comment(s) addressed by the response. At the end of the comment summary is a series of numbers in parentheses (e.g., 6-8, 11-13, 15-6, 15-22). Those numbers refer to the specific comments consolidated in that response. Comment summary 12.1, for example, refers back to comment 6-8.

This chapter is designed to address comments concerning impacts on the physical and natural environment considered in the DEIS. Some 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, 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 these

issues is provided in the Socioeconomic Impact Analysis Study (SIAS), a separate public document that will also support the base reuse decision-making process.

Comments received on the draft SIAS are included in the correspondence at the end of this chapter, but they are not addressed in the consolidated responses if they do not concern topics covered in the DEIS. Those comments have an "S" noted on the photocopy of the correspondence. Although there are no specific responses included in this chapter, those comments have been reviewed by the Air Force, and responses have been provided directly to the commentors.

Comments related to socioeconomic factors that are addressed in this EIS (e.g., population and employment) are included in Section 5.0, Local Community, of the consolidated responses. In some cases, comments on the DEIS include socioeconomic issues outside the scope of the EIS. Those comments are addressed in Section 17.0, Socioeconomic Impacts, of the consolidated responses.

Finally, in addition to the responses included in this chapter, the text of the EIS had been revised as appropriate in response to comments received.

1.0 AIR FORCE POLICY

1.1 Comment: Fourth paragraph of Purpose and Need section on page S-1 is vague relative to the Air Force's statutory obligations under CERCLA and seems to imply that while some actions may be taken by the Air Force, others may be applied to future users. (1-1, 11-14)

Response: The referenced paragraph discusses potential mitigation of environmental impacts due to disposal or reuse of the property, not responsibility for remediation of past hazardous material releases. The Air Force is clearly required under CERCLA to remediate hazardous waste contamination for which it is responsible prior to transfer. A full discussion of the Air Force's responsibilities under CERCLA is included in Section 3.3.3 of the EIS.

1.2 Comment: Congressional bill HR 1450 and parallel state legislation which allows the purchaser of a particular piece of property to be legally free from liability for prior contamination but allows him to purchase the property and negotiate a schedule with the responsible party for cleanup activities should be examined for use in the disposal process. (1-5)

Response: Current legislation does not allow the disposal of contaminated federal properties prior to their remediation. However, these remediation efforts are not expected to delay the transfer of uncontaminated property. It is unknown at this time what impact the passage of additional legislation as described may have.

1.3 Comment: A comprehensive development program with a coordinated and integrated implementation ability is important to reduce the potential for negative impacts. (1-19)

Response: Comment noted.

1.4 Comment: The city of Redlands requests that the EIS be revised and recirculated. (9-1)

Response: The Air Force believes that the DEIS provided adequate information and analysis to allow the affected public to understand the environmental consequences of the Proposed Action and alternatives and to make reasoned and meaningful comments. The comments received on the DEIS have not resulted in substantial changes in the Proposed Action or in significant new circumstances or information concerning environmental impacts. Therefore, the Air Force does not believe the DEIS needs to be recirculated and has no

plans to do so. The Final EIS (FEIS) will be distributed in accordance with CEQ regulations.

1.5 Comment: The Air Force has failed to coordinate the environmental evaluation of the reuse of Norton AFB with local agencies. (9-2)

Response: The DEIS was distributed to all affected local agencies for review and comment. A scoping meeting was held prior to the preparation of the DEIS to invite input from any interested agencies and the general public. During the preparation of the DEIS, state, regional, and local agencies were contacted for information. This includes several offices of the cities of San Bernardino, Highland, and Redlands. Extensive discussions were held with the Inland Valley Development Agency. The Air Force has coordinated with local agencies throughout the environmental analysis process and is continuing to do so.

1.6 Comment: The Air Force should cooperate with any local agency implementing reuse plans for Norton AFB so that one joint environmental document is prepared and circulated. (9-3)

Response: The primary purpose of the EIS is to support Air Force decision-making for the disposal of Norton AFB property. To some extent, this decision is a prerequisite to detailed reuse planning by local agencies, making a single point document impractical. In order to understand the indirect effects of this disposal action, environmental impacts of potential reuses were analyzed. To the extent practicable, the EIS is also intended to serve the needs of federal, state, and local reuse agencies. However, as proposed reuse plans become more definitive after Air Force disposal of the property, the reuser of the property may need to conduct further environmental analyses to comply with state and local laws and regulations.

Due to the nature of the disposal and planning processes, it is not practical to prepare a single environmental document to meet all federal and local needs. For example, reuse plans are not sufficiently defined to conduct a detailed analysis at this time. On the other hand, specific plans cannot be developed until certain decisions are made regarding disposal, a decision the Air Force can only make after completion of the FEIS.

1.7 Comment: The city of Redlands would like to meet with the Air Force to discuss compatibility of airport development at Norton with Redlands' land use plans. (9-5)

Response: The city of Redlands Zoning Office was contacted during the preparation of the DEIS for information on airport-related land use compatibility. Air Force representatives met with city of Redlands officials in response to this issue in April of 1992. In addition, as a member of SBIAA, the city of Redlands has direct input on issues of airport compatibility with its own land use plans.

1.8 Comment: The discussion in Chapter 2 merely describes the proposed land uses and provides a table of environmental impacts rather than presenting the "impacts of the Proposed Action in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public." (40 CFR 1502.14.) (9-6)

Response: Tables 2.6-1 through 2.6-4 were developed precisely to delineate the impacts of the Proposed Action and alternatives in comparative form. For example, Table 2.6-1 compares influencing factors for each of the alternative reuse plans (e.g., number of trips), while Table 2.6-2 compares their impacts in each resource area (e.g., on transportation systems). A matrix format was selected as the clearest method of comparing the alternatives. Because of their utility in conveying this information in a clear and concise manner, these tables were also included in the Summary. The analysis on which the conclusions presented in the tables is based is described in Chapter 4 of the EIS.

1.9 Comment: Chapter 4 fails to provide an analytic basis for comparison and merely makes general comparative statements. As a result of this approach, mitigation measures are often discussed only superficially and contain insufficient detail to allow the decision maker to condition reuse of the base in a manner that will mitigate adverse environmental impacts. (9-7)

Response: Chapter 4 of the EIS contains a description, by resource, of the environmental impacts that would foreseeably result due to the implementation of the Proposed Action or alternatives. The potential impacts are presented in a fashion that allows meaningful, analytic comparisons among the alternatives, to the extent practicable given the conceptual nature of the reuse plans at this point.

Possible mitigations for potential indirect impacts resulting from Air Force disposal of the property are discussed where necessary. Most of these mitigations would be the responsibility of the reuser rather than the Air Force.

1.10 Comment: A representative of the FAA has indicated to the IVDA that the FAA would not approve the establishment of a commercial aviation facility serving enplaned passengers at Norton AFB. Therefore, the EIS deprives the decision maker and the public of an in-depth analysis of a more feasible alternative by concentrating the analysis on an alternative that will not be approved. (9-9)

Response: The FAA and the IVDA have indicated to the Air Force that a commercial airport with enplaned passengers is an acceptable alternative. In addition, the Air Force has evaluated a range of alternatives, on an equal basis, in the EIS. This range includes the Aircraft Maintenance Center Alternative, which provides a general aviation airport with no commercial passenger service.

1.11 Comment: The EIS does not include any discussion of "areas of controversy" or "issues to be resolved" concerning this project. These discussions are required by 40 CFR § 1502.12. (9-12)

Response: The Air Force is confident that this EIS meets all requirements of CEQ regulations in implementing NEPA. Known areas of controversy or issues to be resolved, if any, are generally included within the discussions of each alternative within the summary. For example, it is noted that some of the land uses under the reuse alternatives are inconsistent with the city of San Bernardino's proposed zoning for the base property.

1.12 Comment: Tables 1.5-1 and 1.5-2 fail to address compliance with the CEQA as a requirement before a reuse plan may be approved or implemented by California state or local agencies. (9-13)

Response: Table 1.5-1 (now Table 1.7-1) has been updated to include reference to CEQA. Table 1.5-2 (now Table 1.7-2) is provided in accordance with 40 CFR 1502.25(b) and, as such, lists only federal permits, licenses, or other entitlements.

1.13 Comment: It is not appropriate to prepare a separate EA regarding the inclusion of BMO or the existing Officer and NCO Military Family Housing units as a part of the reuse plan. The EIS should analyze the impacts of all proposed uses of Norton AFB as part of one comprehensive document. (9-14)

Response: The retention of portions of Norton AFB for BMO and military family housing is not a reuse issue. It is part of the decision on closure of the base and was addressed in the FEIS for the closure of Norton AFB. The consolidation of the organization's facilities is on a portion of the Air Force property to be retained and therefore is not a part of the disposal (or subsequent reuse) action analyzed in this EIS.

1.14 Comment: Chapter 3 of the EIS contains far too much information, much of which, such as the discussion of the runway equipment, is not relevant to the environmental impacts of the Proposed Action and alternatives. As a result, important aspects of the existing environment such as biological resources and water supply conditions become almost impossible to discern. (9-25)

Response: Chapter 3 contains discussions of the affected environment by resource area to the extent necessary to understand the effects of the alternatives. Information such as that related to the runway was provided to give the reader a clear understanding of the current conditions in relation to potential future developments.

1.15 Comment: EPA recommends site- and project-specific environmental analyses and documentation be considered for future redevelopment actions. (11-34)

Response: To the extent practicable, the EIS is intended to serve the needs of federal, state, and local reuse agencies. However, as proposed reuse plans become more definitive after Air Force disposal of the property, the reuser of the property may need to conduct further environmental analyses to comply with state and local laws and regulations.

1.16 Comment: The EIS should include detailed discussion of mitigation measures that demonstrate that the measures will be reasonably effective; describe the schedule, funding, and responsible parties; and demonstrate enforceability of mitigation implementation. (11-37, 11-44, 11-45)

Response: It is important to reemphasize that the actual Air Force action is disposal of the property, not reuse. Impacts and potential mitigation measures associated with proposed reuse alternatives have been identified as a foreseeable consequence of that action. The actual implementation, including defining project details, scheduling, and funding of these measures will be the responsibility of the reuse proponent, and is beyond the Air Force's scope of analysis. Until such details are developed and a specific proposal is made, it is not possible to define more specific mitigation measures.

Various regulatory agencies have the responsibility of enforcing certain mitigation measures (e.g., hazardous waste practices, air quality controls, etc.). These agencies are listed in Table 1.7-1, which cites applicable statutes and regulations. It should be noted that adequate regulatory authorities are in place to ensure enforcement.

1.17 Comment: The commentor recommends that the Air Force include extensive water conservation requirements in the terms and conditions under which the base property is conveyed to future users. (11-51)

Response: Including such provisions in the terms of conveyance would not be practical or appropriate. The Air Force has neither the authority nor the ability to enforce such terms. The Air Force can only encourage reuse proponents and local agencies to impose conservation measures.

1.18 Comment: The EIS does not demonstrate that the Proposed Action is the least environmentally damaging (to special aquatic habitat), practicable alternative for base reuse, as required under EPA guidelines published pursuant to Section 404(b)(1) of the Clean Water Act. Many of the reuse alternatives are multi-purpose projects. Alternatives for each project purpose should be evaluated to determine if the proposed composite action is the least environmentally damaging, practicable alternative for all project purposes. Portions of the composite alternatives could be modified to reduce or avoid potential impacts to wetlands. (11-54)

Response: Section 404 (b)(1) of the Clean Water Act requires that the COE exercise its permitting authority by applying guidelines developed by the U.S. EPA. The U.S. EPA's guidelines establish environmental criteria for evaluating Section 404 permit applications.

A key provision of the U.S. EPA's guidelines is the prohibition against discharge of fill or dredged material into special aquatic areas (which include wetlands) if there is a less environmentally damaging alternative to the proposed discharge.

The Air Force is not applying for a Section 404 permit or evaluating a Section 404 permit application. The Air Force is disposing of property and is required by NEPA to evaluate the indirect environmental effects of this action. These environmental effects directly result from the property recipients' reuse of the disposed property. To analyze these potential effects, the Air Force has elected to try to anticipate what the reuses might entail, predict what environmental effects would foreseeably result from these projected reuses for 20 years after disposal, and make necessary assumptions to fill any data gaps.

During the Air Force's analyses of foreseeable effects caused by potential reuses, two primary wetland areas on the base were identified as potential impact areas. One wetland area, comprising just under 1 acre of drainage ditch wetlands, could be affected by concrete lining and extension of the drainage ditch for flood control purposes. The other wetland area comprises 6 acres in the Santa Ana Wash and could be affected by aggregate mining operations. All of the major alternatives, including an "Other Land Use Concept", addressed potential reuses that would be expected to adversely affect one, or both, of the previously described wetland areas due to flood control plans or plans for aggregate mining operations.

Since the Air Force is not seeking a Section 404 permit or evaluating a permit application, it is not required to comply with Section 404(b)(1) guidelines. However, the Air Force must comply with EO 11990. EO 11990, Section 2(1) states that federal agencies shall not provide assistance for new construction in wetlands unless: (1) there is no practicable alternative to such construction and (2) the proposed project or activity includes all practicable measures to minimize harm to wetlands that may result from the activity.

Text changes have been made to the EIS to address the Air Force's responsibilities under EO 11990, Section 2(1), regarding potential reuse construction in the two primary wetland areas.

1.19 Comment: The Air Force should place conditions on the property conveyance to promote conservation, pollution prevention, waste minimization, recycling,

and preservation of biodiversity. These principles should be included as part of the purpose and need for the action. (11-59)

Response: The decision regarding disposal of Norton AFB property will need to weigh and balance a number of considerations, including environmental impacts, economic issues, costs to taxpayers, and jurisdictional authorities. As Section 1.1 of the EIS indicates, however, the purpose of the federal action is to dispose of the property. The Air Force will be making a decision on method of disposal, but it will not actually be selecting a reuse alternative. The demolition, construction, etc., associated with reuse are a reasonably foreseeable consequence of disposal but they are not in themselves part of the federal (Air Force) action. Once the property has been transferred or conveyed to a new owner, the Air Force will have neither the authority nor the means for enforcing conditions such as those suggested. Consequently, the Air Force can only encourage reuse proponents and local agencies to implement the suggested measures.

1.20 Comment: The commentor recommends including preclosure statistics along side closure statistics in the alternative descriptions. (11-61)

Response: The baseline used for analysis in the EIS is the Norton AFB at closure. Where necessary, preclosure information has been provided in Chapter 3.0 for context. However, it would be confusing and misleading to include this preclosure information within the description of alternatives in Chapter 2.0.

1.21 Comment: Will the Ballistic Missile Organization (BMO) really need to expand to the north of Mill Street and if so, what mitigation will be proposed for closing Mill Street? (12-2)

Response: Facilities north of Mill Street have been reserved for BMO for a relocation of functions from elsewhere on the installation. No mitigation measures will be necessary as there are no plans to close Mill Street.

1.22 Comment: The status of BMO activities is in a state of flux with indications that it may depart after base closure. (13-4)

Response: The Air Force has no plans for BMO to leave the Norton AFB area.

1.23 Comment: The EIS should specify that the reuse of the base requires the preparation of a separate Environmental Impact Report. (14-1)

Response: The EIS indicates that follow-on environmental analysis by the reuse proponent may be required by the CEQA. The Air Force does not have the authority to make this a requirement of reuse.

1.24 Comment: Why is this EIS not being processed in accordance with the CEQA since the proposed project is a plan prepared by the IVDA? Will any additional environmental review be required in accordance with CEQA? (19-1, 19-14)

Response: Federal agencies are not legally required to comply with CEQA in the preparation of environmental planning documents.

If the property is conveyed to IVDA, IVDA would have to fulfill the requirements of CEQA. IVDA may elect to incorporate some of the environmental analyses in the Air Force's EIS to help fulfill IVDA's CEQA obligations.

1.25 Comment: The EIS must consider consistency of the project with all other applicable plans, including the Air Quality Management Plan, Regional Growth Management Plan, Regional Mobility Plan, Local Adopted Congestion Management Program, and any other plans that are applicable to the project. (19-12, 19-20)

Response: The EIS does address consistency with regional and local plans. The analysis considered the best information available at the time and concluded that, because reuse activity emissions were not considered in the development of the current AQMP, those emissions would not be consistent with the plan and would therefore have to be mitigated and fully offset in order to avoid interference with the plan's attainment goals. Consistency with the Regional Growth Management Plan is addressed in Section 4.2.2 of the EIS, which also addresses consistency with local plans. TDM measures are discussed in Section 4.2.3 of the EIS as possible mitigation measures for transportation impacts. At the time of analysis the Draft Congestion Management Plan was still under development and not available for analysis. However, the text in Section 4.2.3.1 has been modified to include the Congestion Management Plan. State and local agencies responsible for management of land were provided copies of the DEIS for review.

1.26 Comment: Future EIR's prepared by local jurisdictions should discuss any inconsistencies between the proposed project and applicable general plans and regional plans including; the Regional Housing Needs Assessment, the Regional Mobility Plan, Growth Management Plan, and AQMP which are all included in the State Implementation Plan. (20-1)

Response: Comment noted.

2.0 PURPOSE AND NEED FOR ACTION

2.1 Comment: The EIS should provide rationale for the need and demand associated with the proposed alternatives. (11-35)

Response: Section 1.1 discusses the general need for reuse and the purpose of the Proposed Action. The other alternatives were designed primarily to enable the EIS to report a range of potential uses and their environmental consequences.

3.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

3.1 Comment: The preferred development approach is the Proposed Action, the other alternatives do not offer the same advantages in terms of organizational structure and competitiveness in today's market. (1-17, 1-31, 1-36, 1-38, 1-40)

Response: Comment noted.

3.2 Comment: The marketability of the base area will be greatly diminished by too great a reliance on out-dated facilities. The reuse potential of existing facilities can only be established with a comprehensive facilities inventory and market analysis. (1-20, 1-37, 13-5, 13-11)

Response: Comment noted.

3.3 Comment: The EIS is deficient in analyzing the cost of attempting to reuse existing facilities. (1-21)

Response: The purpose of the EIS is to evaluate environmental impacts due to disposal of property. Standard renovation, demolition and construction costs were assumed in the generation of construction employment impacts. However, these costs were not relevant to the environmental analysis.

3.4 Comment: Opposition to the Non-Aviation Alternative was expressed. (1-41, 7-2)

Response: Comment noted.

3.5 Comment: The U.S. Department of Justice, Federal Bureau of Prisons is formally withdrawing its proposal to site a federal correctional facility at Norton AFB. (2-1)

Response: The document has been revised and all references to siting a correctional facility at Norton AFB have been removed.

3.6 Comment: The DEIS appears to only give secondary consideration to reuse of Norton AFB property by other federal agencies and independent proponents. (5-1, 9-11)

Response: There was no intent to give "secondary" consideration to proposals by other federal agencies. These proposals involved only discrete, often small, parcels of land and could potentially be included as part of either the Proposed Action or any of the alternatives. As such, each proposal is treated as an overlay of the Proposed Action and alternatives. All federal proposals were evaluated, and the treatment in the EIS is sufficient to allow

the requested parcels to be transferred to any or all of the federal agencies identified under "Other Land Use Concepts".

3.7 Comment: Opposition was expressed to the Proposed Action's plan to demolish buildings which could be used to treat veterans, retirees, and military dependents. (5-2)

Response: The Proposed Action was adopted from the redevelopment plans of the IVDA and does include demolition of most of the existing building space in the area of the Norton clinic. Other reuse alternatives have included the retention of the clinic and other facilities to provide a wide range of reuse scenarios for analysis. These alternatives are conceptual in nature, however. The Air Force will decide the actual disposal plan for the base property.

3.8 Comment: The space requested by the Department of Veterans Affairs is in the northwest corner of the base and could be transferred to the Department of Veterans Affairs with little impact on the Proposed Action. (5-3)

Response: Analysis of the VA proposal as an independent land use concept allows it to be considered in combination with the Proposed Action or any of the alternatives.

3.9 Comment: The acquisition of facilities at Norton AFB is vital to the plans developed by the VA and March AFB to jointly utilize the Norton clinic. (5-5)

Response: Comment noted.

3.10 Comment: Support was expressed for aviation uses at Norton AFB. (7-1, 8-1)

Response: Comment noted.

3.11 Comment: Chapter 2 fails to identify environmental impacts in some areas and fails to discuss the significance of environmental impacts in other areas, and the chapter does not include a discussion of appropriate mitigation measures. (9-15)

Response: As required by the CEQ regulations implementing NEPA, Chapter 2 presents the environmental impacts of the Proposed Action and alternatives in comparative form. Environmental impacts and, where possible, their mitigation measures are provided in matrix format in Section 2.6. Impacts to the environment and mitigation measures are discussed in detail in Chapter 4.

3.12 Comment: Aggregate mining is an ancillary use, separately analyzed in the EIS, and should be removed from the Aircraft Maintenance Center Alternative. (9-10)

Response: Under the Aircraft Maintenance Center Alternative, the northeast area of the base was available for development due to the lack of need for a commercial passenger air terminal. Aggregate mining was included in this area in order to provide and analyze full development of the base property. Aggregate mining was also addressed under "Other Land Use Concepts" due to an independent reuse proposal.

3.13 Comment: Section 4.6 should compare the value of the Proposed Action's short-term use with the value of maintaining the long-term productivity of the base and its surroundings. (9-75)

Response: NEPA and CEQ regulations require the EIS to discuss the relationship between short-term use and long-term productivity. Section 4.6 summarizes that relationship. There is no meaningful way to assign a "value" to either. The EIS has been revised to clarify the relationship between short-term use and long-term productivity.

3.14 Comment: The Lockheed Commercial Aircraft Center lease arrangement should be fully described in the EIS. (11-2, 11-22, 11-27, 11-36)

Response: A discussion of the Lockheed lease is included in Section 3.2.2.1. Section 2.3.5 has been added to the EIS to discuss the treatment of interim uses in the analysis.

3.15 Comment: Assumptions regarding projected flight operations of the Proposed Action for air passenger and air cargo service could limit the expansion capabilities of the airport. (12-3)

Response: The flight operations projected for the Proposed Action and alternatives are reasonable expectations based on a study conducted by the IVDA and a separate study conducted by Caltrans.

3.16 Comment: The design of future uses at Norton AFB should enhance the recreational opportunities that exist. (12-12)

Response: Comment noted.

3.17 Comment: The IVDA Redevelopment Plan provides the institutional and financial backing to implement the base reuse plan. The alternatives to the IVDA proposed use should be analyzed within the context of the IVDA Redevelopment Plan to properly reflect the comparative impacts. (13-1)

Response: Alternatives to the Proposed Action were developed in order to analyze a range of potential reuse options. The Air Force has a responsibility to analyze reasonable alternatives to the IVDA plan. The existence of the IVDA does not preclude another party from providing the financial backing to redevelop the Norton AFB property along the lines of one of the alternatives even though at the time of the EIS's preparation such backing was absent.

3.18 Comment: The percentage of buildings to be demolished during the first 10 years of the Proposed Action appears to be in error. The reuse plan targets approximately 85 percent, the EIS states 96 percent. (13-10)

Response: The demolition of 96 percent of building space stated in the EIS refers only to OIP demolition over the 20-year build out period. Figures for existing building square footage in the OIP and area to be demolished have been revised appropriately. Total demolition for the Proposed Action will be approximately 85 percent.

4.0 LAND TRANSFER/DISPOSAL

4.1 Comment: The Air Force needs to determine, as soon as possible, the price of the property, which portions will be conveyed as a public benefit transfer, and which will be going to various government agencies to allow the redevelopment process to begin. (1-7)

Response: The decision as to how the Air Force will dispose of the property can be made only after the environmental impact analysis process has been completed and after consideration of applicable federal property disposal laws.

4.2 Comment: The Air Force should recognize that most of the non-aviation structures on Norton AFB have exceeded their useful life and should be demolished at Air Force cost to ensure a successful reuse effort. (1-39)

Response: No facility demolition is necessary or required for the disposal of property. After disposal, any facility demolition will be the responsibility of the new owner.

4.3 Comment: Airfield and aviation support areas should be combined as one parcel for public benefit transfer. (1-43)

Response: The analysis in the EIS is based on land uses and is not dependent on how parcels are defined. The final decision as to how the Air Force will dispose of Norton AFB property, including public benefit transfers, will be defined in the ROD.

4.4 Comment: The airport property line should be realigned to allow all potential aviation related facilities to be part of the public benefit transfer. (1-44)

Response: The airport boundary in the Airport Plan shown in the EIS was derived from the Airport Master Plan provided by the IVDA.

4.5 Comment: A portion of the northeast corner of the base should be excluded from the aviation public benefit transfer as it is a hazardous material landfill area. (1-45)

Response: The northeast corner of the base, which was used as a landfill, lies within the RPZ of the Airport Plan and thus is included as part of the airfield land use category. As the EIS states, all hazardous waste sites will be appropriately remediated prior to disposal.

4.6 Comment: The city of Highland has reconsidered its request for the 30-acre noncontiguous parcel and now is interested in only 15 acres for park and recreation purposes. The remaining area at the site could be used for residential development which is a more economically viable proposal. (3-1)

Response: The EIS contains adequate information to analyze a split reuse of the area. Currently, the reuse of the 30-acre noncontiguous parcel is addressed as entirely recreational or entirely residential; the new proposal lies within the range of this analysis. See Section 2.3.3.4 for assumptions regarding residential square footage and number of units per acre.

4.7 Comment: The Department of Veterans Affairs should receive priority consideration in the reuse of Norton AFB property. (5-4)

Response: Under current law, other federal agencies and homeless assistance providers must be given priority consideration in the use and acquisition of excess base property. The method of disposal will generally occur in the following order of priority: transfer to another federal agency, donation or public benefit sale to a public body under special statutory authority, negotiated sale to a public body, or sale by public auction and/or sealed bid to a private interest. The disposal plan may vary from this general order depending on the circumstances involved.

4.8 Comment: Major construction in the vicinity of the airfield and the Lockheed Commercial Aircraft Center could disrupt future operations. (7-4)

Response: The Air Force cannot provide assurances to interim users beyond disposal of base property.

4.9 Comment: The transfer of base property should contain restrictions in its use, otherwise the analysis contained in the EIS is meaningless as the base may be occupied by uses that were not analyzed. (9-8, 9-31)

Response: The analysis is appropriate given the nature of the Air Force decision which is disposal. The Proposed Action and alternatives are conceptual in nature and ultimate land uses may be subject to change as specific plans are adopted after transfer. A set of general assumptions was made by the Air Force in order to accomplish the impact analysis and is provided in Chapter 2 and at the beginning of each resource discussed in Chapter 4. The Air Force has made a reasonable attempt to define likely future land uses and is not required for the most part to restrict land use by future owners of the base properties. Local agencies have sufficient powers to enforce wise land usage and environmental compliance.

4.10 Comment: Crash/fire protection equipment should be conveyed to fire departments responsible for these services at the site, including large fire apparatus, safety gear, and proximity suits. (12-20)

Response: The disposal of crash/fire equipment may be the subject of negotiation between local authorities and the Air Force; however, such transfers are beyond the scope of this document. A copy of the letter containing this comment has been provided to Air Force Headquarters for attention.

4.11 Comment: Aggregate mining activities should not be allowed. (14-3)

Response: Comment noted.

4.12 Comment: The San Manuel Band of Mission Indians intends to submit a proposal for the acquisition of the surplus lands at Norton AFB. The proposal should receive the same priority status consideration as state, county, or local government jurisdictions. (17-1)

Response: Under current law, other federal agencies and homeless assistance providers must be given priority consideration in the use and acquisition of excess base property. The method of disposal will generally occur in the following order of priority: transfer to another federal agency, donation or public benefit sale to a public body under special statutory authority, negotiated sale to a public body, or sale by public auction and/or sealed bid to a private interest. The alternatives analyzed in the EIS were selected to provide a broad range of possible developments, with the expectation that any future proposals will fall within the range of potential environmental impacts associated with the reuse of Norton AFB.

5.0 LOCAL COMMUNITY

5.1 Comment: The increased employment due to reuse would improve the job/housing balance in the region rather than create a housing shortage. (1-18)

Response: The EIS does indicate an improved jobs/housing balance in the area due to increased employment (see Sections 4.2.2.1, 4.2.2.2, and 4.2.2.3). It also notes, however, that an improved balance in the San Bernardino area will not solve the regional imbalance as long as there are a disproportionate number of jobs versus housing in the Los Angeles/Orange County area. Employees in that area may still live in the Riverside-San Bernardino area, potentially forcing employees in Riverside-San Bernardino to live even farther inland. Nevertheless, the net effect of increasing employment opportunities in the San Bernardino-Riverside area would have a positive effect on the jobs/housing balance.

5.2 Comment: Section 4.2.1 should address impacts on urban quality and design due to population increases. (9-27)

Response: Urban quality and design issues in terms of land use patterns, development, open space, and aesthetics are discussed in Section 4.2.2. Historic and cultural resources are addressed in Section 4.4.6.

6.0 LAND USE/AESTHETICS

6.1 Comment: What effects of reuse will the residents living near the Ballistic Missile Organization be exposed to? (1-8)

Response: Land use impacts to that area are discussed in Section 4.2.2, and transportation impacts are discussed in Section 4.2.3. Briefly, a small area south of BMO, including six existing residences, could be exposed to noise levels above DNL 65 dB. This noise level would not reach the residential area west of the BMO, however. Traffic on Tippecanoe Avenue and Mill Street would increase, and Mill Street would need to be widened to accommodate the increase.

6.2 Comment: Any change in use or occupancy of buildings at the facility will require that those buildings be brought to today's building and safety code requirements. (1-22, 1-27, 1-28, 1-29, 12-15, 12-17, 12-19)

Response: As the EIS indicates, facilities on base would need to be in compliance with the city of San Bernardino Development Code that stipulates which safety codes are mandatory. It also stipulates conditions for nonconforming structures and uses. The provisions of the Development Code were incorporated in the assumptions underlying the reuse alternatives analyzed in the EIS. The new owners will be responsible for bringing structures into compliance with city code requirements.

6.3 Comment: Aggregate mining should not be allowed within the airfield or aviation support areas as it is not compatible with airport operations. (1-42)

Response: The EIS assumes that aggregate mining, if implemented, would comply with FAA restrictions and regulations.

6.4 Comment: The commentor opposes reuse plans that incorporate noise-sensitive projects situated near the airfield. (7-3)

Response: Comment noted.

6.5 Comment: The EIS only sporadically analyzes the compatibility of the Proposed Action with the land use plans, policies, and controls of surrounding jurisdictions. (9-4, 9-19)

Response: The subsections on Adjacent Land Use and Zoning and Land Use Plans and Regulations in Section 3.2.2.1 discuss regional land use plans and policies of the SCAG; zoning regulations in the cities of San Bernardino, Highland, and Redlands, as well as unincorporated portions of San Bernardino County; and redevelopment projects (including the EVCDS). Section 4.2.2 addresses the consistency of the Proposed Action and alternatives with the plans and regulations of each of those jurisdictions. More emphasis is placed on the General Plan and Development Code of the city of San Bernardino because they will apply directly to development of Norton AFB land after disposal.

6.6 Comment: Figure 3.2-3 should be updated to reflect recent annexations by the city of Redlands. (9-18)

Response: The figure has been updated.

6.7 Comment: The discussion of Lockheed in Section 3.2.2 should be updated to reflect the current lease agreement. (9-19)

Response: The discussion of Lockheed in the EIS has been defined.

6.8 Comment: Why is the eastern portion of the river corridor not classified as being visually sensitive. (9-21)

Response: Only areas on base were categorized with respect to visual sensitivity, because those are the areas that would be altered by the Proposed Action and alternatives. The EIS does acknowledge visual resources off base in Section 3.2.2, as well as provisions in the General Plans of San Bernardino and Redlands addressing visual resources, and discusses the potential for indirect visual impacts from on-base development in Section 4.2.2.

6.9 Comment: The discussion of "on-base" land use impacts does not address the conflict between the proposed uses and the public facilities uses designated for the site in the current City of San Bernardino General Plan and zoning. (9-28, 13-24)

Response: The Public Facility designation in the City of San Bernardino General Plan is clearly related to Norton AFB's use as a military facility and reflects preclosure conditions. The city of San Bernardino has indicated its intent to revise the designation to reflect disposal. Consequently, that designation was not considered relevant to the post-disposal environment.

6.10 Comment: The aesthetic impacts and certain land use conflicts addressed in Section 4.2.2 concerning development along Third Street and the southern boundary of the base property are not addressed by mitigation measures. (9-29)

Response: Most of the aesthetics impacts addressed in the EIS are potentially beneficial and do not require mitigation. Potential adverse impacts to the palm-lined parkway can only be mitigated through avoidance. Impacts on military family housing areas are addressed in the mitigation measures, which recommend landscaping adjacent to residential areas. Impacts to residential areas identified in the EIS would also be reduced by the mitigation measures described, with the exception of potential effects from traffic on Third Street induced by the development of a new passenger terminal and other development. Such impacts could also be reduced by screening, as well as in the design of the circulation roads for the passenger terminal area.

6.11 Comment: The analysis of noise level impacts and land uses appears to compare impacts to a pre-closure baseline, while the majority of the EIS compares impacts to a post-closure baseline. (9-30)

Response: Noise-related land use restrictions are discussed as part of the baseline because they are currently in effect and expected to remain after closure unless and until repealed. Those restrictions are therefore applicable to both preclosure conditions and the post-closure baseline.

6.12 Comment: Section 4.2.2.2 compares the impacts to pre-closure conditions and fails to identify mitigation measures for impacts mentioned in Section 4.2.2.2. (9-32)

Response: See response to previous comment concerning noise-related land use restrictions. Mitigation measures for Section 4.2.2.2 are described at the end of the section. They address the potentially adverse impacts identified for the alternative. In some respects, the Airport with Mixed Use Alternative would have fewer beneficial impacts than the Proposed Action. That should not be interpreted as an adverse impact of the alternative, however.

6.13 Comment: Section 4.2.2.3 fails to identify mitigation measures for impacts associated with aggregate mining, the Santa Ana Wash, and the land uses east of the proposed mining operation. (9-33)

Response: The Mitigation Measures at the end of Section 4.2.2.3 specifically address aggregate mining. In addition, the impact discussion includes references to mitigation measures. The land use east of the on-base area analyzed for mining is also aggregate mining and would not be adversely affected. No mitigation measures were identified in the DEIS for impacts from mining on future recreational use in the Santa Ana Wash. Potential impacts could be avoided by confining mining activity to areas outside the wash and, specifically, north of the levee.

6.14 Comment: The mitigation measures stated in Section 4.2.2.5 for "other land use concepts" should be more specific. (9-34)

Response: Sufficient details on the specific land uses that would be adjacent to each of the other land use concepts are unavailable. Without such details, it cannot be determined whether any mitigation would be needed and, if so, what it would entail. In general, other land use concepts would be subject to the same types of potential incompatibilities identified for the reuse plans, only on a smaller scale, and the same types of mitigation measures would be appropriate.

6.15 Comment: The on-base housing retained for Air Force use does not have a long-term land use planning justification when applied to the alternatives to the Proposed Action. (13-2)

Response: The military family housing was identified to be retained as part of the closure decision for Norton AFB. Retaining this property is not a reuse proposal; the Air Force requires the housing to support its mission. There is a shortage of affordable housing for Air Force personnel stationed in the region.

6.16 Comment: The development or redevelopment of Norton AFB land by private enterprise or public agencies within the IVDA redevelopment area must be consistent with the objectives of the IVDA's Redevelopment Plan. (13-3, 13-7)

Response: If the area is officially designated as a redevelopment district and the Redevelopment Plan is legally adopted by the affected jurisdictions, development of Norton AFB property will have to conform with the provisions of that and all other applicable ordinances. The ultimate redevelopment of Norton AFB property is not under the Air Force's control. The EIS simply examines a range of possibilities to characterize the potential environmental consequences subsequent to disposal.

6.17 Comment: The need for on-base residential development to support the project is not supportable, when the job-related in-migration is estimated to be about 30 percent. (13-12)

Response: Residential land uses were included in some of the alternatives analyzed to provide a range of impact analysis. This is reasonable, given the availability of residential and recreational facilities on base and the general demand for housing in the region. Redevelopment projects, including others in the area (e.g., East Valley Corridor Specific Plan), frequently include a mix of land uses including residential. Among other things, such a mix promotes transportation and air quality goals to reduce commuting distances. This does not preclude the IVDA from developing alternate plans to meet the needs of the community.

6.18 Comment: Mining can cause a visual scarring of the environment. (14-5)

Response: Section 4.2.2.3 of the EIS indicates that aggregate mining has a potential for adverse visual impacts on residential areas.

7.0 TRANSPORTATION

7.1 Comment: Upgrading and reconstruction of roadways would need to be done as the reuse is accomplished, instead of at the ultimate time. The expense would be considerable. (1-13, 16-2)

Response: Upgrades to on-base and off-base roadways were included in the construction assumptions for each alternative.

7.2 Comment: A full traffic impact study is needed to evaluate and mitigate the impacts of each reuse alternative. (6-1)

Response: The EIS evaluates impacts to the extent practicable given the conceptual nature of the reuse alternatives. More detailed studies may be required by reuse proponents once reuse plans have been more thoroughly defined.

7.3 Comment: Alabama Street is currently four lanes and the city of Redlands draft General Plan requires widening of Alabama Street to six lanes. (9-16)

Response: Section 4.2.3.1 has been clarified to include the East Valley Corridor Specific Plan which requires six lanes for Alabama between Palmetto and the Santa Ana Wash.

7.4 Comment: Widening and improvements to Alabama Street should be included as mitigation measures for traffic that would result from the Airport with Mixed Use Alternative. (9-17)

Response: Mitigation measures have been added to Sections 4.2.3.2 and 4.2.3.3.

7.5 Comment: The baseline discussion concerning truck traffic conditions at closure is unclear. (9-22)

Response: Section 3.2.3.1 has been revised to clarify that truck traffic on key local roads in the immediate vicinity of Norton AFB will be reduced from preclosure conditions.

7.6 Comment: The EIS should analyze impacts on intersection capacities. (9-35, 9-39)

Response: The analysis of each roadway segment included consideration of any constraints posed by the intersections along that segment. A separate analysis to determine intersection capacities requires detailed engineering data, which is beyond the scope of this document.

7.7 Comment: Traffic impacts should be analyzed under the standards set forth in local plans, and street improvements should not be recommended if such improvements conflict with local circulation plans. (9-36)

Response: The transportation analysis did use standards in local plans. The improvements recommended have generally already been identified in those plans. Section 4.2.3 has been revised to clarify that traffic impacts requiring street improvements would be implemented consistent with local and regional plans.

7.8 Comment: The EIS cannot reasonably fulfill its function as an environmental analysis document if the analysis of regional transportation impacts concludes that the impacts of the Proposed Action and alternatives on regional transportation facilities are not "substantial," and therefore do not require mitigation, merely because these facilities will operate at level of service "F" without base reuse. (9-37)

Response: The analysis in the EIS is adequate for the nature of the decision which is disposal. Section 4.2.3.1 (Cumulative Impacts and Mitigation Measures) addresses mitigation measures specific to regional impacts on I-10 at the Tippecanoe Interchange identified in the analysis. Mitigation of impacts at the I-215 and Mill Street Interchange have been added to these sections. The contribution from base reuse to these existing problems is not enough to have serious traffic consequences in itself. The cumulative impact of all traffic generations in the region is serious.

7.9 Comment: The analysis of public transportation impacts is not sufficient because the EIS does not support its conclusions regarding impacts. (9-38)

Response: The analysis of reuse alternatives is sufficient for the Air Force decision, which is disposal of the property. Public transportation was not identified as a significant issue.

7.10 Comment: The roadway mitigation measures proposed in Section 4.2.3.1 are not sufficiently specific to fully understand the extent of roadway improvements required. Additional mitigation should be added. (9-40, 9-41, 9-42, 9-43)

Response: The information included in the EIS is sufficient to understand the potential consequences of disposal of base property. Engineering studies will be required to determine how roadway improvements should be specifically implemented. This level of detail is beyond the scope of the EIS. Additional mitigation measures addressing mass transit, ride sharing, and some roadway improvements have been added to the EIS. Not all suggested improvements are required to mitigate impacts attributable to the reuse of Norton AFB.

7.11 Comment: Section 4.2.3.3 fails to address impacts that could be caused by truck traffic from the proposed mining operation. (9-44)

Response: Section 4.2.3.3 has been revised to clarify the impact of trucks on local streets.

7.12 Comment: It appears that the EIS overestimates traffic related to current base uses, and as a result, the baseline traffic volume after base closure is underestimated. (9-45)

Response: The projected 61-percent decrease in traffic along Alabama at base closure incorporates several factors, including decreased traffic due to base closure, increased traffic due to population growth, and changes in the traffic circulation, such as the completion of SR-30. The assumptions used to predict the traffic at base closure were coordinated with the SANBAG.

7.13 Comment: The EIS traffic analysis should include an analysis of the impacts from potential new intersections along Alabama Street, the extension of California Street, and the construction of a new east-west street in the vicinity of the Santa Ana River (9-46).

Response: The transportation analysis was based on data that were made available during scoping and subsequent data collection. These data included local and regional land use and circulation plans that were current and available at the time of analysis. These potential new intersections were not identified in the East Valley Corridor Development Plan.

7.14 Comment: The assumption for roadway segment improvements cited in Section 4.2.3 should be validated with the description of the specific future project or of the specific enforceable mechanism to ensure implementation of these assumptions. (11-46)

Response: The Congestion Management Agency (SANBAG) is preparing a Congestion Management Plan as required by Proposition 111. The roadway improvements identified in Chapter 2 were coordinated with SANBAG.

7.15 Comment: Impacts to businesses and residents as a result of roadway improvements should be addressed in the EIS. (11-47)

Response: Business and residents along roadways identified for improvement would be affected by (1) the change in LOS and (2) construction related to improvements. The change in LOS, both with and without the improvements, is reported in Section 4.2.3. Impacts are not expected from construction because the improvements would be within existing roadway rights-of-way and have already been identified in local plans. There would be a temporary disturbance and inconvenience as with any road improvement undertaken by local municipalities.

7.16 Comment: The use of Transit Oriented Development (TOD) is encouraged for all alternatives to reduce air pollution. In addition, the EIS should evaluate the air quality benefits of modifying or phasing development of the base as a mitigation measure to minimize traffic congestion. (11-48)

Response: This EIS includes various possible mitigation measures and is not meant to preclude other specific mitigations as determined by reuse proponents from being implemented. The reuse plans are not sufficiently detailed at this time to support such an analysis, but this suggestion could be taken into consideration during future planning.

7.17 Comment: The costs and financing of roadway improvements discussed in Chapter 2 are not discussed in the EIS. In addition Tippecanoe roadway improvements are not included in Chapter 2 (12-4, 16-4)

Response: The costs and financing associated with roadway improvements are beyond the scope of this EIS. Improvements to Tippecanoe Avenue are not required for the Proposed Action and alternatives.

7.18 Comment: Relinquished railroad routes included in Figures 3.2-9 and 3.2-10, should be corrected. (12-6, 12-7)

Response: The graphics have been revised in response to the comment.

7.19 Comment: The EIS should address the Draft Congestion Management Plan and the associated project-related impacts to the plan. (14-6)

Response: At the time of analysis, the Draft Congestion Management Plan was still under development and was not available to be included as part of the analysis. The text under Mitigation Measures in Section 4.2.3.1 has been modified to reference the recent draft.

7.20 Comment: Once the specific redevelopment plans are prepared, a detailed traffic study must be prepared to determine all roadway improvements required for redevelopment. Determination of necessary roadway improvements should include involvement with the city of Highland. (14-7)

Response: Comment noted.

8.0 AIRSPACE

No comments were received for this area of concern.

9.0 UTILITIES

9.1 Comment: A comprehensive redevelopment approach (i.e., Specific Plan) will be necessary in terms of planning for and implementing utility system upgrades. In addition, a complete analysis and valuation will be necessary to determine costs and regulatory operational requirements. (1-12, 1-14, 1-34, 1-35, 12-1, 12-5, 16-5)

Response: Local municipalities and purveyors are expected to work with reuse proponents to negotiate future infrastructure improvements.

9.2 Comment: The EIS contains insufficient information to completely analyze the existing fire protection systems and areas, especially as they pertain to water supply and fire code compliance. (1-24, 1-25)

Response: Analysis to the level of detail suggested in this comment is beyond the scope of this EIS. These elements of engineering design will require detailed studies subsequent to disposal in accordance with applicable local ordinances and building codes.

9.3 Comment: Can the water supply system flow the required amounts and durations to meet fire flow requirements and wastewater treatment requirements? (1-26, 1-32, 12-14)

Response: Initial analysis for this EIS indicates that utility systems would be able to meet at least minimum requirements, except as noted in the EIS. Further engineering analysis will be needed subsequent to disposal to more precisely define their capabilities and deficiencies based on future detailed plans.

9.4 Comment: Are the existing hydrants compatible with the surrounding area fire departments and will all existing water and sprinkler systems be full flow tested to show they meet requirements for fire protection? (1-30, 12-16, 12-18)

Response: Local authorities have mutual aid agreements with Norton AFB and are familiar with the base hydrant system and its compatibility with surrounding systems. As facilities are inspected for occupation, after ownership of the property has been conveyed from the Air Force to reuse proponents, flow testing of existing base sprinkler systems will be conducted by local authorities to determine if they meet local codes.

9.5 Comment: The alternatives to the Proposed Action appear too optimistic with regard to existing utility systems serving the development. (1-33)

Response: The EIS makes no assumptions about the acceptability of utility systems existing on base. Whether additional upgrades will be required depends on more specific information about reuse than was available for the EIS.

9.6 Comment: The discussion of wastewater treatment facilities should include the capacity of the facilities and appropriate mitigations. (9-23, 9-47)

Response: The text has been revised to respond to this comment.

9.7 Comment: The EIS fails to discuss the cumulative impacts on wastewater and solid waste resources. (9-48)

Response: The increased demand for wastewater treatment and solid waste resources due to projected population increases was incorporated into the utility demand projections for each alternative as part of the "Post-Closure projection." The project-related demands were added to these purveyors' forecasts in the analysis and are therefore cumulative.

9.8 Comment: Future owners of base property should make on-base wells available to local purveyors. (9-49)

Response: Comment noted.

9.9 Comment: The discussions contained in Section 4.2.4 do not appear to address the conservation potential of mitigation measures for the Proposed Action or any of the alternatives. These measures should be included in the purpose and need discussion as well. (9-50)

Response: The development and implementation of conservation programs which would mitigate reuse impacts would be the responsibility of the reuse proponent. The Air Force has no explicit authority to impose, as a restriction on future land use, a requirement for conservation measures by the reuser of the conveyed military property. Nevertheless, water conservation and recycling and/or reuse of inert demolition wastes are recommended in the discussion of mitigation measures in Section 4.2.4.1.

9.10 Comment: The EIS fails to provide the status of the on-base Industrial Waste Treatment Plant (IWTP) at closure and under the reuse alternatives. (11-25)

Response: Section 3.2.4.2, Wastewater, has been revised to include the base IWTP.

9.11 Comment: Upon base disposal, all solid waste collection will revert to the city of San Bernardino's Public Services Refuse Division. (12-10)

Response: Comment noted.

9.12 Comment: The base closure and subsequent redevelopment will have varied effects on state-mandated solid waste planning and recycling programs. (12-11)

Response: Local municipalities and the reuse proponents are expected to work together to negotiate future infrastructure responsibilities and requirements.

9.13 Comment: The EIS fails to adequately address the size, age, and condition of all infrastructure and utilities and erroneously assumes that utility services and transportation routes will be allowed by the city of San Bernardino to be converted from military to civilian use without substantial upgrades. (13-8)

Response: The level of detail provided in the analysis is sufficient for the Air Force decision which is disposal. The assumptions used in the EIS are based on available information on utility and transportation systems. The EIS acknowledges that some systems may need to be upgraded by the reuse proponents. Whether additional upgrades will be required depends on how reuse plans are implemented. The City of San Bernardino Development Code sets forth standards for new and modified development. Until a Specific Plan or actual proposal is prepared, it is not possible to predict either the circulation pattern or the specific utility system needs of the area.

10.0 HAZARDOUS MATERIALS/WASTE MANAGEMENT

10.1 Comment: Concern was expressed regarding delays in the conveyance of property due to Installation Restoration Program schedules and actions of various federal agencies. (1-2, 11-8, 14-2)

Response: The status and schedule of IRP remedial actions may influence redevelopment and future developers of Norton AFB properties. To assist readers in comprehending the potential for delay from IRP site activities, the FFA schedule has been included in the EIS. The EIS does acknowledge that delays may occur in the disposal of IRP sites. The future developers of Norton 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 remediation and transfer of properties, will make decisions regarding contaminated site access and security as required. In accordance with 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.

10.2 Comment: Concern was expressed regarding responsibility, funding, and schedule of restoration activities. (1-3)

Response: The DMT will oversee all site remedial activities. In fiscal years 1991 and 1992 funds were appropriated by Congress to the Defense Base Closure Account for environmental restoration at closing or closed military facilities. Future funding for remediation will most likely be appropriated through similar authorization acts. The FFA schedule for Norton AFB is included in Section 3.3.3 of the EIS.

10.3 Comment: What are the results of the comprehensive asbestos survey, who will be responsible for demolition and renovation of structures with asbestos containing materials, and what impacts will result from such activity? (1-4, 11-12, 11-13, 12-8)

Response: Results of the asbestos survey of Norton AFB are available for review by appointment through the Norton AFB CARE Office (63AW/CARE Building S2). The Air Force will remove ACM which poses an immediate risk, but not ACM which is adequately protected to preclude fibers from becoming airborne. Prior to conveyance of facilities, information on the locations of all ACM will be provided to the future owner. The future owner

will be responsible for compliance with all applicable asbestos regulations and for considering delay due to abatement operations in their reuse plans.

The asbestos survey results are voluminous and not practical to include in the EIS. They are incorporated in the EIS by reference, as recommended in 40 CFR 1502.21.

10.4 Comment: The recent discovery of phenol treatment problems from the wastewater treatment plant should be included in the EIS as well as possible mitigation measures. (1-6)

Response: The problem was due to a mechanical malfunction, which has since been corrected. The Air Force is in the process of preparing a closure plan for the IWTP.

10.5 Comment: Some underground storage tanks may not be compatible with base reuse. Removal and deactivation could result in a large expenditure for the base reuse developer. (1-15, 16-6)

Response: The Air Force will remove USTs that are not in compliance with current regulations.

10.6 Comment: Will the new owner have the benefit of the waiver from the county of San Bernardino DEHS (expires in 1998) which allows the base to postpone compliance with leak detection, spill and overspill prevention, and cathodic protection? (1-16, 16-7)

Response: All USTs which are not in compliance with current regulations will be removed prior to disposal, so the DEHS waiver will no longer be required.

10.7 Comment: The cost to deal with asbestos removal and other building code rehabilitation activities should be included in the study, including the cost of lost time in reoccupying those facilities. (1-23)

Response: The costs of asbestos removal and code rehabilitation activities will be the responsibility of the new owner once a reuse plan has been determined. Cost of removal is not relevant to the environmental analysis.

10.8 Comment: The EIS contains no evaluation of the significance of impacts on people occupying potential base reuses with regard to storage tanks, asbestos, PCBs, and pesticide usage. (9-51)

Response: The Air Force will remove all USTs not in compliance with current regulations, and there will be no federally regulated PCB-contaminated equipment on base at closure. The Air Force will remove all ACM which poses an immediate threat to human health and safety. Use of pesticides on

Norton AFB is regulated to protect public safety. Given these safeguards, no significant impacts are expected.

10.9 Comment: Sections 4.3.2, 4.3.3, and 4.3.4 appear to analyze hazardous waste management impacts based upon a "pre-closure baseline", contrary to the general approach of the EIS. (9-52)

Response: The analyses in Sections 4.3.2, 4.3.3, and 4.3.4 are consistent with the general approach in the EIS which bases analysis on a closure baseline. For ease of discussion, the impacts expected due to the alternatives are compared to those of the Proposed Action in these sections.

Text changes have been incorporated comparing the Hazardous Waste Management in Section 4.3.4 under the Non-Aviation Alternative to the closure baseline.

10.10 Comment: Section 4.3.3 contains no evaluation of the significance of hazardous waste generation from the proposed aggregate mining operation. (9-53)

Response: The analysis provided is consistent with the general approach of the EIS. This EIS assumes that the aggregate reuse proponent will comply with all applicable hazardous materials and hazardous waste regulations. The types of hazardous waste expected to be generated by aggregate mining would be similar to that generated by other industrial activities discussed. The mining operation is not expected to generate any unique types or quantities of hazardous waste.

10.11 Comment: Section 4.3.5 "other land use concepts" does not address the significance of hazardous materials impacts. (9-54)

Response: Section 4.3.5 has been revised to more completely address the use of hazardous materials from other land use concepts. The EIS describes potential impacts in terms of their context and intensity in Section 4.3.5.

10.12 Comment: The EIS should include more detailed IRP information on the status of site investigation activities, remediation alternatives, results of past and current IRP studies as well as mentioning future/proposed studies. (11-1, 11-23, 11-30, 11-32)

Response: The EIS incorporates sufficient information on the IRP status upon which the decision maker can make a reasonable decision on how to dispose of the property. The known extent of contamination is described in Section 3.3.3 and potential conflicts with proposed future land uses are described in Section 4.3. In addition the quantity of available IRP literature and information is too extensive to include in this EIS. Section 3.3.3 provides the location of the administrative record, and Appendix L provides a list of

IRP documents available for public review that were used in summarizing information within this document.

10.13 Comment: The EIS should document Lockheed's compliance with RCRA requirements, including accurate and current permit numbers. (11-3, 11-11, 11-28)

Response: The SCAQMD and DEHS have recently renewed the permits issued to the Lockheed Commercial Aircraft Center. The new dates of expiration have been incorporated into the EIS.

10.14 Comment: The EIS should include the most recent information regarding the TCE groundwater contamination plume and Air Force plans to address the problem. (11-4, 11-18, 11-26

Response: The delineation of the TCE plume has been updated in the document. Future impact to water resources is unknown at this time but is the subject of ongoing investigations. The results of these investigations will be available to the public through the IRP process.

10.15 Comment: A discussion of risk, based on the decision process of the IRP, should be included in the EIS. (11-7)

Response: Section 4.3.1 provides the reader with an understanding of risk assessment and explains the potential that some IRP sites may not allow certain land uses.

10.16 Comment: The EIS should include comments stating that other aspects of IRP activities, not just remedial design, may restrict future development. (11-9)

Response: The extent of contamination at IRP sites has not yet been delineated. The EIS provides the reader with a summary of IRP sites and discusses some general restrictions or delays to redevelopment in areas adjacent to contaminated sites. This discussion takes into account the time needed for remedial action which includes additional soil and water sampling, limitations on land use to allow monitoring/extraction well usage, etc.

10.17 Comment: The EIS should explain how the Air Force will deal with previously unknown contamination that could be discovered during reuse construction and demolition operations or remediation of existing IRP sites. (11-11, 11-24)

Response: The Air Force will not dispose of properties requiring remediation from federal control prior to satisfaction of CERCLA Section 120(h). Also, properties containing contaminated parcels or adjacent parcels will not be leased if such a lease would interfere with the timeliness or effectiveness of required site remediation or pose an unacceptable risk to human health or the environment. If the Air Force will need easements or access to leased or

conveyed properties, then the appropriate caveats will be included in the disposal or lease documents.

Unknown Air Force-generated contamination discovered during remediation of existing IRP sites or discovered after disposal of property will be properly remediated by the Air Force pursuant to CERCLA 120(h).

10.18 Comment: Table S-2 should be amended to describe the entire central-base area as being impacted by the TCE plume. (11-16)

Response: Table S-2 has been revised to indicate that conveyance of some parcels may be delayed by remedial activities. Ongoing IRP studies are being performed to determine the extent of contamination and remediation alternatives.

10.19 Comment: The EIS should specify which asbestos-containing structures will be demolished by Lockheed or any other interim user and how hazardous waste and materials will be treated and disposed by interim users. (11-17)

Response: The Air Force is not aware of any contemplated demolition by Lockheed or any other interim user. Interim users are expected to manage their hazardous waste and materials according to the same standards as the long-term reuse proponents.

10.20 Comment: The EIS should discuss handling of hazardous wastes during IRP remediation activities, as well as incorporate text discussing the Air Force's commitment to on-site waste treatment. (11-19)

Response: Since the RI/FS is currently under way, it is premature to discuss the handling of wastes generated by IRP remedial actions and to commit to on-site treatment of these wastes, although that treatment is preferable.

10.21 Comment: The EIS should discuss how potential impacts to remediation goals may be affected by the reuse decision. (11-21)

Response: Remediation goals may be affected by reuse decisions, and the converse is also true, i.e., that reuse decisions may be affected by remediation goals. These planning issues will continue to come to the attention of Air Force decision makers, developers, and the public during both the disposal process and the IRP process.

As the IRP progresses, proposed remedial actions and their rationales will be presented to the Air Force decision maker and the public under CERCLA procedures in time to allow consideration of costs, feasibility, and anticipated outcome. The information provided in this EIS includes a 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,

based on the best available information at this time, the EIS provides sufficient data to allow a reasoned understanding of potential delays to redevelopment and environmental effects that may result if one action is pursued over another in the future.

10.22 Comment: A discussion in the EIS needs to be included regarding levels of radon in the groundwater which exceed the Maximum Contamination Level and Air Force plan to remediate this condition. (11-21)

Response: Norton AFB recently concluded a study to determine the source of high concentrations of radionuclides in the local groundwater. The report indicated that these concentrations occur naturally in the area and are not caused by past or present Air Force activities.

10.23 Comment: Revise description of Norton AFB's placement on NPL. Norton AFB was placed on the NPL due to extensive groundwater contamination, not solely on the groundwater contamination in the northeast section of the base. (11-29)

Response: Revisions to text have been incorporated into the document.

10.24 Comment: The EIS should state that the Air Force will comply with SCAQMD Rule 1166 which mandates air monitoring during excavation and to cease operations when contaminated soil is detected. The Air Force must comply with applicable regulations, field sampling, and quality assurance/control protocols. (11-33)

Response: The Air Force does not intend to demolish or renovate any facilities at Norton AFB for the purposes of reuse; therefore, compliance with Rule 1166 will be the responsibility of future owners and should be considered in their reuse plan.

10.25 Comment: Cite regulations regarding PCBs under the Federal Toxic Substance Control Act. (11-60)

Response: Revisions to the text have been incorporated into the document.

10.26 Comment: It is unclear who would be responsible for providing training of emergency staff to support mutual aid agreements. (15-1)

Response: This issue will be the responsibility of each jurisdiction participating in any agreement made after closure of the base.

10.27 Comment: Groundwater contamination has migrated off base toward the city of Riverside's municipal wells. The Air Force can minimize concerns by mitigating all groundwater and soils contamination attributed to past Air Force activities, in the vicinity of Norton AFB. (18-1)

Response: The Air Force has currently installed a pilot pump and treat groundwater treatment system at Norton AFB to remediate the source area TCE groundwater contamination. This system is currently in operation. An RI/FS has been completed at Norton AFB determining the extent of contamination and identifing all necessary remediation activities. The Air Force will retain responsibility for compliance under CERCLA for contamination from past Air Force activities.

10.28 Comment: Quantities of hazardous materials utilized under the Proposed Action may be greater than quantities currently utilized by the Air Force, and managing these materials would be the responsibility of multiple users. (18-2)

Response: Comment noted.

10.29 Comment: The Air Force should immediately delineate and mitigate the base landfill, as it may be used by aggregate mining operations (IRP Site 2). (18-3)

Response: The extent of contamination and boundary delineation for the base landfill, like all IRP sites on base, will be addressed by current remedial activities. Accelerating the delineation and remediation of the base landfill are not necessary at this time, as there has been no decision that the property will be used for aggregate mining.

10.30 Comment: IRP concerns and issues were raised during the scoping process that were determined to be beyond the scope of this EIS. (18-4)

Response: These concerns are most appropriately resolved within the context of the IRP. The IRP is a separate process similar, in many ways, to that followed by this EIS and allows public comment. Figure 3.3-1 provides a summary of the IRP process.

10.31 Comment: Norton AFB should comply with all leak detection, spill and over-spill prevention, and cathodic protection prior to closure, rather than waiting until the DEHS waiver expires. (18-5)

Response: The expense of such an undertaking is unwarranted and not required by law because noncomplying USTs will be removed prior to disposal of base property.

11.0 SOILS AND GEOLOGY

11.1 Comment: The EIS provides no support for its conclusion that the individual and cumulative impacts on aggregate resources will be insubstantial. (9-55)

Response: The impact analysis is based on data provided by the California Division of Mines and Geology and the expected project-related demand. The California Division of Mines and Geology indicated there is approximately a 33-year supply of aggregate resources available in the greater San-Bernardino-Riverside region from existing permitted aggregate operations. These permitted areas represent about 4 percent of the available resources in the region. The project-related and cumulative aggregate demands can be accommodated by these existing permitted aggregate resources and additional potential resources.

11.2 Comment: The mitigation measures concerning liquefaction should require developers to comply with recommendations contained in the required site-specific geotechnical report. (9-56)

Response: The responsibility for adequate and proper geotechnical engineering and building design lies with the future owners of the property and local permitting authorities. At the time of planning for the development of the proposed project, it would be appropriate for the project proponent to coordinate with the appropriate state and local agencies to ensure public safety.

12.0 WATER RESOURCES

12.1 Comment: The EIS should indicate that new development on the base will be subject to potential flooding between 1994 and the completion of the Seven Oaks Dam Project in 1997. After completion, any development may still require a study for flooding. (1-10, 6-5, 6-8, 12-9, 16-1)

Response: The text has been revised to indicate that the base is susceptible to flooding and the reuse proponent may need to perform specific studies to ensure proper construction engineering and design.

12.2 Comment: In order to solve local drainage problems on the base, a comprehensive drainage system will need to be installed during implementation of the selected reuse plan. (1-11, 6-6, 16-2)

Response: The need for, or extent of, new drainage systems can be more accurately determined as the new user develops more specific reuse plans for the base.

12.3 Comment: The redevelopment plan should address flood hazards and consider possible protection measures, and impacts of increased flows created/generated by new development on downstream properties. (6-2, 6-3)

Response: Redevelopment plans, including properly engineered flood control systems, are the responsibility of the reuse proponent and appropriate state and local agencies. The text has been revised to expand the discussion of existing flooding hazards.

12.4 Comment: In Sections 4.4.2.1-4.4.2.4, Surface Water, the term "Storm Sewer" should be changed to "Storm Drain". (6-4)

Response: The text has been revised (see Sections 4.4.2.1 through 4.4.2.4).

12.5 Comment: The EIS should evaluate the significance of stormwater runoff impacts to surface and groundwater resources. (9-57)

Response: The EIS describes potential impacts of storm water runoff in terms of their context and intensity in Section 4.4.2, allowing the reader to reach a conclusion as to significance.

12.6 Comment: It is inappropriate for the EIS to conclude that the Proposed Action and alternatives will not have a major impact on groundwater resources. (9-58)

Response: This statement has been deleted from the document. Section 4.4.2 states that the demand for water will exceed groundwater availability with or with out reuse of Norton AFB. The SBVMWD has been investigating ways to supplement groundwater sources to meet the current and projected water

demand projections. The EIS identifies several potential mitigations for the impacts to water resources.

12.7 Comment: The "assumed" procedures that would be used to mitigate aggregate mining operations should be required as mitigation measures. (9-59)

Response: It is assumed that the aggregate mining activities would be in accordance with applicable local, county, state, and federal standards and permitting requirements (e.g., SMARA of 1975), a function of regulatory agencies outside the Air Force. Since mining cannot occur without these permits, compliance is a reasonable assumption. (8-59)

12.8 Comment: Section 3.4.2.2 states that groundwater contamination including TCE and PCE has been identified on base as well as in areas upgradient to the base. The EIS should also be corrected to state that Norton AFB is the source of the TCE groundwater contamination within the central base area. (11-31)

Response: Text revisions have been made to reflect the comment.

12.9 Comment: Since trichloroethylene groundwater contamination has been discovered on base, the EIS should further discuss the quality of water available for the reuse alternatives on base, including current water quality data for the on-base water wells. (11-49)

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 Norton AFB vicinity is not possible at this time. Sections 3.3 and 3.4.2 provide 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 on groundwater quality from subsequent reuse. In addition, contamination from previous Air Force activities will be mitigated through the IRP in compliance with applicable CERCLA Section 120 requirements. 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.

12.10 Comment: The feasibility and costs (economic and environmental) for supplemental water sources should be included in the EIS. (11-50)

Response: Section 4.4.2 states that the SBVMWD is investigating ways to supplement the groundwater supply to meet current and future water demands. The costs and specific plans associated with the delivery of this supplemental water source are beyond the scope of this EIS. This is an issue that must be worked by the reuse proponent or water purveyor.

13.0 AIR QUALITY

13.1 Comment: Air pollution from existing vehicular traffic is affecting residents nearby the base. (1-9)

Response: Particular problems should be identified to legal agencies for resolution. The CCAA requires severe nonattainment areas such as the SCAB to have no net increase in vehicle emissions after 1997 (Health and Safety Code 40920(a)(2)). The primary control strategies currently being developed and implemented by the state and local air districts to reduce mobile source emissions include measures to reduce tailpipe emissions; the use of clean, less-polluting fuels; and reducing the number and length of vehicle trips. These strategies, in combination with programs such as ride sharing, work week reductions and flextime, parking management, transit improvements, and growth management, are expected to be successful in counteracting the effects of increased traffic from population growth and reuse of Norton AFB.

13.2 Comment: The discussion of construction-related air pollutant emissions does not provide an accurate assessment of the impacts on surrounding communities. The EIS ignores emissions produced by construction equipment and fails to discuss how increased particulates affect surrounding uses. (9-60, 19-2, 19-4, 19-15)

Response: Potential fugitive dust emissions due to construction have been analyzed and incorporated into Section 4.4.3.1 of the EIS. Combustive emissions from construction equipment are included in the overall per-capita emissions estimated from using the AQMP inventory forecasts and projections of future base reuse alternative populations (see Appendix I).

Particulate emissions from construction activities would be limited, by SCAQMD Rule 403, to 50 $\mu g/m^3$ when determined as the difference between upwind and downwind samples collected in high volume samplers at the property line. This limitation would be health protective and would be met by implementing the construction activity mitigation measures presented in Section 4.4.3 of the EIS.

Additional construction phase mitigation measures have been added to Section 4.4.3 of the EIS to identify ways to reduce equipment emissions and particulate emissions.

13.3 Comment: The EIS should evaluate cumulative air quality impacts. The EIS should analyze the collective or combined effect of both the project in question and other nearby projects. (9-61, 19-11, 19-17)

Response: The EIS addresses cumulative effects to air quality. The EIS indicates that, unless the project-related emissions of NOx, ROG, PM_{10}, and CO are mitigated and offset fully, their cumulative impact with emissions from other sources could delay the reaching of attainment of state standards for O_3, CO, and PM_{10} and minimally delay reaching attainment of federal standards for PM_{10} levels for these pollutants. This cumulative impact on air quality in the SCAB would exist under all alternatives except the No-Action Alternative, unless successful mitigation and offsetting occurs. This EIS has been prepared to comply with NEPA which applies to federal actions. The analysis in the EIS indicates the magnitude of the potential problem and provides the Air Force with the information needed to make a decision regarding disposal. In all probability, follow-on environmental analysis will need to be conducted by reuse proponents to comply with CEQA, once development plans have been sufficiently defined to allow a meaningful detailed analysis.

13.4 Comment: No mitigation is suggested in Sections 4.4.3.1, 4.4.3.2, and 4.4.3.3 to address NO_2 concentrations which will exceed one hour and annual standards. (9-62)

Response: Air quality modeling of aircraft operations and vehicle traffic contained in the DEIS indicated that NO_2 standards would be exceeded. However, these results were based on ozone limiting method calculations which assumed that 10 percent of emitted NO_x would be converted to NO_2 while conversion of the remaining 90 percent would be dependent upon ozone background concentrations. This method ignores the fact that conversion would be time dependent and potentially take place many miles from the location of the original emissions. For this FEIS it was therefore determined that it would be more appropriate to evaluate NO_2 impact on a regional basis rather than on a local scale. As shown in Section 4.4.3.1, reuse-related emission increases of NO_2 in the SCAB will not interfere with efforts of the SCAQMD to attain the NO_2 state and federal standards.

13.5 Comment: The EIS should evaluate the significance of the difference between particulate emissions caused by alternatives involving mining operations, and particulate emissions caused by other alternatives. (9-63, 14-4)

Response: Particulate and other emissions associated with the mining operations are calculated and included in Table 4.4-11 for the Aircraft Maintenance Center Alternative. Information on the specific pollutant contributions of the mining operations are contained in Appendix I.

13.6 Comment: A commitment to mitigate potential air quality impacts should be made in advance of project initiation. The Air Force should consider all mitigation measures identified in the EIS and all other mitigation measures that are subsequently identified. The EIS should then discuss which mitigation measures will be implemented, by whom, and determine the level of emissions which will remain. Mitigation monitoring procedures and/or techniques must be discussed and provided in the EIS to ensure that these measures can and will actually be implemented. (11-5, 19-23)

Response: The purpose of this EIS is to assist the Air Force in making a decision concerning disposal of Norton AFB property. While the document identifies potential mitigation measures that might be considered by a number of entities, the EIS and/or the ensuing ROD can only make commitments to mitigations which will be implemented by the Air Force. The Air Force is not planning to undertake any development at Norton AFB. Appropriate mitigation measures will need to be identified and implemented by entities who acquire Norton AFB property and make specific development proposals. These procedures could be considered by local and regional jurisdictions, such as the AQMD, which have the necessary authority to enforce the measures.

13.7 Comment: An interagency agreement or Memorandum of Understanding should be considered to ensure Federal compliance with the CAA and timely State submittal to EPA of adequate attainment plans. (11-6) (11-43)

Response: The Air Force encourages the applicable regulatory agencies and potential property recipients to discuss how local redevelopment of base property should be planned to best meet environmental objectives. The Air Force does not need to enter into an interagency agreement or memorandum of understanding to meet its compliance requirements under the Clean Air Act.

13.8 Comment: EPA requests additional information on the Air Force's EDMS modeling system in order to compare it to their own approved models. (11-38)

Response: Information on the EDMS model has been provided to U.S. EPA Region IX.

13.9 Comment: The EIS should address the consistency of the projected emissions with the California Clean Air Act attainment plan and provide a full description of modeling assumptions. (11-39, 11-41)

Response: A full description of modeling assumptions is provided in Appendix I. For conformity with regional plans, see response to Comment 13.11.

13.10 Comment: EPA disagrees with the approach that the Air Force takes in considering construction activities as being temporary activities, especially in regard to estimating uncontrolled fugitive dust emissions. Temporary sources are not specifically exempted from consideration under the CAA. (11-40)

Response: Potential emissions from construction activities have been analyzed and incorporated into the EIS. Appropriate mitigation measures that can minimize fugitive dust and other construction-related emissions have been included in the EIS in Section 4.4.3.1. (See also the response to Comment 13.2).

13.11 Comment: The EIS does not fully address conformity to air quality plans. Federal agencies are required by the CAA to assure that actions conform to an approved implementation plan (Section 176[c] CAA). (11-42)

Response: The Air Force has prepared a separate draft conformity determination that will be provided to the U.S. EPA, the state, and other applicable regulatory agencies for review and comment. The Air Force will comply with its Section 176(c) of the Clean Air Act prior to property disposition.

13.12 Comment: The EIS did not estimate average daily construction-related air quality impacts for CO, NOx, and ROG. The District's daily thresholds of significance are 550 pounds for CO, 100 pounds for NOx, and 75 pounds for ROG. (19-3)

Response: The data needed to calculate detailed construction emissions (number and types of equipment, construction schedule, equipment operating hours and load factors, etc.) are not available at this level of analysis and will not be available until reuse plans are more firmly established. Fugitive construction dust emissions are estimated in this analysis based on the expected amount of disturbed surface area associated with the reuse alternatives. Combustive emissions from construction are estimated on a per-capita basis using data from the AQMP inventory forecasts and projections of future populations associated with each reuse alternative. See Section 4.4.3.1 and Appendix I for more details on the construction emission estimate.

13.13 Comment: The EIS needs to address toxic emissions that could have an impact on sensitive receptors. If toxic emissions are identified, they must be quantified to the extent possible. (19-5, 19-19)

Response: Reuse activities which require a new or modified Permit to Construct or Permit to Operate from the District will be subject to Regulation XIV (Toxics and Other Non-Criteria Pollutants) which specifies the limits for maximum individual cancer risk and estimated excess cancer cases, and the requirements for the use of Best Available Control Technology for Toxics (T-BACT). The permit shall be denied unless the applicant can quantify the amount of potential toxic emissions and demonstrate that their release would not result in: (1) a maximum individual cancer risk greater than one in one million (1×10^{-6}) at any receptor location, if the permit unit is constructed without T-BACT; (2) a maximum individual cancer risk greater than ten in one million (1×10^{-5}) at any receptor location, if the permit unit is constructed with T-BACT; or (3) greater than 0.5 excess cancer cases in the

population subject to a risk of greater than one in one million (1×10^{-6}). At this time, none of the reuse plans have identified any potential toxic emission sources.

13.14 Comment: Based on the nature of general commercial and industrial land uses, there is a potential for "area sources" to occur on site, such as gas stations, dry cleaning, eating, and printing establishments, among others, that could emit reactive organic gases and particulates. The EIS did not analyze or quantify the potential emissions from likely area sources. (19-6)

Response: Potential area sources have been included in the Air Emissions Inventory in Appendix I. It is premature to calculate emissions from likely area sources in a more detailed manner at this time because specific project details are not available.

13.15 Comment: The SCAQMD recommends that all feasible and appropriate mitigation measures and applicable control measures contained in the 1991 Air Quality Management Plan be incorporated into the Specific Plan as development regulations or action strategies to ensure that the Reuse Plan maintains high air quality standards. (19-7, 19-16)

Response: The development of a Specific Plan will occur after disposal and is outside the Air Force's authority. The District's recommendations will need to be taken into consideration by the city of San Bernardino in approving the Specific Plan when it is submitted in accordance with city regulations and procedures.

13.16 Comment: The data in the EIS does not support the conclusion that emissions from mobile sources do not have the potential to generate a significant impact. The EIS clearly shows that ROG, CO, and NOx emissions from the project will substantially exceed the "significant threshold criteria" established by the SCAQMD. (19-8)

Response: The EIS does not claim that mobile source emissions will not generate a significant impact. Mobile source emissions associated with reuse alternatives were calculated and included as part of the total emissions reported in Tables 4.4-5, 4.4-7, 4.4-9, and 4.4-11. It was concluded in the EIS that reuse emissions could possibly delay attainment of the state standards for O_3, CO, and PM_{10} and the federal standards for PM_{10}. Emissions of NO_x, ROG, CO, and PM_{10} would therefore have to be mitigated to the fullest extent possible, and the remainder offset by the reduction of emissions from other sources.

13.17 Comment: The EIS assumes the SCAQMD will impose a variety of control measures on indirect and area sources to reach and maintain attainment of project emission thresholds. The SCAQMD is not soley responsible to apply control measures; other government agencies, public sector and private sector entities are also responsible. (19-9)

Response: It was assumed that appropriate regulatory agencies, not just the SCAQMD, would impose the necessary control measures.

13.18 Comment: While some mitigation measures were identified in the EIS, others also are feasible and must also be included where possible. (19-10, 19-18)

Response: Additional mitigation measures as suggested by the SCAQMD to reduce emissions have been incorporated into the EIS.

13.19 Comment: The EIS did not establish why the proposed project would be environmentally superior and have the least adverse impacts. (19-13, 19-21)

Response: There is no claim that the Proposed Action is the environmentally superior alternative or has the least impacts. NEPA does not require the Proposed Action, or any alternative selected by the Air Force, to be the environmentally superior alternative.

13.20 Comment: The EIS should include all feasible and appropriate mitigation measures and a mitigation monitoring program. (19-22)

Response: Additional mitigation measures to reduce emissions have been added to the EIS. Mitigation monitoring programs, if required, are expected to be developed by the property recipients and applicable air quality regulatory agencies when specific reuse proposals are implemented.

14.0 NOISE

14.1 Comment: The EIS does not recognize the added significance of noise impacts on very sensitive receptors such as the hospital identified in Table 4.4-15 in the EIS. (9-64)

Response: The Federal Interagency Committee on Urban Noise developed land use compatibility guidelines for noise. Based upon these guidelines, suggested compatibility guidelines for evaluating land uses in aircraft noise exposure areas were developed by the FAA. The FAA guidelines were used in this study to determine noise impacts. See Table 3.4-8 for FAA land use compatibility guidelines; see Table 4.4-15 for SELs at representative noise receptors.

14.2 Comment: The management mitigation measures mentioned in the EIS will not reduce noise impacts. (9-65)

Response: Management mitigation measures are recommendations for the new airport proponent to use. Operational mitigation measures are not necessary, as aircraft noise will not exceed recommended standards.

14.3 Comment: The EIS does not recommend times for curfews nor does it address noise impacts to sensitive receptors during non-curfew hours. (9-66)

Response: Management mitigation measures do include the use of curfews to limit aircraft noise impacts. The new airport proponent will be responsible for setting appropriate curfew hours, as necessary.

14.4 Comment: The EIS does not recommend any mitigation measure for noise impacts as a result of increased surface traffic. (9-67)

Response: The text has been revised to include mitigation measures for noise impacts as a result of surface traffic.

14.5 Comment: No noise mitigations are recommended for the alternatives discussed in Sections 4.4.4.2, 4.4.4.3, and 4.4.4.4. (9-68)

Response: Mitigation measures are not necessary for the alternative reuse plans, as aircraft noise will not exceed recommended standards.

The extent of noise exposure based on DNL contours is clearly delineated within each alternative discussion in Section 4.4.4 and summarized in Table 4.4-14 of the EIS. The SEL values in Table 4.4-15 were provided to give the decision maker a clear understanding of the potential sleep disturbance associated with possible single event overflights in the area.

However, DNL is the accepted metric for determining noise/land use compatibility issues.

15.0 BIOLOGICAL RESOURCES

15.1 Comment: There appears to be some contradiction between portions of the report with regard to impacts on biological resources. Page S-2 indicates that the Santa Ana Wash area would be retained as recreation/open space; however, on page S-11 it is stated under several alternatives that there are potential impacts on Santa Ana River wetlands, etc. (6-7)

Response: Under the Proposed Action the Santa Ana River Wash area would be retained as recreation/open space. The 1 acre of wetland potentially disturbed is located away from the river in the northwest corner of the base. The Aircraft Maintenance Center Alternative, however, includes some mining in the Santa Ana Wash. Impacts to biological resources may differ from one alternative to another due to differences in land use development.

15.2 Comment: The evaluation of biological impacts contains no analysis of impacts on the Gnat Catcher, the San Diego Horned Toed Lizard, and the Spiney Flower. (9-69)

Response: The coastal California gnatcatcher (*Polioptila californica california*) has been recorded from the coastal slopes of the San Gabriel Mountains but is very rare in this area (Garrett and Dunn, 1981). Preferred habitat is coastal scrub. None are likely to be present on Norton AFB due to rarity in this area and past habitat alteration due to development. Any transient visitors to the Santa Ana Wash area could avoid any project-related activities on the base property and thus would not be adversely affected. The San Diego horned lizard and slender-horned spineflower were not observed on the base during surveys conducted by the USFWS in 1990 nor during on-site surveys in 1991, and there are no records of occurrence on the base. The Proposed Action and alternatives are unlikely to impact either species, although aggregate mining, if permitted, would remove potential habitat.

15.3 Comment: Despite the identification of impacts to coast live oak trees and sensitive habitat, the EIS does not recommend mitigation measures for these impacts. (9-70)

Response: Loss of oak trees that have been planted for landscaping could occur in all of the development alternatives. The number of trees lost, however, would depend on the specific development plan(s) implemented. Non-federal parties that obtain the land and propose new development would be responsible for environmental review under the CEQA and mitigation for any impacts resulting from their proposal. Potential mitigation measures could include retaining the existing trees (avoidance), transplanting, or replanting. Impacts to alluvial scrub presented in the EIS are estimates based on several assumed development scenarios. The area that could be affected is small for the Proposed Action and Airport with Mixed Use Alternative, and most or

all of this could be avoided. In the Aircraft Maintenance Center and Non-Aviation alternatives, larger areas could be affected, particularly from aggregate mining in the Aircraft Maintenance Center Alternative. Again, impacts could be minimized or avoided. The recipients of the land will be responsible for further environmental review on specific development projects as they are proposed. This will include development of mitigation for any significant impacts.

15.4 Comment: Sections 4.4.5.1 and 4.4.5.2 do not address impacts to each of the sensitive species identified by the EIS as potentially inhabiting the base and the vicinity. (9-71)

Response: Impacts were discussed for those species known or likely to be present on the base. As noted in response to comment 15.2 several other sensitive species may be in the area but are not expected to be impacted by base reuse activities.

15.5 Comment: Sections 4.4.5.3 and 4.4.5.5 of the EIS state that mitigation measures would be needed to offset the temporary loss of wetland and riparian habitat along the Santa Ana River channel. However, the EIS does not identify such mitigation measures. (9-72)

Response: The mitigation measures described for the Proposed Action could apply to these losses as was noted in Sections 4.4.5.3 and 4.4.5.5. These mitigations would be the responsibility of the reuse proponents.

15.6 Comment: The EIS should include mitigation measures to address the specific impacts caused by the proximity of human population associated with housing proposals to sensitive habitats in Section 4.4.5.4. (9-73)

Response: Mitigation for indirect impacts related to an increased human population adjacent to sensitive habitats/species would be the responsibility of the landowner proposing the housing development. Measures could include fencing to prevent damage to sensitive habitats, educational programs to make residents aware of habitat sensitivity, and formation of a preserve to protect and possibly enhance these habitats.

15.7 Comment: The Air Force must ensure, prior to disposal of Norton AFB, that wetlands are fully avoided and protected. (11-52)

Response: The Air Force's responsibilities towards protection of wetlands are contained in EO 11990. EO 11990, Section 1, states that each federal agency shall minimize the destruction, loss, or degradation of wetlands, and preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for disposal of federal lands and facilities. Section 2(1) clarifies that the federal agencies shall avoid providing assistance for new construction located in wetlands unless there is no

practicable alternative and all practicable measures have been taken to minimize harm to wetlands. The term "practicable" allows consideration of costs, logistics, technology, environmental effects, and purpose of the project. For disposal of wetlands to non-federal parties, federal agencies will identify in conveyance documents those land uses that are restricted under applicable laws, and federal agencies will attach other appropriate land use restrictions.

15.8 Comment: The description of regulatory requirements for wetlands should be expanded to note that the discharge of fill or dredged material into waters of the United States require authorization by the U.S. Army Corps of Engineers. The extent of impact under the Proposed Action on jurisdictional wetlands or waters of the United States is unclear. (11-53)

Response: The text has been revised to include waters of the United States in the permit requirement. See Figure 3.4-5 for a map depicting wetlands. Jurisdictional wetlands on the base include: (1) a drainage channel (0.9 acre) along the northwest boundary of the base; (2) a small area (0.1 acre) along the north-central boundary of the base; and (3) a narrow low-flow channel (6 acres) from the Santa Ana Wash that intersects a corner of the eastern boundary of the base.

15.9 Comment: The EIS should document potential cumulative impacts in more detail. (11-55)

Response: This EIS identifies potential adverse impacts of several conceptual reuse alternatives. The actual level of impact will depend on the specific development projects that are undertaken, their timing, and mitigation measures included as part of the development. This EIS identifies the potential impacts so the Air Force can consider them in its disposal decision. As the plans for redevelopment of the base become more specific, further analysis of impacts may be required in accordance with the CEQA.

15.10 Comment: The EIS should describe how aggregate mining may result in only a temporary loss of wetland and wildlife habitat and include a discussion of proposed reclamation efforts. An alternative analysis of the aggregate mining project should evaluate sites which do not require the discharge of fill or dredged material into the waters of the United States. (11-56)

Response: Aggregate mining is not included in the Proposed Action. It is evaluated as part of a potential alternative development scenario. Until a specific mining plan is proposed, however, a detailed site analysis cannot be performed. To provide information relevant to a disposal decision, the EIS identifies the resources that could be affected by location and habitat type. This allows impacts from mining within the Santa Ana Wash to be distinguished from mining outside the wash. Under the scenarios analyzed, it would be possible to have aggregate mining that did not require discharge of fill or dredged

materials into waters of the United States if excavation were confined to areas identified outside the wash.

As Section 4.4.5.3, under Sensitive Habitats, indicates, mining in the Santa Ana Wash would result in loss of wetland and riparian habitat due to relocation of the stream channel. Because the stream is relocated but not eliminated, it can be expected that riparian vegetation would eventually develop along the new channel. Any proposal for mining in the Santa Ana Wash would require a permit from the COE under section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act. Detailed impact analyses, alternatives discussions, and mitigation measures would be developed at that time.

15.11 Comment: The EIS should specify how endangered species will be protected. (11-57)

Response: The EIS states that the U.S. Air Force would conduct the appropriate Section 7 consultation with the USFWS for conveyance of land to private parties, and that additional consultation by the future owners (private or federal) may be necessary if any of their proposed developments could affect listed or proposed species.

15.12 Comment: Mitigation is not described for potential impacts to 5 acres of Riversidean alluvial fan sage scrub and less than 1 acre of wetland. (11-58)

Response: Riversidean alluvial fan sage scrub impacts and appropriate mitigations will be treated as endangered species habitat during consultation with the USFWS and the CDFG. Mitigations could include avoidance or habitat enhancement, replacement, or conservation off site. Procedures for protecting wetlands and potential mitigation measures for the Proposed Action are discussed under Mitigation Measures in Section 4.4.5.1 of the EIS. Detailed mitigation for impacts to wetlands and waters of the United States would be developed for specific development projects once they are proposed.

16.0 CULTURAL RESOURCES

16.1 Comment: The impact of flight noise on historic structures should be recognized as adverse and mitigation measures should be included to address the impact. The impact of flight noise on cultural resources, such as the Redlands Bowl, should be addressed as well. (9-24)

Response: Impacts associated with these noise levels are not of the magnitude considered to cause potential damage to historic structures or the Redlands Bowl. Analysis of land use compatibility is provided in Sections 4.2.2, Land Use and Aesthetics, and 4.4.4, Noise.

16.2 Comment: If archaeological site CA-SBR-6096H is excavated due to mining activities, the EIS should require that the excavation be overseen by a qualified archaeologist, at the miner's expense, and that all found material be properly catalogued and reported to the San Bernardino County Museum, in Redlands. (9-74)

Response: Following the subsurface test and evaluation of site CA-SBR-6096H, the SHPO concurred with the Air Force determination that the site was ineligible for the *National Register* and that no historic properties exist on Norton AFB. Thus neither mining nor any other reuse-related activity would potentially impact cultural resources.

17.0 SOCIOECONOMIC IMPACTS

17.1 Comment: The EIS does not discuss the environmental impacts of population growth on certain critical aspects of the man-made environment, such as housing and school facilities, nor does it discuss how growth will affect the local plans of any jurisdictions surrounding Norton AFB. (9-26)

Response: Population growth impacts to surrounding communities are addressed in the Norton AFB SIAS.

17.2 Comment: The EIS does not address the impacts of the proposed action and alternatives on fire and rescue services. (9-76)

Response: Fire and rescue service impacts are addressed within the Norton AFB SIAS.

17.3 Comment: The EIS should provide a tentative date for publication of the SIAS and a summary of the study's assumptions, findings, and conclusions. (11-15)

Response: The SIAS schedule runs concurrently with the EIS schedule, and a draft was made available to local agencies at the same time as the DEIS. Relevant findings of the socioeconomic analysis are summarized in Section 4.2.1 of the EIS.

17.4 Comment: There is insufficient information to completely analyze the existing fire protection systems and their compliance with current city codes. (12-13)

Response: Discussion of fire protection systems and current city safety codes is beyond the scope of the EIS and SIAS. The SIAS does discuss fire protection needs of surrounding communities with regard to services provided, staffing, fire insurance rating, and possible changes in service area and infrastructure responsibility.

17.5 Comment: All alternatives, including the Proposed Action, should have similar immediate operational job impacts from aviation related activities, however, no immediate job credits are given to the IVDA Plan. (13-6)

Response: The Norton AFB Draft SIAS published in January 1992 included the most up-to-date aviation support operational employment data provided by IVDA. More recent employment data has come to us from IVDA since then. The text and graphics have been revised appropriately to reflect the new information. While employment and population impacts will be higher in the early years of project development, long-term projections are not affected.

17.6 **Comment:** **The assumption that a certain number of additional jobs will be created immediately under any alternative is baseless unless a realistic funding mechanism for reuse is in place. (13-9)**

Response: **Comment noted.**

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DOCUMENT 1

ORIGINAL

NORTON AIR FORCE BASE DISPOSAL AND REUSE EIS

PUBLIC HEARING

CITY HALL, COUNCIL CHAMBERS

300 NORTH 'D' STREET

SAN BERNARDINO, CALIFORNIA

FEBRUARY 12, 1992

7:00 P.M.

PRESIDING OFFICER: COL. WILLIAM THOMPSON

REPRESENTATIVE AIR FORCE DISPOSAL AGENCY: MR. LEN SANDELLI

ENVIRONMENTAL DIVISION, NAFB: LT. COL. TOM BARTOL

Reported by: Audrey I. Patrick
CSR No. 787, RPR

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AUDREY PATRICK REPORTING SERVICE

DOCUMENT 1

AUDREY PATRICK REPORTING SERVICE

DOCUMENT 1

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SAN BERNARDINO, CALIFORNIA, FEBRUARY 12, 1992, 7:00 P.M.

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COL. THOMPSON: The hearing will come to order.

This is the public hearing on the draft Environmental Impact Statement for the Disposal and Reuse of Norton Air Force Base. I'm Col. Bill Thompson. I will be the presiding officer for tonight's meeting.

This hearing is being held in accordance with the provisions of the National Environmental Policy Act and implementing regulations. The act requires federal agencies to analyze the potential economic and environmental impacts of certain proposed actions and alternatives, and to consider the findings of those analyses in deciding how to proceed.

On the 20th of March, 1991, a scoping meeting was held here in San Bernardino to get your input on the scope of the Environmental Impact Statement or "EIS." Since that meeting, the Air Force has studied the identified environmental concerns and has prepared and distributed a draft of the EIS.

The purpose of tonight's hearing is to receive your comments, suggestions, and criticisms of the draft EIS. For those of you who've not had an opportunity to review the draft EIS, you may want to read the summary of the major findings of that draft EIS, which is in a handout available to you at the door. The findings will also be addressed by the panel members tonight in their presentation to you.

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DOCUMENT 1

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(Projector Off)

Before I introduce the members of the panel to you, I'd like to explain to you a little bit about what my role is going to be in this hearing. I'm a military judge. I'm an active criminal court judge, specializing in the trial of court martial cases. This is not a usual sort of proceeding for me, but I have done several of these before.

What I would like to emphasize for you is that I'm not here as an expert on the draft EIS, nor have I had any involvement or connection with its development. I'm not here to act as a legal advisor to the Air Force representatives who address the proposals. My purpose is simply to ensure that we have a fair and orderly hearing, and that all people who wish to speak have a fair chance to speak.

I'd like now to introduce the members of the public hearing panel. On my immediate right is Mr. Len Sandelli, 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. And Lt. Col. Bartol is the Director of the Environmental Division at Norton Air Force Base. He will brief you on the environmental impact analysis process and also summarize 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, with a view to improving the decision-making

AUDREY PATRICK REPORTING SERVICE

process.

Now, please notice that I stressed "two-way communication." In the first part of the hearing tonight, our most knowledgeable folks will brief you on the details of the actions and the anticipated environment impacts of those actions. The second part of the process will give you an opportunity to provide information, to make statements for the record. This input from you ensures that the decision makers may benefit from yo knowledge of the local area and any adverse environmental effects that you think may result from the proposed action or the alternatives to that action.

Let me say what this hearing is not. It's not going to be a debate, nor is it a referendum. It's not a vote on the alternative actions that have been analyzed in the EIS. Such things don't add anything to the hearing and they'd simply waste your valuable time and prevent you from taking advantage of this opportunity to make personal input into the decision-making process. The focus of the meeting is on the environmental impacts associated with proposals being studied by the Air Force. Comments on non-environmental issues should not be raised at the hearing.

And when you came in tonight you were provided with an attendance card and you were asked to indicate on it if you wished to speak tonight. After the presentations by Mr. Sandelli and Lt. Col. Bartol, after we've finished those presentations, I will give you an opportunity to speak. Now,

I'm going to call on members of the public at random, using the cards that you have filled out indicating that you desire to speak.

Now, for those of you who have not had an opportunity to fill out a card, if you'll indicate that you want to do that, someone will supply you with a card, or if you'd like to go into the lobby and do that, please take the time to do that so that I'll have an indication that you do want to speak, and I'll be in a position to recognize you.

(Slide 82 - Address)

If you do not feel like standing up tonight and making a statement orally, you do have until the 9th of March of this year to submit a copy of any statement that you want the Air Force to consider prior to publishing the final EIS. The Air Force will also continue to accept comments from you after the 9th of March. But after that date the Air Force cannot guarantee that those late comments would be included in the final EIS.

There are special sheets provided at the registration table for your use in providing those comments. Now, even if you make comments tonight, you may still have until the 9th of March to submit any additional written comments to the address that is shown on the slide that you're looking at, and the address that's shown on the bottom of the comment sheets.

Whether you make a statement tonight, whether

you make it verbally, whether you submit it in writing, the statement will have the same impact and will be considered to the same extent. So don't feel as though you have to speak tonight if you'd prefer to wait and submit something in writing; again, doing so by the 9th of March of this year.

(Projector Off)

Please don't be shy or hesitant to make a statement. I want to ensure that everyone who desires to speak tonight will have a fair chance to be heard. We do have a court reporter, Ms. Audrey Patrick, who is taking down verbatim everything that occurs during this hearing. Now, her verbatim record of this hearing will become a part of the final EIS and the decision package. She'll be able to make a complete record only if she can hear and understand everything that you have to say.

Now, with that in mind, I'd ask that you assist me in enforcing the following ground rules.

First, I'd ask that you speak only after I recognize you, and please address your remarks to me. If you have a written statement you may place it in the wooden box that is provided on the podium in the front of the auditorium. Now, you may read that statement or you may just hand it in, whatever you prefer to do.

Secondly, I'd ask that you speak clearly and slowly, and that you speak into the microphone, and that you start by stating your name, your address, and the capacity in

which you appear. If you're a public elected official or you're a designated representative of a group or you're simply speaking as a concerned citizen, please indicate that for us. This will help Ms. Patrick prepare a professional transcript of the hearing.

I will recognize each individual for five minutes. I will have a timekeeper in the front of the auditorium, and that is going to be Staff Sergeant Finney. And he'll assist you and me in keeping time. At the four and a half minute mark, he's going to hold up a yellow card, and that is your indication that you've reached almost the end of your time and you've got about 30 seconds or so to wrap up your remarks. And at five minutes he's going to hold up a red card, and I would ask you at that point to please stop.

Please honor any requests that I make for you to stop speaking. If you have more comments than you'll be able to present in the five minutes allocated, please prioritize those comments to ensure that you address first your most important points. Please don't speak when another person is speaking. I'm going to recognize only one person at a time.

I would appreciate your cooperation in abiding by these rules. As I've indicated, I'll monitor the times and Sergeant Finney and I will try to assist you in making sure you live within those time constraints. But more importantly, that's done in an effort to make sure that everybody who desires to make a comment has an equal opportunity to do so.

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One thing that I can't stress enough, that is that you may have information about the environmental impacts that are unknown to us. We're very interested in having and analyzing all the potential environment impacts of the proposed actions and the alternatives. You have the experience that comes from living in this area, so the second part of today's communication, that is, the part that flows from you to us, is important. Please don't hesitate to be a part of that proceeding.

Again, you may submit a statement in writing, either tonight or at any time prior to the 9th of March. Those statements should be mailed to the address that I've referred to before that is shown both in the comment sheets and was shown earlier on the screen. Regardless of whether you read your statement into the record tonight or you mail it in, it will be carefully considered and made a part of the record of the proceedings. It will have equal weight and receive the same careful consideration regardless of how you present it.

Thank you for coming tonight to the hearing. Your presence is commendable and it reflects a great interest in your community and these actions which will affect it. I assure you that your interest in this matter is our primary purpose for being here.

Now it's my pleasure to introduce to you, Mr. Len Sandelli, and Len will describe for you the Air Force

DOCUMENT 1
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Base disposal process.

(Slide #3 - Disposal Process Title)

MR. SANDELLI: Thank you, Col. Thompson. My name is Len Sandelli and I work for the Air Force Base Disposal Agency. That's an office that the Pentagon created to manage the disposal of Air Force Bases closed under the two Base closure and realignment laws. In discussing the Air Force's proposed action of disposing of Norton, I'd like to cover four general topics.

(Slide #4 - Overview)

First is disposal planning; second is the objective used by the Air Force to guide its planning; third is the disposal considerations we will use to arrive at a decision; lastly is the Air Force decision itself. That is, what actions the Air Force will take based on the findings in the environmental impact statement and other considerations.

(Slide #5 - Disposal Planing)

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 for Norton 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. Despite this change, the traditional statutes for the disposal of federal property are still in effect. The Air Force must adhere to

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GSA's laws and those regulations which GSA had 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 Inland Valley Development Agency.

Finally, our planning recognises that the Secretary of the Air Force has full discretion in deciding how the Air Force will dispose of property.

(Slide #6 - Disposal Objective)

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 has only provided startup

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capital for implementation of the realighments and closures. Revenues from property sales will be used to offset the funding shortfall.

(Slide #7 - Disposal Considerations)

The disposal of properties accomplished in the three-part planning process which includes: The Air Force's preparation of an environmental impact statement which analyses 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 analyses the various disposal options.

The disposal plan is based on a thorough real estate analysis of the Base and region, results from the environmental impact statement, interests 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.

(Slide #8 - Disposal Decision)

Under current law, other federal agencies and homeless assitance providers must be given priority consideration in the use and acquisition of excess Base property. It is the Air Force's policy to inform the local

community representatives of any expressed interest from federal agencies or homeless assistance providers. We encourage all those 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 conveyances to states, their political subdivisions, such as the IVDA, and to 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 the environmental cleanup. 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 Norton. In 1990, the Air Force, the Environmental Protection Agency, and the State of California signed a federal facilities agreement which formalizes the responsibilities of the parties involved. It specifically addresses known contamination sources and the ultimate cleanup of the Base. Additionaly, this agreement contains a schedule detailing taskings and time frames required to accomplish this cleanup. Meanwhile, interim cleanup activities are continuing and additional studies are underway which will fully characterize contamination of all 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 commitments to cleaning up all past contaminated areas and protecting the public, we do not expect any cleanup activities to delay the reuse of uncontaminated property at Norton.

Thank you for the opportunity to meet with you this evening. And I'd like to turn the meeting back to Col. Thompson.

COL. THOMPSON: Thank you, Mr. Sandelli.

Now Lt. Col. Tom Bartol will brief us on the environmental process.

(Slide #9 - Environmental Process)

LT. COL. BARTOL: Good evening.

Our organization is conducting the environmental impact analysis process for the disposal and reuse of Norton Air Force Base, as well as for the four other major installations mandated to close during Round 1 of the Defense Base Closure and Realignment Act.

Tonight I'm going to present the schedule for this environmental process, and show how this public comment period fits into this schedule. I'll also discuss the scope of the environmental impact statement and the relaltionship between that study and the socioeconomic study. And last, I will present the results of our analysis by resource category.

(Projector Off)

This environmental effort was initiated in February 1989 with 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, which focused on the closure of the Base and the realignment of the forces, and the second part which we're conducting now is the disposal and reuse.

In February 1991 the Notice of Intent to Prepare an EIS for Disposal and Reuse was published in the Federal Register. A scoping meeting was held here in these chambers on March 20th to receive public input on the scope of issues

to be addressed in the EIS, and also to identify reuse alternatives and issues related to property disposal. During the scoping process, our office received input from the public as well as a comprehensive reuse proposal from the Inland Valley Development Agency, or the IVDA.

The IVDA proposal, as well as two of the alternatives developed for study by the Air Force, included a large aviation component. Due to the potential for an aviation reuse of the properties, the Federal Aviation Administration, Western Pacific Region, was invited and agreed to become a cooperating agency in the preparation of this EIS. The Air Force has worked closely with the FAA to include their environmental requirements in this process.

After scoping, we conducted the necessary data and performed the analysis. The draft environmental impact statement was filed with the U.S. Environmental Protection Agency on January 10th of this year.

(Slide #10 - Address)

Now, in addition to tonight's hearing, written comments on the draft EIS will continue to be accepted at this address until March 9th, '92. After the comment period is over, we will evaluate all the comments and perform additional analysis or change the EIS where necessary. Again, as in the scoping process, equal consideration will be given to all comments, whether you present them here tonight or you mail -- or they're -- or we receive them prior to March 9th. And once

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the review process is complete we will produce a final EIS.

This is scheduled for completion in June. We will mail it to all of those on the original draft distribution list. If you're not on our mailing list, you can request a copy of the final EIS by also writing to the same address. The final EIS will include comments received during this public review period and our responses to those comments.

If appropriate, we will group the comments into categories and respond accordingly. Depending upon on the number and the diversity of the comments or the need to continue additional analysis, the final EIS may consist of a separate volume as a companion to the draft, or be distributed as a cover letter with errata sheets. Now, this document will serve as input to the record of decision which will document the disposal decision by the appropriate Air Force decision-maker. And as you've heard from Mr. Sandelli, other studies and consideration of other issues besides those addressed in this environment impact statement will enter into the final disposal decision. We expect to accomplish the record of decision in late July of '92.

(Projector Off)

Now, the draft EIS was prepared to comply with the National Environmental Policy Act and the Council on Environmental Quality Regulations. Efforts were made to reduce needless bulk, write in plain language, focus only on

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those issues that are clearly related to the environment, and to integrate with other documents required as part of this 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, and cultural resources. Indirect changes to the community that provide measures against which the environmental impacts could be analyzed include changes to the local population, land use and aesthetics, transportation, and community utility services.

In addition, the following issues related to current and future management of hazardous materials and hazardous waste cleanup are discussed in the document: Hazardous materials management, the Air Force's installation/restoration program, asbestos, pesticide usage, polychlorinated byphenyls, or PCBs, radon and medical or biohazardous waste management. Now, if, as a result of our analysis, it was determined that substantial adverse environmental impacts would occur, potential mitigation measures were identified and are included in the document.

As I mentioned earlier, the draft EIS focuses on impacts to the natural environment. The document addresses

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socioeconomic factors where there is a relationship between Base disposal and changes to socioeconomic conditions that would result in impacts to the natural environment.

Our organization 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 Norton Air Force Base may economically affect the surrounding areas. Specifically, the socioeconomic study addresses the following factors: population, employment, housing, public finance, education, government, police and fire, medical, recreation, transportation, and utilities. Copies of this document were recently provided to key federal, state, and local officials and are available for review at libraries in the local area. This document will also be forwarded to the decision-maker for input into this disposal process.

I would now like to discuss the results reported in the draft EIS. Now, 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.

(Slide #11 - Property Retained by the Air Force)

All of the alternatives assume that certain portions of the Base would be retained for use by the Air Force as mandated by provisions of the Base Closure and Realignment Act. The areas to be retained, totaling

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approximately 146 acres, are for the Base's military family housing to be used by March Air Force Base, and for the ballistic missle organization which was directed to remain in the San Bernardino area. These areas are outlined in dark blue on the maps that we'll look at in a moment.

(Projector off)

Now I'd like to present an overview of the proposed action and alternatives that have been analyzed. And afterwards I'll present a synopsis of our findings.

Please note that the nomenclature or the title of each alternative is presented to give the reader a general idea of the action. Each of the alternatives contains numerous activities which may not be included in the title.

(Slide #12 - Proposed Action)

Now, 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 commercial airport with office industrial park facilities provided in the non-aviation portions of the property. The airport would serve a variety of aviation needs including private general aviation, scheduled airline passenger service, air cargo, and aviation maintenance.

Aviation-related land uses are indicated in blue on this figure. Office industrial park areas are shown in brown. Associated non-aviation land uses proposed for other portions of the Base include commercial areas, indicated in

the red, parks and undevelopment areas in green. The Air Force retained areas again are outlined in dark blue. You will also notice that a non-contiguous 30-acre parcel of the Base located in Highland is shown in green as park land on the slide.

(Slide #13 - Airport With Mixed Use Alternative)

Now, this is the airport with mixed use alternative. The focus of this plan is once again on a commercial airport similar to the proposed action with an adjoining office industrial park. However, in this alternative, many of the existing land use types and facilities in the non-aviation portions of the Base are retained. Consequently, this plan is referred to as the Airport with Mixed Use.

Once again, the aviation land is shown in blue. The office industrial is again in brown. But here it is broken into two subcategories: A standard office industrial park area shown in the crosshatched area is east of Tippecanoe Avenue, and the existing warehouse area is shown to the west of Tippecanoe. Other associated land uses include commercial areas, parks and undeveloped areas, residential areas, institutional or medical use is shown in orange. Once again, the Air Force-retained areas are outlined inside dark blue. The principal difference between this alternative and the proposed action is the additional types of land uses provided in the non-aviation portions of the Base.

(Slide #14 - Aircraft Maintenance Center)

This figure shows the land uses for a civilian general aviation airport with adjoining non-aviation land uses which are similar to those I described for the airport with mixed use. This alternative is also similar to previous plans I've described in that it focuses on aviation reuse. However, in this plan there is an increased amount of aviation maintenance operations and no airline passenger service. In addition, this plan contains an area devoted to aggregate mining shown off the east end of the runway in the brown crosshatched area. Once again, the primary differences between this and the previous alternatives is the removal of scheduled airline traffic and the addition of aggregate mining.

(Slide #15 - Non-Aviation)

This figure shows the land uses for a non-aviation alternative that were evaluated. Under this plan the Base's airfield and most of the aviation-related facilities would be removed. The current airfield area would be developed for single family residences which is shown in yellow. The planned office industrial park land use would also expand into areas currently used for aviation support. You'll also notice that the 30-acre parcel in Highland is shown as residential in this alternative.

(Slide #16 - Overlays)

Now, along with the four plans I've just

described, other land use concepts have been proposed, which are not part of any specific reuse plan but could be initiated on an individual basis. You may think of these proposals as overlays that can be used with any of the alternatives. These land use concepts include federal transfers and conveyances to non-federal agencies and private parties. This figure shows the areas and facilities that were analyzed as potential locations for these individual proposals.

The areas shown in green and marked as "Recreation" represent areas being sponsored by the National Park Service for transfer to local governments for use as parks and recreation facilities. This includes the golf course, gymnasium, recreation center, hobby shop, youth center, and family campgrounds, as well as the 30-acre parcel in Highland. And the U.S. Park Service has recently modified the proposal to include only 15 acres of the 30-acre parcel in Highland for use as a park.

The areas shown in orange and marked as "Forest Service" represent several sites analysed to support a proposal by the U.S. Forest Service for administrative warehouse and hanger space. The proposal calls for the consolidation of activities located throughout Southern California into a Southern California coordination and support facility.

The areas shown in blue and marked "Education" represent facilities which may be sponsored by the

U.S. Department of Education for use by local educational institutions. The proposal includes classroom, administrative and hanger space for aviation, vocational and academic training.

The areas shown in purple and marked "Veteran's Affairs" represent a proposal by the U.S. Department of Veteran's Affairs for transfer of the Base clinic and warehousing and dormitory space. These facilities would be used by the department in support of inpatient and outpatient treatment programs.

The area shown in blue green and marked "Homeless Housing" represents dormitory facilities which could serve as housing for the homeless under the auspices of the McKinney Act of 1987.

The area highlighted in olive and marked "Postal Service" represents warehouse space requested by the U.S. Postal Service for dry storage as well as a detached mail processing facility.

And the areas shown in pink and designated "Work Furlough" were studied in response to a request by the San Bernardino Adult Correction Advisory Council for dormitory space. The facility would house minimum security inmates who would work at jobs in the community during the day and report back to the facility in the evening.

The areas shown in gray and marked "Correctional Facility" were studied in response to a proposal to site a

federal prison at Norton Air Force Base. However, we recently received notice in writing from the U.S. Bureau of Prisons that they have withdrawn their request to site a federal correctional facility on these properties. Hence this proposal will be eliminated from consideration in the final EIS.

(Slide #17 - Overlays)

This additional slide shows two sites studied for use as aggregate mining locations. The area shown in red could be used in conjunction with the aviation alternatives, while the area marked in blue could be used with the non-aviation alternative.

(Slide #18 - No-Action)

As required by the National Environmental Policy Act, the no-action alternative was also evaluated. The no-action alternative would result in the Air Force retaining control of the Base property after closure. The property would be closed and maintained in a condition to prevent deteriation. A disposal management team would be provided to ensure Base security and maintain the grounds and physical assets, including the existing utilities and the structures.

I would now like to present the results of our analyses that are presented in the draft EIS. The proposed action and all alternatives were analysed to the same level of detail. The base line that we used was Norton Air Force Base at closure. The following slides show the comparative impacts

among the reuse alternatives, excluding the no-action alternative.

(Slide #19 - Employment)

Now, 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 the 20-year redevelopment period.

This graph shows the increase in employment in the area due solely to reuse activities at the Base projected through the year 2015. Depending upon the reuse alternative followed, activities at the site could result in an additional 23,000 to over 37,000 direct and indirect jobs in the area by 2015. This increase translates to a growth in the job market by about one to two percent by 2015.

(Slide #20 - Population)

Redevelopment activities and job growth in the area are also expected to lead to population in-migration to the region. Communities likely to experience the largest increases in population include San Bernardino, Redlands and Highland. This graph shows the increase in population within the study area due solely to reuse activities at the Base projected through 2015. In the same time period, other growth, excluding growth due to reuse activities, is expected to increase the local population by 28 percent to

approximately 430,000 by the year 2015. Reuse activities at the Base over that same period could further increase the population by 12,000 to 20,000 depending upon the alternative selected. This represents a 5 to 8 percent increase in the area's ongoing population growth.

(Slide #21 - Land Use & Aesthetics)

Land uses in the various development alternatives are generally consistent with zoning presently in place around the Base as well as with regional policies for improving the jobs/housing balance in the area. However, only the proposed action is entirely consistent with the City of San Bernardino's concept plan for a reuse of the Base after closure. The type and number of aircraft expected to use the airfield will result in reduced noise levels off-Base as compared to the current operations, and could allow land use restrictions in the surrounding area to be substantially reduced.

(Slide #22 - Vehicle Traffic)

The redevelopment of Norton Air Force Base will affect local and regional transportation networks. Reuse of the site will increase traffic on arterial roads near the Base, especially Tippecanoe Avenue, Del Rosa Drive, Third Street, Fifth Street, Victoria Avenue and the Alabama Street/Palm Avenue corridor.

This graph shows the estimated number of average daily trips projected to the year 2015 by each of the

alternatives. Now, for comparison purposes, the average daily trips generated by Norton in 1991 was about 29,000. The number of daily trips to and from the site due to reuse would range from almost 64,000 under the aircraft maintenance center alternative to over 118,000 under the non-aviation alternative. Again, that's for the year 2015.

Depending upon the development alternative implemented, additions and upgrades to the transportation network may be required. A major concern will be providing proper access to the site.

(Slide #23 - Flight Operations)

The runway and accompanying facilities are incorporated into three of the prospective redevelopment alternatives. This graph shows the level of annual air operations projected through the year 2015. For a reference, approximately 42,000 flight operations occurred at Norton in 1990. By 2015, the number of annual air operations would increase to about 58,000 under the proposed action, 59,000 under the aviation with mixed use alternative, and approximately 21,000 under the aircraft maintenance center alternative. Operations for the proposed action would include a mix of air carrier, cargo, general aviation, and aviation maintenance traffic.

The number of air operations is not expected to exceed the airspace capacity of the region. However, the planned expansion of Ontario Airport may result in air

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traffic saturation during peak periods for the common radar sector serving two airports.

(Slide #24 - Utilities)

Redevelopment of Norton will place demands on local utility systems including: water, wastewater, solid waste disposal, and electricity and natural gas.

Now, this table shows the projected utility demand increases to purveyors in the area for each of the reuse alternatives. As a reference, the first column shows the forecasted utility demand projected to the year 2015 without any reuse of the Base. For instance, total water demand to water suppliers in the area is projected to be 113 million gallons per day by 2015.

The other four colums show the increases in utility demand associated with each alternative. For example, under the proposed action, the total water demand for area suppliers is projected to be 5 million gallons per day higher than the demand without the reuse of the Base. For all of the utilities under all of the alternatives, increases in demand range from as little as one percent to a high of four and a half percent for water demand.

Infrastructure changes would be required ahead of schedule to be adequate to meet the projected demand under all alternatives. Redesign or reconfiguration may be necessary for some utilities to accommodate particular user-related demands. Also individual metering would need to

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be installed at most locations.

(Slide #25 - Hazardous Materials/Waste)

The Air Force is conducting investigations to identify, characterize and remediate environmental contamination on Norton that has resulted from past activities. This comprehensive effort is called the Installation/Restoration Program or the IRP.

Cleanup activities will be accomplished in accordance with applicable federal and state laws and regulations. Some initial remedial actions will be underway by 1994 with further work and monitoring to continue after Base closure. Cleanup and monotoring of certain sites at the Base may require long-term access to the site to ensure the success of the cleanup.

The Air Force will take all necessary actions for environmental cleanup 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.

Underground storage tanks at the Base which are not in compliance with current regulations will be deactivated and removed prior to disposal of the property.

An asbestos survey was completed on Base in 1991. Asbestos containing materials which may pose a threat or release will be removed or carefully managed in accordance

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with Air Force policy. Renovation or demolition of asbestos containing structures during Base reuse will require compliance with appicable federal, state and local regulations concerning asbestos containing materials.

Polychlorinated byphenyl 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 federally regulated PCB and PCB contaminated equipment.

(Slide #26 - Geology and Soils)

Potentionl impacts to soils and geology at Norton Air Force Base under most of the alternatives would be short-term and due principally to ground distubrance associated with new construction. Once construction is complete, most areas would be covered or landscaped, reducing the erosion potential. The ground disturbance due to the non-aviation alternative would be substantially more due to the demolition and construction in the airfield area. Impacts from the sand and gravel mining associated with the aircraft maintenance center alternative would be long-term due to substantial excavation and longer term exposure of disturbed soil to the effects of wind and water erosion.

Also, due to the location of the Base in Seismic Zone IV, major renovation and construction of new facilities would need to comply with the applicable building code

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regulations.

(Slide #27 - Water Resources)

Groundwater basins within the region currently provide most of the potable water for use at Norton Air Force Base and the surrounding areas. In addition, this water is also augmented with supplemental supplies from other sources such as the State Water Project. Total water demand in the region is expected to reach over 360,000 acre feet per year by 2015. Increased demand due to the reuse of Norton is expected to range from as much as 5,600 acre feet per year for the proposed action to 3,300 acre feet per year for the aircraft maintenance center alternative. However, as you can see from this slide, this increase is under two percent for all of the alternatives.

The reuse activities are expected to comply with applicable federal and state regulations to reduce the potential to affect the quality of the groundwater. Installation/Registration Program activities will assure that contamination at hazardous material locations is cleaned up and will not impact water supplies.

Surface water and surface drainage will also be affected by reuse activities. Construction of new facilities and new infrastructure may change the existing flow of surface water runoff. Mining operations in the Santa Ana River wash, in conjunction with the aircraft maintenance center alternative, may require diversion of the existing stream

channel located just south of the flood control levee on the Base. The mining site would require approval from state and local agencies to ensure that the operations do not degrade water quality or the integrity of the flood control channel.

(Slide #28 - Air Quality-Pollutants Analysed)

Air pollutant emissions due to or related to reuse of the Base would include carbon monoxide, nitrogen oxides, sulfur dioxide, particulate matter less than 10 microns in diameter, which we refer to as PM(10), and ozone, which is formed by the reaction of nitrogen oxides and reactive organic gasses. Norton Air Force Base is located in the South Coast Air Basin, which is made up of the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The South Coast Air Basin does not meet federal or state ambient air quality standards for ozone, carbon monoxide, nitrogen dioxide, or PM(10). For this reason, nitrogen oxides and reactive organic gases, in their role as ozone percursors, PM(10), 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 attainment of ambient air quality standards.

(Slide #29 - Nitrogen Oxide)

This graph depicts nitrogen oxide emissions for the various alternatives projected through the year 2015.

Nitrogen oxide emissions would range from approximately 1.2 tons per day under the aircraft maintenance alternative to 2.3 tons per day under the proposed action. And as a reference point, the arrow on the upper left side of the graph represents the preclosure emissions or what was emitted from Norton in 1987, which were 1.6 tons per day.

(Slide #30 - Reactive Organic Gasses)

This next graph illustrates emissions of reactive organic gases which is also referred to R.O.G. for the various alternatives through the year 2015. Again, reactive organic gases are precursors to the formation of ozone. R.O.G. emissions would range from about 1 ton per day under the aircraft maintenance alternative to 1.6 tons per day under the proposed action. And, again, the arrow on the left represents the Norton preclosure emissions of 4.8 tons per day. And also for a comparison, the San Bernardino County portion of the air basin emits about 110 tons per day.

(Slide #31 - PM(10)

PM(10) emissions would range from 2-1/2 tons per day for the proposed action to about 1 ton per day for the aircraft maintenance center alternative. Norton Air Force Base preclosure emissions are .2 tons per day and the 1987 San Bernardino County emissions are 140 tons per day.

(Slide #32 - Carbon Monoxide)

This next slide shows carbon monoxide. It would range from about 3 tons per day for the aircraft maintenance

alternative to over 5 tons per day for the proposed action. Again, the preclosure emissions were 8 tons per day for Norton in 1987.

(Slide #33 - Noise Contour Comparison)

Now, this graphic represents preclosure and future DNL noise contours associated with aviation use at the Base. Now, DNL is the day-night average sound level expressed in decibels with a penalty added to account for increased annoyance from noise during the night. 65 decibels is equivalent to normal speech at three feet. On this graphic, the preclosure 65 DNL noise contour associated with the military operations at Norton is shown in blue. The future noise contours associated with the proposed action are shown in green. Now, as you can see, preclosure military operation at the Base expose a much larger area of over 7,000 acres to 65 DNL or greater. By contrast, the land exposed to 65 DNL or greater under the reuse ranges from about 100 acres to almost 800 acres under the three aviation alternatives.

(Slide #34 - Noise Exposure)

This chart illustrates the approximate number of people that would be exposed to DNL noise levels of 65 or more from aircraft activity under the reuse alternatives. These estimates are based on present locations of residences and the maximum projected noise. Aircraft activity from both the proposed action and the airport with mixed use would expose approximately 9 residents to 65 DNL. These aircraft noise

projections take into account the federally mandated transition to quieter aircraft as we transition from Stage 1, 2, to Stage 3 aircraft.

(Slide #35 - Biological Resources)

Biological resources at Norton include native and natural plants and animals, threatened or endangered species, and sensitive or critical habitat on the Base. While most construction or development associated with reuse would occur in previously disturbed areas on the Base with low sensitivity, all of the alternatives could potentially affect habitat for the Santa Ana River Wooly-Star, which is a plant listed as endangered by the U.S. Fish and Wildlife Service. As you can see from this slide, the aircraft maintenance center and the non-aviation alternatives disturb the greatest amount of habitat for the Wooly-Star. This is due to the construction and disturbance associated with each in the eastern end of the Base, which is prime habitat.

Habitat for other sensitive species include the Los Angeles pocket mouse, Swainson's hawk, and burrowing owl, may also be affected by disturbance in this area of the Base. In addition, the aviation maintenance center's aggregate mining component within the Santa Ana River wash could impact other listed or candidate species, including the slender-horned spineflower, tiger beetle, San Diego horned lizard, and the orange-throated whiptail, which is a small reptile.

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The proposed action in the airport with mixed use both cause lesser impacts to sensitive species, primarily due to the lesser amounts of ground disturbance in the eastern end of the Base properties.

(Slide #36 - Cultural Resources)

Finally, consultation is underway with the California State Historic Preservation Officer, or SHPO, concerning the potential significance of cultural resources on the properties. Two efforts, one dealing with World War II buildings and the other dealing with investigations of archeological sites at the Base, are underway. Preliminary reports indicate that none of the buildings or the archeological sites will be eligible for the National Register of Historic Places and consequently there would be no impact to cultural resources as a result of Base reuse. However, this information cannot be finalized until we have finished our consultation process with the California State Historic Preservation Officer.

(Projector Off)

Now, in closing, I want to remind you that this study is in draft stage. Our goal is to present Air Force decision-makers with accurate information on the environmental consequences of this proposal. To do this, we are soliciting your comments on this draft EIS. This information will support informed Air Force decision-making.

And now I'd like to turn the meeting back to

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Col. Thompson.

COL. THOMPSON: Thank you, Tom.

In just a moment I'm going to invite public comment. I would like to remind you of a couple of points that I covered earlier. First, that there is a five-minute time limit; and second, that I'd like you to state your name and your address, and the capacity in which you appear, for the record.

The Air Force representatives who are gathered before you are not the decision-makers regarding the proposed action or the alternatives. They have provided information and they are provide -- here to provide clarification if needed. However, they cannot enter into a debate on the pros and cons of the action, nor can they discuss issues which are irrelevant to the environmental statement process.

Please limit your comments to environmental issues associated with the actions that are described in the draft EIS. To ensure that everyone has an opportunity to speak, I would ask you that you avoid repetitive statements. If you just agree with the comments that have been made by another speaker, I suggest that you say that.

We do have an indication that there is a representative of one elected official and I would first recognize Walt Pudinski who will be speaking on behalf of State Assemblyman Jerry Eaves.

MR. PUDINSKI: Good evening, Mr. Chairman and Members

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of the Panel. My name is Walt Pudinski and I'm the representative of State Assemblyman Jerry Eaves, and our address is 224 North Riverside Avenue, Rialto, California, 92376. I am also a representative of the IVDA. I am the Chairman of the Civilian Advisory Board to the IVDA, although I will not be speaking in that capacity. That's just an informational item.

The draft EIR -- EIS was certainly an achievement by the Air Force, and the Assemblyman congratulates the staff members that put that together in conjunction with the various public and private agencies in this area. Norton Air Force Base has been a friend and a companion. We hate to see you go.

1 We have some concern, however, and I'll reference your Summary, Page 1, where a partial statement indicates that mitigation measures, if any, that may be taken 1.1 by the Air Force, or be required, or be required of the recipients of Base property.... We feel that -- that sentence appears somewhat disturbing to us. It appears to give a 14 loophole as to who would be responsible for hazardous or toxic cleanup. And we would ask the Air Force to look at that sentence, and we don't believe that's the intent of the Air Force, but that's the appearance of that particular statement.

The Assemblyman is in full accord with the proposed action, and he will support that with whatever power

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that he has as a state representative.

2 On Page 13 of your summary, we again express concern over the installation/restoration program sites, where 10.1 the schedule could result in delays in the conveyance of contaminated sites for reuse. Now, while not a portion of the EIS, we do know that the actions of various federal agencies will affect the conveyance of property and the restoration programs that are planned.

There is a feeling by the public, certainly by 3 the Assemblyman's office, that there is disagreement as to how restoration of contaminated sites will be accomplished and who 10.2 will pay for them and the time frames between two federal agencies, and that is the EPA and the Air Force. And we would ask the Air Force and the EPA to attempt to resolve these issues as quickly as possible so that they don't deter from the ultimate action, and that is to convey this property so that it can be reused to bring back the economic power that the Air Force Base represented prior to its disposal.

4 The statement on Page -- Summary 13, another statement, where the demolition and renovation of structures 10.3 with asbestos containing materials are assumed to be performed by the new owners. This is somewhat inconsistent with the statement made by members of the panel which indicated that the Air Force would be taking the mitigation measures.

It's pretty difficult, if you're redeleveoping an area, to sell a piece of property to somebody and then hold

him responsible for contamination that exists on that property, whether it be in the ground or in a building. And we would ask that the Air Force review that particular sentence. If that is not your intent, then it should be modified so that it reads that it is not your intent.

I would offer to the members of the panel that a congressional bill, HR 1450, which is sometimes called White Knight legislation, which would allow the purchaser of a particular piece of property to be legally free from liability for prior contamination but allows him to buy the property, work out and negotiate with the responsible party over a period of time and clean up the site. Now, this particular legislation would not only be effective for the Air Force Base but would also be effective for the problems that the EPA faces nationally concerning cleanup of sites. But it would affect this type of situation that exists at Norton.

In conjunction with that congressional legislation, Assemblyman Eaves, this week, probably tomorrow, will be introducing parallel legislation in the State Assembly. It doesn't have a number yet so I regret I can't give you the number, Mr. Chairman. But that legislation will assist this problem, not only at Norton Air Force Base but probably every other military installation in the country. And we ask you to look at those two pieces of legislation and see if you can use it in the disposal process which will benefit the United States and its citizens.

The one question that was not brought up this evening concerning hazardous is the recent discovery of phenyl treatment problems from the wastewater treatment plant. And I would ask you to include that in one of your portions which indicate there is a problem and then a mitigation you plan to correct that particular issue.

Last but -- maybe not specifically environmental issue, but if we're going to correct environmental issues we have to get people that'll be involved and interested in buying the property and transferring it into other uses. We ask the Air Force to determine as quickly as you can the price of the property, which portion of the property will be turned over as a public benefit transfer, which property, if any, will be going to various government agencies, and let us get on with the process of the early planning concerning infrastructure and other modifications that must be made. The longer you delay in this particular decision, the longer you push back the redevelopment and the production of new jobs in order to make the transition from military to civilian use.

That's all the comments I have, Mr. Chairman and Members of the Board. We thank you for the opportunity to come before you this evening and make this presentation.

COL. THOMPSON: Thank you.

The procedure that I'll follow in recognizing members of the general public will be to call your name, using the attendance cards, and I will recognize the speaker and I

will also indicate, when I do that, who the next speaker to be recognized is, so that that individual can be prepared to come as soon as the previous speaker has finished.

The first speaker will be Evelyn Cervantes, and she'll be followed by Roger Hardgrave.

Evelyn Cervantes.

MS. CERVANTES: Good evening. My name is Evelyn Cervantes and I live at 749 East Mill Street, San Bernardino, California, 92408.

I understand you had a meeting also on November the 14th, 1991, and I didn't get to make that meeting. And the reason I was here was because I wanted to know what would happen to the people in the resident area where Tippecanoe and Mill Street, which I reside across the street to McDonnell and Douglas, right across the street behind ballistic missles organization, whatever it's called, and I've been worried about that because I didn't come to the meeting, and I wanted to know what happens to us living in the -- Mill Street there in the front.

And also that we've been having problems with air pollution, with traffic. See, we have a lot of traffic, a lot of cars, I believe about 3,000 per day, or whatever it is. And the, the traffic pollution goes into the homes, into my house. And it goes -- I can't even have my bedroom window open. It goes into the bedrooms and we're breathing all this.

I understand this is for Norton Air Force Base.

Maybe I'm talking on the wrong subject, but I was concerned about that.

COL. THOMPSON: I'm not certain that we will be able to address the specific concerns that you have about that area unless it has been addressed in the statement itself.

Col. Bartol?

LT. COL. BARTOL: I'm not sure of the first concern. The second concern, I think is traffic and air pollution associated with redevelopment, or even as existing on the Mill Street corridor right now; is that correct?

MS. CERVANTES: Right.

LT. COL. BARTOL: We can address that. The first one you talked -- you referenced a meeting on November 14th. Was that a meeting that the Air Force sponsored?

MS. CERVANTES: I believe so.

LT. COL. BARTOL: It may have been a technical review meeting associated with hazardous waste activities at Norton, which is somewhat different than what we're doing right now, which is disposal and reuse.

Do you want to express concerns about -- beyond the traffic and air quality issues?

MS. CERVANTES: Well, for what I've heard today, sounds good to me.

LT. COL. BARTOL: Okay.

MS. CERVANTES: Thank you.

COL. THOMPSON: Next will be Mr. Roger Hardgrave.

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And he'll be followed by Mr. Al -- well, you'll have to pardon me -- Boughey?

A VOICE: Boughey.

COL. THOMPSON: Boughey. Okay.

MR. HARDGRAVE: Thank you, Col. Thompson.

My name is Roger Hardgrave, 300 North 'D' Street, San Bernardino, California, 92418. I'm appearing this evening as Public Works Director for the City of San Bernardino. We are pleased to have this opportunity to offer the following comments on this draft EIS.

Number One, Flood Control. An inundation study by the U.S. Army Corps of Engineers found that the majority of the Base is presently subject to flood waters up to two feet in depth. However, upon completion of the Seven Oaks Dam in late 1997 the area of potential flooding will be reduced to approximately the Santa Ana River bed.

New developments on the Base would, therefore, be subject to potential flooding between the time that the Base is turned over for reuse in 1994 and the completion of the Seven Oaks Dam in late 1997. Even after completion of the dam, any development adjacent to the north dike for the Santa Ana River would most likely be required to do a study for flooding, particularly for damage from erosion.

We understand that there are many problems with local drainage on the Base. A comprehensive drainage system will need to be installed during implementation of the

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selected reuse plan in order to solve these problems.

Number Two: On-Base Roadways. An inventory of infrastructure on the Base revealed that the majority of the streets were constructed with a pavement section of six inches of Portland Cement concrete over native material. These streets were apparently constructed in the early 1940s and the pavement sections are nearing the end of their normal service life. This fact would soon necessitate the complete removal and replacement of the pavement sections, even if no widenings or realignments were contemplated.

It is the City's policy to have any planned work on utilities completed prior to repaving a street. This policy will result in every effort being made to have all necessary utility work completed prior to construction of the new pavement.

The draft EIS states that, quote, "Ultimately the entire on-Base network would be upgraded and reconstructed to accommodate new land uses in accordance with an approved specific plan for reuse." Unquote. We feel that the upgrading and reconstruction of these roadways would need to be done as the reuse is accomplished, instead of at the ultimate time. No estimate of cost is given, but it's obvious that the expense will be considerable.

Number Three: Utilities. Section 2.2.9 states that the proposed action involves almost total replacement of the Base utility distribution system. As previously stated,

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some of these replacements will need to be coordinated with the upgrading and reconstruction (possibly on new alignment) of the on-Base streets.

Replacement of almost all of the utility distribution systems represents a large expenditure for either the Base reuse developer, Inland Valley Development Agency, or utility providers.

Number Four: Storage tanks. It is stated in Section 3.3-4 that 58 active underground storage tanks have been indentified, and a contract has been set for a study to identify and locate any unknown underground storage tanks on the Base. All tanks that do not meet current regulations will be deactivated and removed.

While these proposals are encouraging, it is almost certain that some of the underground storage tanks will not be compatible with the Base reuse, which will necessitate their removal and deactivation in accordance with regulations in effect at that time. This situation could result in a fairly large expenditure for the Base reuse developer or IVDA.

The draft also states that the Base is currently operating under a waiver from DHS, which allows the Base to postpone compliance with leak detection, spill and overspill prevention and cathodic protection. Since this waiver will not expire until 1998, does this mean that the owner will have to comply with these requirements at that time, provided that it is transferable?

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We would like to reserve the right to submit a more detailed response by the end of the review and comment period on 3/9/92.

Thank you, Colonel.

COL. THOMPSON: Thank you.

Mr. Boughey.

And he will be followed by Wil Wright.

MR. BOUGHEY: Good evening.

My name is Al Boughey, Director of Planning of Building Services for the City of San Bernardino. I'd just like to hit four major points tonight in reference to the draft EIS. And they are one, to discuss the viability of the proposed action and the alternatives; two, the importance of a coordinated comprehensive approach to the redevelopment of the Norton facility; three, the opportunity to positively impact redevelopment of the surrounding area; and four, the cost and impact of reusing and upgrading existing buildings at the site.

Let me preface my remarks with two comments. First, it is my understanding that the actual redevelopment projects which may come along will most likely be subject to complying with the California Environmental Quality Act, and that in many respects they -- more defenitive and broader view of impacts will be addressed at that project's specific time. Secondly, it is my intent tonight to -- not to challenge the overall adequacy of the document but to raise some concerns

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over some important issues that need to be discussed further.

The first item, the preferred development approach, we prefer the proposed action alternative which contemplates the airport office industrial park land use mix. The key to this report is the potential for a positive impact on the redevelopment -- of the redevelopment land use mix will have on the surrounding -- growth and development of the surrounding area and the region as a whole.

3.1 The other alternatives do not offer the same advantages. The mixed use alternative does not exhibit the same positive redevelopment impact due to the fact that it relies more heavily to a -- more heavily on the reuse of existing updated facilities.

B, the aircraft maintenance center alternative has an option for incorporating mining activities which will have negative impacts on the attractiveness of the surrounding area as well as to the site itself for redevelopment opportunities. Although there certainly may be areas of the City appropriate for mining activities, the impact of mining in this particular area may dampen its attractiveness as a quality redevelopment area.

The non-aviation alternative loses sight of the redevelopment opportunites presented by the Norton aviation facilities and should not be seriously considered.

5.1 One point mentioned in the draft EIS indicated that the employment opportunities created by the other

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alternatives, the aviation alternatives, those employment opportunities created may result in a housing shortage in the area. I would suggest that, quite to the contrary, given the housing opportunities of the Inland Empire, the expansion of the employment opportunities would add balance to the economy of the area and reduce the need for our residents to commute to L.A. and Orange Counties for employment opportunities. This, in itself, would reduce the growth in all other trips of the future, which would have a positive environmental impact on Southern California.

The second major point is a comprehensive development program with a coordinated and integrated implementation ability is extremely important to reduce the potential for negative impacts. Local communities have formed an entity for the orderly planning and redevelopment of the area. Without that organization, the potential for piecemeal partial -- partialization of the facility is greatly increased. Such partialization increases the potential for haphazard development patterns and impacts that are far more difficult to mitigate. For that reason, IVDA's involvement with their preferred plan is in itself a major environmental mitigation tool, an opportunity that should not be lost.

Third major point, redevelopment is the key to creating the most favorable impacts on the surrounding area. Reuse without significant redevelopment will not influence new development in a positive manner, reliance on Band-aiding

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existing facilities will limit the attractiveness of quality development which is vital to the long-term economic health of the region. The marketability of the area will be greatly diminished by too great a reliance on out-dated facilities.

Four, and final point, is the cost in attempting to reuse existing facilities. The draft EIS is deficient in this area. The cost of reusing those facilities must take into account two factors: The result in market implications just discussed, and two, the required cost of upgrading the existing facilities to minimum code standards.

Any change in use or occupancy of abandoned buildings at the facility will require that existing facilities be brought to today's building and life safety code requirements. Even without a change in use or a change in occupancy, the City's adopted Uniform Building Code will require upgrades to meet minimum code standards for existing buildings. These standards involve such items as exiting stairs, fire escapes, corridors, vertical shafts, access and sprinkler issues, smoke detector systems.

This required rehabilitation to meet basic code requirements most likely will trigger the need to deal with the removal of asbestos, which is apparently in many of buildings at the Base. The cost to deal with this asbestos removal and other code rehabilitation activities must be included and recognized within the study, including that cost of lost time in reoccupying those facilities.

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Thank you.

COL. THOMPSON: Mr. Wright.

And he will be followed by Cheryl Flowers.

MR. WRIGHT: My name is Wil Wright. I'm the Fire Chief for the City of San Bernardino. My address is 200 East Third Street.

The study briefly covered fire protection but did not include specifics about fire protection systems. It is felt there is insufficient information to completely analyze the existing fire protection areas, especially as it pertains to the water supply and fire code compliance.

The areas of most concern to the Fire Department that need to be further addressed are the following: Are the existing fire protection systems sufficient? Can a 40 to 50-year old water supply system flow the required amounts and durations? Will the existing flows meet today's standards? Have the existing buildings changed usage since original configurations? If so, would they meet City codes without costly upgrades? For example, fire separations and sprinkler coverage. When the warehouses were converted to offices, were the fire protections systems upgraded to meet the requirments, such as proper exiting systems, proper firewall construction, sprinkler heads rated for the type of combustibles and et cetera?

If some of the vacant buildings are going to be reoccupied after the transfer of the Base, it's common for a

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new tenant to do improvements to a building, especially older buildings. Would these improvements require the rest of the building to meet more recent fire codes?

Buildings that are reused or remodeled will require a Certificate to Occupy. Some buildings -- to see if buildings meet current life and safety standards. Some may require upgrading of fire protection systems. Are the existing hydrants compatible with the surrounding area fire departments? If not, they would need to be replaced. And finally, will all the existing water and sprinkler systems be full flow tested to show they meet requirements for fire protection?

I appreciate the effort the Air Force has put forth in the documents and I hope my comments are helpful to the process.

COL. THOMPSON: Ms. Flowers.

She will be followed by Timothy C. Steinhaus.

MS. FLOWERS: Thank you, Colonel Thompson.

My name is Cheryl Flowers. I reside at 31075 Nice Avenue in Mentone. And I'm here speaking tonight in the capacity of Assistant General Manger for the City Water Department. I have verbal testimony to enter into the record for your consideration in preparation of the final EIS.

It's the opinion of the Water Department that the reuse of Norton Air Force Base plan that was prepared by the Inland Valley Development Agency appears to be the most

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feasible of each of the alternatives presented in the draft EIS for the Water Department to best respond to and serve. A comprehensive redevelopment approach is absolutely necessary in terms of planning for and implementing utility system upgrades. We would be particularly concerned for upgrades to meet fire flow requirements and wastewater treatment requirements.

Most of the reuse alternatives that were prepared by the Air Force appear to optimistically assume that utility systems in place could serve any redevelopment. System upgrades will most likely be required, and these are best addressed in the presentation of the proposed action. A complete analysis and valuation of utility systems, including the industrial waste treatment plant which was not addressed in the draft EIS, would be necessary to determine both the cost and regulatory and operational requirements for water, sewer and domestic and industrial wastewater treatment. For any of these alternatives, significant future planning and analysis would be required prior to implementation of any reuse of the Base.

We anticipate that upon adoption of the proposed action that the Water Department would necessarily work very closely with IVDA to define new system and treatment requirements and reach agreements for necessary improvements, those costs and eventual connection to the City's existing water, sewer and wastewater treatment systems. A specific

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plan for redevelopment of the Base must be prepared to evaluate the master planning of new water treatment and distribution systems.

We'd like to thank the Air Force for the opportunity to comment on this document and we sincerely hope that consideration is given to adoption of a final EIS for the proposed action.

Thank you.

COL. THOMPSON: Mr. Stenhouse.

And he will be followed by James Monger.

MR. STEINHOUSE: Yes. My name is Timothy Steinhaus. I'm the Administrator for the City's Economic Development Agency at 201 North 'E' Street, San Bernardino.

I would like to speak in support of the IVDA plan for reuse of Norton Air Force Base. The Base reuse plan of IVDA addresses all of the City of San Bernardino's planning and infrastructure issues and ensures that the City land use concerns and architectural design criteria will be met.

The economic valability of the City of San Bernardino can best be ensured by intensive demolition of existing non-aviation facilities and new construction of office industrial and reuse areas compatible with the other newly develop areas of the City. In particular, I must express my co. rns with the retention of 2.3 million square feet of existing buildings at Norton Air Force Base for office and industrial space as proposed in the Air Force mixed use

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alternative.

Currently Inland Empire office space is being absorbed at a rate of 800,000 square feet a year. This is in a market where 2.7 million square feet of completed space is available and another 100,000 square feet is nearing completion, representing a 22.3 percent vacancy rate. Meanwhile, industrial firms are absorbing 9,800,000 square feet per year where 23.8 million square feet are available, and another 600,000 square feet are nearing completion, a 20 percent vacancy rate.

Forecast for the next five years by Price-Waterhouse do not see any major increase in the absorption rate. This means that Norton Air Force Base office and industrial space must compete in a buyer's market, one in which newer buildings in prime locations are getting nearly all of the business.

For instance, the major office competitor to Norton is the Rancon Corporate Tri-City development along the I-10 Freeway between Waterman and Tippecanoe. Rancon has captured 80 percent of the new office absorptions in the east San Bernardino Valley area during the past 18 months, with its brand new structures located just off the freeway. They are constructing new buildings right now and plan several more in the future.

In this present economic environment, the only way Norton Air Force Base, with its out-of-the-way location,

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can compete for new firms is to combine its natural advantage of the airport runway with competitive modern structures. Older structures do not today and will not in the future compete for a major share in the new firms coming to this market. There are too many -- there are too many alternatives available for other uses.

In fact, the competitive environment has led the IVDA, in its Norton Air Force Base reuse plan, to call for new construction on the Base to absorb relatively low numbers of firms locating in the Inland Empire, even with new structures. If retained office and industrial square footage on the Base were forced to compete with existing new structures, these assumptions of the IVDA would have to be dramatically lowered.

In many respects, the existing structures on the Base to not allow reuse opportunities as suggested by the Air Force, but represent negative values to any worthwhile Norton reuse efforts. If the existing structures must be purchased at any positive value figure, first the market conditions will not allow such obsolete structures to be competitively leased. In almost all instances, a demolition cost must be incurred before new competitive space can be built in their place. The demolition cost, in compliance with typical building code requirements, make any reuse of existing non-aviation structures not a viable option.

In summary, as the Agency Administrator for the City's Economic Development Agency, I believe that, Number 1,

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reuse of Norton must be undertaken by IVDA which has the organizational structure in place to ensure a successful reuse of Norton; Number 2, the IVDA's Base reuse plan is the only land use plan that is competitive in today's market in light of other projects presently leasing within the region; Number 3, the Air Force must recognize that most, if not all, of the non-aviation structures on Norton have exceeded their useful life; and Number 4, a successful reuse effort will require the Air Force to remedy the buildings and infrastructure inequities through demolition at the cost of the Air Force, so as not to burden the IVDA with unduly high land cost basis. This will ensure and enable the IVDA to remain competitive with other projects in the vicinity.

Thank you very much.

COL. THOMPSON: Mr. Monger.

MR. MONGAR: Col. Thompson, Board Members. I'm James Monger, Director of the San Bernardino County Department of Airports, 825 East Third Street, San Bernardino.

On behalf of our department, I would like for you to note that we fully support the Base reuse plan as proposed by IVDA. Further, please be advised that the alternative within the plan noted as a non-aviation alternative is not a viable option, irrespective of what may or may not happen to the non-airfield portion of the Base.

Should no body or governmental entity take title to the Base, recent state legislation allows for the State of

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California to operate Norton as a public airport. The airfield area will continue as a public airport. The Federal Aviation Administration has determined that Norton has a place in the national airport system plan. It will serve a purpose and it will assist in better utilization of the air space in Southern California.

Please consider the following comments for inclusion in the final Norton EIS. No aggregate mining should be allowed within the airfield or airfield support areas. Aggregate mining is not compatible with any type of airport operation. Combine the airfield and airfield support land areas, as noted in various alternatives, as one parcel for public benefit transfer, not two parcels. Realign to a minor degree the future airport property line to allow for all potential aviation related and support areas and buildings to be a part of the public benefit transfer within the title. The airport must retain all possible support facilities in order to make the airport self-supporting.

Exclude from the transfer a portion of the northeast corner of the Air Base as it is unusable as it is a hazardous material landfille area, as we understand it. That is the area north of the A -- correction. That is the area east of the AVIS building complex and north of the easterly clear zone just south of East Third Avenue at the corner of Alabama.

Thank you for considering these comments.

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COL. THOMPSON: That completes the cards that have been turned in. Is there anyone who turned in a card who was not recognized?

(No response)

Is there anyone else who desires to be recognized to speak?

(No response)

On behalf of the Air Force, I'd like to thank you for your interest in this proceeding and for your contributions and you comments which we received this evening. Please do recall that if you have comments that you'd like to submit in writing, you may still do so. And you may do that by sending them to the address that is provided on the comment card, again by, I believe, the 9th of March of this year.

This hearing is adjourned.

(Proceedings concluded at 8:32 p.m.)

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CERTIFICATE

I, Audrey I. Patrick, CSR No. 787, Certified Shorthand Reporter, hereby declare that the foregoing proceedings were had at the time and place herein set forth and were taken down by me in stenotypy and thereafter transcribed into typewriting under my direction;

That the foregoing pages contain a true and correct transcription of the proceedings had.

Dated this 19th day of February 1992,

at San Bernardino, California.

Audrey I. Patrick

Audrey I. Patrick CSR No. 787
Registered Professional Reporter

AUDREY PATRICK REPORTING SERVICE

DOCUMENT 2

U.S. Department of Justice

Federal Bureau of Prisons

Washington, D.C. 20534

January 27, 1992

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 Norton Air Force Base that you recently forwarded for our review.

1 3.5 The Federal Bureau of Prisons is withdrawing its proposal to site a Federal correctional facility at Norton. We appreciated the opportunity to participate in the Environmental Impact Statement process regarding the disposal and reuse of Norton 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

United States Department of the Interior

NATIONAL PARK SERVICE
Western Region
600 Harrison Street, Suite 600
San Francisco, California 94107-1372

2400 (WR-RG)

January 3, 1992

Major Sean McGoldrick
Air Force Base Closure Office
The Pentagon, Room 5D973
Washington, D.C. 20330-1000

Dear Major McGoldrick:

This is a follow-up to our letter of April 12, 1991, (copy enclosed) regarding the City of Highland's interest in acquiring a portion of Norton Air Force Base for park and recreation purposes through a public benefit discount conveyance. The City's original interest involved a 30-acre non-contiguous parcel within the City limits that is partially improved with a Little
1 League ballfield. The City has since reconsidered its request
4.6 and now is interested in only 15 acres of the parcel for park and recreation purposes. They believe that development of a public park on 15 acres with the rest of the site devoted to residential uses would be a more economically viable proposal.

We have reviewed the City's revised park proposal and feel it represents an acceptable plan for creating a badly needed recreation facility within the City. The reduced acreage should allow the City to complete a viable park development within a reasonable timeframe. This letter is meant to reflect National Park Service conceptual approval of the City's park proposal and support for a public benefit discount conveyance of the desired 15 acres.

We would appreciate your favorable consideration of this request and if we can provide additional information or assistance at this time, please let us know.

Sincerely,

(Sgd) Thomas D. Mulhern, Jr.

for John D. Cherry
Associate Regional Director
Resource Management and Planning

Enclosure

DOCUMENT 3

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cc: John Rittenhouse, Deputy for Installations Management
Office of the Deputy Assistant Secretary of the Air Force
(Installations) SAF/MII
The Pentagon
Washington, D.C. 20330-1000

Colonel Tom Bartol
FCAFFCEE
Norton Air Force Base
San Bernardino, CA 92409-5000

Captain Dale Clark
AFRCE BMS/DEVE
Norton Air Force Base
San Bernardino, CA 92409-6448

Patti Warren, Real Estate Officer
AFBDA/BDA Building 2
Norton Air Force Base
San Bernardino, CA 92409-5000

Bruce Coleman, Community Development Director
City of Highland
26985 Base Line
Highland, CA 92346

DOCUMENT 4

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY — PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 8, P.O. BOX 231
SAN BERNARDINO, CALIFORNIA 92402
TDD 714 383-6609

February 10, 1992

08-SBd-215-7.1

Lieutenant Colonel Thomas J. Bartol
AFCEE/ESE
Norton Air Force Base, CA 92409-6448

Dear Lieutenant Colonel Bartol:

Draft Socioeconomic Impact Analysis Study
Disposal and Reuse of Norton Air Force Base

S | We have reviewed the above-referenced document and have no comments at this time.

If you have any questions, please contact Tom Meyers at (714) 383-6908 or FAX (714) 383-5936.

Sincerely,

HARVEY J. SAWYER, Chief
Transportation Planning
San Bernardino County
Coordination Branch

DOCUMENT 5

DEPARTMENT OF VETERANS AFFAIRS
Jerry L. Pettis Memorial Veterans Hospital
11201 Benton Street
Loma Linda CA 92357

February 20, 1992

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFCEE/ESE
Norton AFB, Cal. 92409-6448

Subj: Disposal and Reuse of Norton AFB

1 | 3.6 | 1. The Jerry L. Pettis Memorial Veterans Medical Center in Loma Linda Ca. appreciates the opportunity to respond to the Draft Environmental Impact Statement (DEIS) on the Disposal and Reuse of Norton Air Force Base dated January 1992. The medical center is concerned by the manner in which the DEIS appears to only give secondary consideration to reuse of this federal property by other
2 | federal agencies. The reuse alternative selected by the DEIS as the "Proposed Action" involves converting the Base into a commercial airport and demolishing most of the facilities currently
3.7 | housing the non-aviation support functions and replacing them with new office, industrial and airport-related commercial developments. Tearing down perfectly good buildings which could be used by the VA medical center and March AFB to treat veterans, retirees and military dependents at minimal additional cost to taxpayers appears to us to be irrational and irresponsible.

3 | 3.8 | 2. The space requested by the medical center is located in the northwest corner of the Base and could be saved with little impact on the overall concept of the Proposed Action. San Bernardino is littered with industrial parks and most of them are half empty. There is also abundant vacant land around the Base that could be used to build more industrial parks.

4 | 4.7 | 3. The Department of Veterans Affairs (DVA) feels that we should receive priority consideration in the reuse of this military property because our primary mission is caring for military veterans. The DVA is also designated as the backup support health
5 | care system for military hospitals in times of national emergency, as was so recently demonstrated during the Desert Storm conflict. Norton and March AFBs were primary receiving bases for casualties and VAMC Loma Linda was the first line transfer facility for southern California.

3.9 | 4. March AFB which is scheduled to accept several of the functions being displaced from Norton AFB is currently expanding the number of scarce medical services contracts it has with this medical center. The VA and March AFB have developed plans to jointly utilize the Norton Clinic building to treat veterans and military beneficiaries (See attached letter from the Administrator of the March AFB hospital regarding our plans for the joint use of

DOCUMENT 5

5 | 3.9 | the Norton AFB clinic building). In addition to this planned joint venture , the two facilities are presently developing a proposal to temporarily house most of March's inpatient services at the VA during the renovation of the March AFB hospital. The acquisition of additional space at Norton is vital to the success of these plans and the saving of millions of taxpayer dollars. During the renovation period and beyond, considerations are also being discussed toward the VA providing care to the Ballistic Missile Organization staff which will remain at Norton but become the medical care responsibility of March.

5. Thank you for your interest in this medical center and the health care of our veterans. Any assistance which can be provided toward helping us to acquire facilities at Norton AFB will be greatly appreciated. If you require additional information please contact me, or my Administrative Assistant at (714) 825-7084, ext. 2526 (FTS 996-2526).

Charles E. Clark
Medical Center Director

DOCUMENT 5

DEPARTMENT OF THE AIR FORCE
22D STRATEGIC HOSPITAL SAC
MARCH AIR FORCE BASE, CALIFORNIA 92518-5300

REPLY TO ATTN OF: SGA — 5 Jun 91

SUBJECT: Conversation with Mr Charles E. Clark, Director of Loma Linda VA Hospital

TO: HQ SAC/SGAG (Maj Clarke)

1. Maj Clarke called me on 29 May 91 to confirm with the Local VA Hospital if they had requested use of the Norton Clinic building when Norton AFB closes in 1993. I spoke with Mr Clark on 30 May 91, and he said the VA hospital was very interested in gaining custody of the Norton Clinic. The VA wants to house some clinics (as yet undetermined) since they are so cramped in their current facility. They are also interested in storage space on Norton, owned by the Clinic, for use as storage space.

2. I told Mr Clark that we were looking at establishing a family practice residency beginning in July 1993 and we would like to use part of the Norton Clinic for the family practice program. Mr Clark was pleased with that arrangement and thought that we could easily work out a joint use agreement for the Norton Clinic. In fact, he felt that such an agreement would strengthen the VA's justification to obtain custody of that facility.

3. Mr Clark and I did not discuss the modular buildings around the Norton Clinic. A commitment is already being worked (by HQ SAC and HQ MAC) to move those buildings to March AFB to house medical functions that will be displaced by the BRAC/MCP projects scheduled to commence at March in FY 93.

JOHN M. SHEEHAN, Lt Col, USAF, MSC
Administrator

cc: SG
Mr Clark
SGAF (Dr Clement)
SGAL (Capt Struble)
USAF Clinic Norton/SG

War is our profession -- Peace is our product

TRANSPORTATION/FLOOD CONTROL DEPARTMENT

COUNTY OF SAN BERNARDINO
PUBLIC WORKS GROUP

825 East Third Street • San Bernardino, CA 92415-0835 • (714) 387-2555
Fax No. (714) 387-2667

KEN A. MILLER
Director

March 2, 1992

File: 8(CTY)-12

Lt. Col. Thomas J. Barol
Director of Environmental Division
AFRCE-BMR/DEV
Norton AFB, CA 92409-6448

Re: Zone 2, Draft Environmental Impact Statement (DEIS) - Disposal and Reuse of Norton Air Force Base

Dear Col. Barol:

We have received your Draft Environmental Impact Report, dated January 1992. The DEIS considers four alternatives for the reuse of Norton AFB and analyzes the environmental consequences of each. The DEIS has been distributed through the Flood Control District (District) for comments. Enclosed are comments dated February 5, 1992 from Ken Miller, Director of Transportation/Flood Control. Flood Control Planning and Transportation Program Management Divisions' comments are listed below:

1
7.2 A full traffic impact study is needed to evaluate and mitigate the impacts of each reuse alternative. The worse case scenario, which is Non-Aviation Use, would generate 118,438 trips. These trips are not fully mitigated in the DEIS.

2
12.3 The San Bernardino County Flood Control District owns, operates and maintains City Creek Channel, which is inadequate to contain major storm flows. Norton AFB is also currently subject to inundation and erosion from the Santa Ana River, which borders the project area on the south. The redevelopment plan should address these flood hazards and consider possible protection measures which could include additional channels, flood plain management and/or improvements of the existing inadequate District facilities.

3
12.3 Future development will prevent much of the storm water from percolating into the soil, thus contributing to surface flow. As a result, the increased runoff could overburden existing flood control facilities (which are already inadequate), cause additional soil erosion, and increase damage caused by flooding. The redevelopment plan should address the impacts of increased flows generated by new development on downstream properties and District facilities. As the project develops, we would like to be made aware of any impacts the proposed redevelopment plan will have on these facilities, or any changes to water courses that would affect flow patterns. We will be glad to assist you in any way we can.

4
12.4 In Sections 4.4.2.1.-4.4.2.4, Surface Water, the term "Storm Sewer" should be changed to "Storm Drain". Storm water should be kept out of the sewer systems.

It has been the County's policy with regards to redevelopment projects, that the District's portion of the tax increment always be passed through to the District due to our severe funding constraints. In no case shall the tax increment be used for installation of local storm drains.

If you have any questions or would like further information, please call me or Robert Corchero, Planning Division Chief, at (714) 387-2525.

Very truly yours,

CHARLES L. LAIRD, Assistant Director
Transportation/Flood Control

CLL:RAC:alg

Enclosure

INTEROFFICE MEMO

DATE February 5, 1992 PHONE 2623

FROM KEN A. MILLER, Director
Transportation/Flood Control

TO MICHAEL G. WALKER, AAO
Public Works Group

County of San Bernardino

File: 117

SUBJECT NORTON AFB DISPOSAL AND REUSE - COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

Provided are the following comments on the DEIS for Norton AFB disposal and reuse:

TRANSPORTATION

A. The report includes discussion and data on various project alternatives and resulting impacts on existing transportation facilities. Also included are proposed actions to address these impacts. Other than a portion of Alabama Street from the south side of the Santa Ana River to about Lugonia Avenue, other roadways impacted by reuse are within the jurisdiction of the Cities of San Bernardino, Highland, and Redlands.

Without review of any backup studies that may have been prepared on transportation, it is not possible to adequately access the comments/data in the DEIS. However, as noted above, this area will be of more concern to the cities due to jurisdictional responsibilities.

FLOOD CONTROL/DRAINAGE

5
12.1 A. The DEIS does not comment to any degree on drainage or flood control. The Norton site is presently subject to inundation and erosion from a major storm event on the Santa Ana River. The Seven Oaks Dam will remove the inundation from Santa Ana River flows when complete. currently estimated at the end of 1997. Significant flows will be possible in the river adjacent to the site even after dam construction, principally from Mill Creek, thereby subjecting the southerly portion of the site to possible erosion and localized inundation.

6
12.2 B. Drainage flows from the north and east of the site will need to be addressed by the development. Also, onsite drainage will need to be addressed. Due to the potential industrial uses developed on site, industrial discharge permits under the federal National Pollution Discharge Elimination System (N.P.D.E.S.) will probably be required to discharge post-development flows into the Santa Ana

River.

7
15.1 C. On page S-2 of the report, it is indicated that the Santa Ana Wash area on base would be retained as recreation)open space area). On page S-11 under biological resources, it is indicated that under several alternatives that there are potential impacts on Santa Ana River wetlands, Santa Ana River Woolly Star, etc. There seems to be some contradication between portions of report.

D. The Flood Control District would be willing to take over ownership and associated responsibilities for those portions of the site lying within the Santa Ana River floodway.

8
12.1 E. Any site improvements adjacent to the Santa Ana River's north bank may require improvement to the existing levee.

The Department would be available to meet or discuss any of the above with the consultant that prepared the DEIS if necessary.

KAM:rc

DOCUMENT 7

JAL

Japan Airlines
[illegible]

February 25, 1992

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFCEE/ESE
Norton AFB, CA 92409-6448

Re: Comments on Draft Environmental Impact Statement (EIS) for the Disposal and Reuse of Norton AFB

Dear LT. Col. Bartol:

Japan Airlines ("JAL") and our counsel have reviewed the Draft EIS for the Disposal and Reuse of Norton AFB on behalf of Japan Airlines. As you may know, JAL has entered into a maintenance agreement with Lockheed Commercial Aircraft Center (LCAC) pursuant to which LCAC will repair, maintain and modify JAL aircraft at Norton AFB. JAL, through one of its subsidiaries, is also a minority shareholder of LCAC and has an interest in uses of Norton AFB which may affect LCAC's commercial operations.

1, 3.10 We support the land use alternatives described in the Draft EIS to the extent that they are compatible with LCAC's aircraft maintenance activities. The Proposed Action, the Airport with Mixed Use Alternatives, and the Aircraft Maintenance Center Alternative, all appear to be consistent with the ongoing operations and potential future expansion of

2, 3.4 LCAC. We are opposed to any alternatives that do not accommodate continued use and future expansion of aircraft maintenance facilities, such as the Non-Aviation alternative. We must also oppose reuse plans that

3, 6.4 incorporate noise-sensitive projects situated close to the airfield--such as residential housing, schools and offices--which are incompatible with noise levels generated by aircraft arrivals, departures and maintenance activities.

DOCUMENT 7

4, 4.8 Finally, we are concerned that major construction in the vicinity of LCAC's operations, as well as possible future airfield improvements could disrupt JAL's maintenance schedule. Accordingly, we would like further assurances in the Final EIS that LCAC will be able to continue to operate its exisitng and planned expansion facilities without interruption.

Very truly yours,

Michiro Kono
Director
Business Research & Development

DOCUMENT 8

The Resources Agency

Pete Wilson
Governor

Douglas P. Wheeler
Secretary

of California

[illegible]

February 28, 1992

U. S. Department of the Air Force
ATTN: Lt. Colonel Thomas J. Bartol
Director of Environmental Division
AFRCE-BMS/DEV
Norton AFB, CA 92409-6448

Dear Colonel Bartol:

The State has reviewed the Draft Environmental Impact Statement for Disposal and Reuse of Norton Air Force Base, San Bernardino County, submitted through the Office of Planning and Research.

We coordinated review of this document with the State Lands Commission, the Air Resources, Integrated Waste Management, and Santa Ana Regional Water Quality Control Boards and the Departments of Conservation, Fish and Game, and Transportation.

The Department of Transportation has provided the attached comments for your consideration.

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 91034011)

[illegible]

DOCUMENT 8

DEPARTMENT OF TRANSPORTATION
DISTRICT 8 P.O. BOX 231
SAN BERNARDINO CALIFORNIA 92402
TDD (714) 383-4609

February 24, 1992

08-SBd-030-24.2
SCH# 91034011

Mr. Nadell Gayou
Department of Water Resources
1416 Ninth Street, Room 449
Sacramento, CA 95814

Dear Mr. Gayou:

Draft Environmental Impact Statement
on the Disposal and Reuse of
Norton Air Force Base

We have reviewed the above-referenced document and request consideration of the following comments:

Adequacy of EIS

The disposal and reuse of a facility such as Norton Air Force Base has many positive and negative attributes. It is very hard to specifically tie down what they all will be.

In reviewing the transportation impacts identified in this report, it becomes apparent that while this is a complete and fairly thorough review at this point and for this specific action, continuing study of impacts will be needed in the future as the Inland Valley Development Agency's plans take shape.

Airport Facilities:

1, 3.10 Norton's potential to relieve at least some of the forecasted cargo and passenger capacity in Southern California is significant. There is a civilian aviation need for Norton Air Force Base as a general aviation/commercial airport, with emphasis on air cargo and as an industrial complex. Caltrans supports the inclusion of such uses in this reuse plan.

DOCUMENT 8

If you have any questions, please contact Tom Meyers at (714) 383-6908 or FAX (714) 383-5936.

Sincerely,

Thomas G. Meyers for

HARVEY J. SAWYER, Chief
Transportation Planning
San Bernardino County
Coordination Branch

DOCUMENT 9

RICHARDS, WATSON & GERSHON

March 4, 1991

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFRCE-BMS/OEV
Norton Air Force Base, California 92409-6448

Re: Draft Environmental Impact Statement
for the Disposal and Reuse of Norton Air Force Base,
California, January, 1992

Dear Lt. Col. Bartol:

The following comments to the above referenced EIS are submitted on behalf of the City of Redlands. As discussed in detail below, the City believes that there are significant deficiencies in the Draft Environmental Impact Statement for the Disposal and Reuse of Norton Air Force Base ("EIS"). The City 1.1 requests that the EIS be revised and recirculated so that it may fulfill the goals of the National Environmental Policy Act ("NEPA").

In general, the City has several concerns regarding the 2 approach and level of analysis contained in the EIS. First, the 1.5 United States Air Force has failed to coordinate the environmental evaluation of the reuse of Norton Air Force Base with local agencies that are also evaluating the environmental impacts of the reuse. For example, an Environmental Impact Report was prepared on this identical subject by the Inland Valley Development Agency. Furthermore, it is currently contemplated by the local agencies surrounding the Base that a joint powers authority will be formed to receive and develop all portions of the Base being transferred by the Federal Government. Such authority will be required to prepare environmental documents in compliance with the California Environmental Quality Act. The failure to coordinate the environmental review process between federal, state and local agencies makes it difficult for

DOCUMENT 9

other local agencies and the public to understand and comment 3 upon the environmental impacts of any particular reuse plan. The City of Redlands requests that, in compliance with NEPA (40 CFR 1.6 § 1506.2), the Air Force cooperate with any local agency implementing reuse plans for Norton Air Force Base so that one joint environmental document is prepared and circulated to evaluate the reuse of Norton Air Force Base.

The Airport and Airway Improvement Act of 1982 specifies that airport development projects may not be approved unless such projects are compatible with plans of local agencies for development of the entire area in which the airport is 4 located. Furthermore, NEPA requires that an EIS examine "possible conflicts between the proposed action and the 6.5 objectives of Federal, regional, State and local . . . land use plans, policies and controls. . . ." (40 CFR § 1502.16(d).) In this case, the EIS only sporadically analyzes the compatibility of the proposed action with the plans of surrounding 5 jurisdictions. Furthermore, to date, the City of Redlands has not been contacted regarding the compatibility of the airport 1.7 development projects discussed in the EIS with Redlands' land use plans. Redlands would like to meet with Air Force officials to discuss compatibility issues.

6 The discussion contained in Chapter 2 of the EIS, "Alternatives Including The Proposed Action," is designed to be "the heart of the environmental impact statement." (40 CFR § 1502.14.) This discussion "should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision maker and the public." 1.8 (Id.) In the case of this EIS, the discussion in Chapter 2 merely explains the land uses proposed as part of the proposed action and alternatives. Although a table of environmental impacts is provided at the conclusion of the Chapter, that table is no different than the table that should be found in a "summary" section of an Environmental Impact Statement. At best, this summary table of impacts merely presents general statements or quantitative statements regarding impacts. No explanation is provided regarding the significance of the difference between impacts. Furthermore, in certain areas such as traffic impacts, no basis is provided for comparing impacts. For example, with regard to traffic impacts, this Chapter merely provides the number of trips expected to be generated by the proposed action and the alternative. There is no analysis of whether the existing circulation system will be able to accommodate the number of trips generated by the proposed action or any of the alternatives. Therefore, this Chapter fails to define the issues presented by the choice among the alternatives and leaves the

DOCUMENT 9

6 decisionmaker and the public without a basis for choosing among 1.8 the options presented.

7 Chapter 4, on the other hand, should evaluate the environmental impacts of each alternative and provide an analytic basis for comparison among the alternatives. (40 CFR § 1502.16.) Instead, this Chapter often fails to provide an analytic basis for comparison and merely makes general comparative statements. As a result, the decisionmaker and the public do not receive 1.9 sufficient background to analyze the relative merits of the proposed action and the alternatives. Furthermore, as a consequence of this general approach, mitigation measures are often discussed only superficially and contain insufficient detail to allow a decisionmaker to condition reuse of Norton Air Force Base in a manner that will mitigate adverse environmental impacts.

8 Additionally, and importantly, the City is very concerned that the EIS rests its environmental analysis upon many assumptions regarding the proposed action and alternatives. However, the EIS does not recommend mitigation measures to ensure that the proposed action or the alternatives will conform to the assumptions contained in the EIS. Even today, both potential 4.9 developers and current users of the Base are exploring uses, such as air cargo uses, that are not examined in the EIS. This EIS cannot function as an adequate analysis of the proposed disposal of Norton Air Force Base unless conditions are placed upon the disposal to ensure that the subsequent use will conform to the analysis contained in this EIS.

9 More substantively, the City questions the choice of a commercial airport as the "proposed action." A representative of the Federal Aviation Administration ("FAA") has indicated to the Inland Valley Development Agency that the FAA would not approve the establishment of a commercial aviation facility that served 1.10 enplaned passengers at Norton Air Force Base. Therefore, by concentrating the EIS analysis on an alternative that will not be approved, the EIS deprives the decisionmaker and the public of an opportunity to receive an in-depth analysis of a more feasible alternative.

The City also questions the incorporation of mining activities into the "Airport Maintenance" alternative. The City believes that airport maintenance activities represent a realistic reuse of Norton Air Force Base. However, the EIS' analysis of the impacts of this reuse is skewed by the inclusion 10 of an unrelated use, mining. Mining, as an ancillary use, is 3.12 separately analyzed in the EIS and should be removed from the "Airport Maintenance" alternative.

The City's specific comments are listed below.

11 1. The Summary section of the EIS does not adequately describe the "other land use concepts." Without an adequate
3.6 description of "other land use concepts," the public will not be able to read the summary and understand the issues presented in the EIS. Therefore, the summary will fail to fulfill its basic functions under NEPA.

12 2. The EIS does not include any discussion of "areas of controversy" or "issues to be resolved" concerning this
1.11 project. A discussion of "areas of controversy" and "issues to be resolved" concerning this project is required by 40 CFR § 1502.12.

13 3. Tables 1.5-1 and 1.5-2 fail to address compliance
1.12 with the California Environmental Quality Act as a requirement before a reuse plan may be approved or implemented by California State or local agencies.

14 4. While the City of Redlands has no objection at this time to the inclusion of the "Ballistic Missile Organization Support Facilities" or the existing "Officer and Non-Commissioned Officer Military Family Housing Units" as part of the reuse plan
1.13 for Norton Air Force Base, the City does not believe that it is appropriate to prepare a separate environmental assessment regarding these uses. The City believes that this EIS should analyze the impacts of all proposed uses of Norton Air Force Base as part of one comprehensive document.

15 5. Chapter Two. 40 CFR § 1502.14(f) requires that this Chapter include "appropriate mitigation measures not already included in the proposed action or alternatives." However, since
3.11 this Chapter fails to identify environmental impacts in some areas and fails to discuss the significance of the environmental impacts in other areas, the Chapter does not, and cannot, include a discussion of appropriate mitigation measures.

16 6. Section 2.2.6. Please be advised that Alabama Street north of San Bernardino Avenue and south of San Bernardino
7.3 Avenue to Interstate 10 is currently four lanes wide. Also, the City of Redlands draft General Plan would require widening of this street to six lanes.

17 7. Section 2.3.1.8. Although the alternative discussed in this Section does not include a new air terminal,
7.4 widening and improvements to Alabama Street should be included as mitigation measures to accommodate increased traffic that would result from this alternative.

18 8. Figure 3.2-3. This figure should be updated to
6.8 reflect recent annexations by the City of Redlands.

19 9. Page 3-10. The second full paragraph on this page
6.7 should be updated to reflect the current lease with Lockheed.

20 10. § 3.2.2.1. 40 CFR § 1506.2(d) requires that the EIS discuss "any inconsistency of a proposed action with a state or local plan and laws....Where an inconsistency exists, the statement should describe the extent to which the agency would reconcile its proposed action with the plan or law." In this
6.5 case, the EIS does not include a description of the local plans or laws of any of the jurisdictions surrounding the base, except the City of San Bernardino. Without a discussion of the plans and laws that exist, there can be no informed analysis of any conflicts with those plans and laws. Special attention should be directed toward the East Valley Corridor Specific Plan.

21 11. Section 3.2.2.2. Since the eastern portion of the
6.8 river corridor "provides a peaceful natural setting that would facilitate high quality rural and equestrian oriented development," why is this area not classified as being visually sensitive?

12. Page 3-13. The City of Redlands supports the improvement of Alabama Avenue/Palm Avenue to the level of a major arterial.

13. Page 3-38. The discussion of "movement of goods" indicates that at the time of base closure, "truck traffic on key local roads will be reduced by about fifty trucks during peak 22 hours." However, this reveals little useful information because
7.5 the EIS does not indicate the volume of truck traffic before base closure. Therefore, the significance of truck traffic impacts cannot be evaluated because no baseline is provided.

23 14. Page 3-52. The discussion of wastewater treatment
9.6 facilities in the affected environment fails to address the capacity of the facilities. Without knowing the capacity of the facilities, neither the decisionmaker nor the public can evaluate the impact of the proposed action or the alternatives on those facilities.

15. Section 3.4.6.3. The EIS concludes that historic structures in the City of Redlands will not be impacted by noise from aircraft activity because the noise will not cause 24 structural damage to the structures. However, the EIS should
16.1 recognize that flight noise can make the use and enjoyment of these structures impossible and therefore deprive them of their

24 historic value. For example, presently, flights from Norton Air Force Base often make conversation impossible at the Smiley Library, a site listed on the National Register of Historic Places. The impact of flight noise on historic structures in the
16.1 City of Redlands and in the City of San Bernardino should be recognized as adverse and mitigation measures should be included in the EIS to address the impact. In addition, the impact of flight noise on cultural resources, such as the Redlands Bowl, should be addressed.

25 16. Chapter 3. The description of the affected environment contained in this Section should be succinct and no longer than necessary to understand the effects of the proposed action. Data and analyses should be commensurate with the importance of the impact. (40 CFR § 1502.15.) However, this EIS
1.14 contains a description of the affected environment that exceeds one hundred pages. Much of the material, such as the discussion of the runway equipment, is not relevant to the environmental impacts of the proposed action and the alternatives. As a result, the important aspects of the existing environment, such as biological resources and water supply conditions, become almost impossible for the decisionmaker or the public to discern. This Chapter should be dramatically reduced in size in order to fulfill its proper function.

26 17. Section 4.2.1. Section 4.2.1 merely identifies the expected population increases associated with the proposed action and each alternative. There is no discussion of the
17.1 environmental impacts of population growth on certain critical aspects of the man-made physical environment, such as housing and school facilities. Nor does the EIS contain any discussion about whether the growth conforms to, or conflicts with, the local plans of any affected jurisdictions surrounding Norton Air Force 27 Base. (40 CFR § 1502.16(c).) Finally, this discussion ignores
5.2 the impact of the increase in population on urban quality and design of the built environment because it fails to address whether and how the built environment can absorb this growth and maintain its current quality. The EIS must address impacts on urban quality and design. (40 CFR § 1502.16(g).)

28 18. Page 4-8. The discussion of "on-base" land use
6.9 impacts does not address the conflict between the proposed uses and the public facilities uses designated for the site in the current City of San Bernardino General Plan and zoning.

29 19. Pages 4-8 and 4-12. The aesthetic impacts
6.10 addressed on page 4-12 and certain land use conflicts addressed on page 4-8 concerning development along Third Street and

29 the southern boundary of the base property, are not addressed by
6.10 mitigation measures. The EIS must recommend means to mitigate each adverse environmental impact of the proposed action. (40 CFR § 1502.16(h).)

30 20. Page 4-10. The analysis of noise level impacts and land uses appears to compare impacts to a pre-closure baseline. However, the majority of the EIS compares impacts to a
6.11 post-closure baseline. By using different baselines to address different impacts, the EIS could mislead the decisionmaker and the public regarding the potential impacts of the proposed action.

31 21. Page 4-10. Although the analysis of land use impacts, as well as other areas of analysis, assume a restricted airport use as outlined in the proposed action, Lockheed Air Terminal/New York appears to be marketing Norton Air Force Base
4.9 to more intense users. If the proposed action is to be analyzed on the basis of the projections contained in the EIS, then the transfer of the base property should be restricted in its use. Otherwise, the analysis contained in the EIS is meaningless because the Base may be occupied by uses that were not analyzed.

32 22. Section 4.2.2.2. The discussion in this Section
6.12 compares the impacts of the alternative to pre-closure conditions and fails to identify mitigation measures to address each impact set forth on page 4-14.

33 23. Section 4.2.2.3. No mitigation measures are
6.13 proposed to address the land use impacts that are identified on page 4-16 concerning aggregate mining, the Santa Ana wash and the land uses east of the proposed mining operations.

34 24. Page 4-26. The mitigation measures for the "other
6.14 land use concepts" are too general to provide any guidance to a decisionmaker or to allow the public to comment on their adequacy. These mitigation measures should be more specific.

35 25. Pages 4-27 and 28. The EIS states that details on reuse are not sufficiently developed to permit an in-depth
7.6 evaluation of intersection capacities. The City believes that the EIS could reasonably analyze impacts on intersection capacities. Consistent with the assumptions made to analyze impacts to street segment capacities, intersection capacities could also be analyzed.

36 26. Section 4.2.3. As required by NEPA, the EIS
7.7 should discuss potential incompatibilities with local plans. Furthermore, consistent with the Airport and Airway Improvement

36 Act of 1982, future airport development should not conflict with local plans. Therefore, traffic impacts associated with the proposed action should be analyzed under the standards set forth in local plans. For example, under the East Valley Corridor Specific Plan, all roadway and intersections should maintain a minimum level of service of "C." Any impacts which reduce a roadway segment to a level of service below "C" should be considered adverse and mitigation measures should be recommended. Furthermore, improvements to streets should not be recommended if such improvements would conflict with local circulation plans.

7.7

37 27. Section 4.2.3. The EIS cannot reasonably fulfill its function as an environmental analysis document if the analysis of regional transportation impacts concludes that the impacts of the proposed action and alternatives on regional transportation facilities are not "substantial," and therefore do not require mitigation, merely because these facilities will operate at level of service "F" without base reuse. Although a roadway may operate at level of service "F," additional traffic added to that roadway can still have serious traffic consequences.

7.8

38 28. Section 4-2.3. Throughout this Section there is no support for the conclusions regarding impacts on public transportation.

7.9

39 29. Page 4-36. The discussion of cumulative roadway impacts is not sufficiently detailed to provide any meaningful information to a decisionmaker and the public. In fact, the EIS does not even indicate all of the intersections that will experience cumulative impacts.

7.6

40 30. Pages 4-37, 4-42, 4-47, 4-51. The roadway mitigation measures proposed are not sufficiently specific to allow the decisionmaker to fully understand the extent of roadway improvements required or to allow the public to comment upon the adequacy of the mitigation measures.

7.10

41 31. Section 4.2.3. The City of Redlands requests that the following mitigation measures be considered for incorporation into the proposed action in order to mitigate traffic impacts:

A. Infrastructure Improvements.

7.10

1. Street Widening.

Del Rosa Avenue, from interchange with State Highway 30 to Highland Avenue, inclusive;

41 Highland Avenue, from Sterling Avenue to the interchange with State Highway 30, inclusive;

Sterling Street, from Highland Avenue to Third Street, inclusive;

Third Street, from Tippecanoe Avenue to Alabama Street, inclusive;

Tippecanoe Avenue, from the interchange with Third Street to Interstate Highway 10, inclusive

Mill Street, from the interchange with Interstate Highway 215 to the entrance to the Airport, inclusive;

Alabama Street, from Fifth Street to Redlands Boulevard, inclusive; and

7.10

Fifth Street, from Alabama Street to State Highway 30, inclusive.

2. Freeway Interchange Widening.

The Mill Street interchange to Interstate Highway 215;

The Del Rosa Avenue interchange to State Highway 30;

The Alabama Street interchange to Interstate Highway 10; and

The Tippecanoe Avenue interchange to Interstate Highway 10.

3. Freeway Interchange Construction.

The Highland Avenue interchange to State Highway 30;

The Fifth Street interchange to State Highway 30;

42 B. Mass transit accommodations such as bus turnout lanes, park and ride facilities, and bus and airport shuttle shelters shall be planned and provided in coordination with local and regional transit system operators to maximize the availability and use of public transportation at the airport.

7.10

43 C. Airport operators shall coordinate ride-sharing programs in compliance with South Coast Air Quality Management District Regulation XV.

7.10

D. Airport operators shall cooperate with surrounding communities to develop a commuter light rail system.

44 32. Section 4.2.3.3. This Section fails to address the particular impacts that could be caused by truck traffic from the proposed mining operation.

7.11

33. Section 4.2.3. The EIS indicates that 61% of the daily vehicle traffic on Alabama Street through the Santa Ana River Wash is directly related to Norton Air Force Base. The City believes that the EIS overestimates traffic related to Base uses. As a result, the baseline traffic volume after Base closure is underestimated and the impacts of reuse should be reanalyzed accordingly.

45

7.12

46 34. Section 4.2.3. The EIS traffic analysis should include an analysis of the impacts from potential new intersections along Alabama Street, the extension of California Street, and the construction of a new east-west street in the vicinity of the Santa Ana River. These improvements may be constructed in the near future.

7.13

47 35. Section 4.2.4. Neither a decisionmaker nor the public can evaluate the impacts on wastewater treatment facilities without information regarding the impacts of the proposed action and the alternatives on the existing capacity of wastewater treatment plants. The proposed action and alternatives each contribute a substantial amount of wastewater toward the total capacity of treatment facilities. If these impacts will be significant because of a shortage of remaining available capacity, then mitigation measures should be proposed.

9.6

48 36. Section 4.2.4. The EIS fails to discuss the cumulative impacts on wastewater and solid waste resources.

9.7

49 37. Section 4.2.4. The EIS makes an assumption that wells located on the base site will be made available to local purveyors to provide water for reuse activities. However, no mitigation measure is proposed to ensure that future owners of the base property will make those wells available.

9.8

50 38. Section 4.2.4. NEPA requires that the EIS contain discussions of "energy requirements and conservation potential of various alternatives and mitigation measures" and "natural or depletable resource requirements and conservation potential of

9.9

50 various alternatives and mitigation measures." (40 CFR § 1502.16 (e) and (f) [emphasis added].) The discussions contained in Section 4.2.4 do not appear to address the conservation potential of the proposed action or any of the alternatives.

9.9

51 39. Section 4.3. With regard to storage tanks, asbestos, PCB's, and pesticide and herbicide usage, the EIS merely states that these items will be subject to federal and state regulations. The EIS contains no evaluation of the significance of their impacts on people occupying potential base reuses. (40 CFR § 1502.16 (a) and (b).)

10.8

52 40. Sections 4.3.2, 4.3.3 and 4.3.4. These Sections appear to analyze hazardous waste management impacts based upon a "pre-closure baseline," contrary to the general approach of the EIS. As noted above, this baseline can mislead the decisionmaker or the public.

10.9

53 41. Section 4.3.3. Section 4.3.3 contains no evaluation of the significance of hazardous waste generation from the proposed aggregate mining operation. However, Table 4.3-3 acknowledges that hazardous waste shall be generated by the operation.

10.10

54 42. Section 4.3.5. The discussions of hazardous materials and waste impacts of "other land use concepts" does not address the significance of any of these impacts.

10.11

55 43. Section 4.4.1. The EIS provides no support for its conclusion that the individual and cumulative impacts on aggregate resources will be insubstantial.

11.1

56 44. Pages 4-99 and 4-103. The mitigation measure concerning liquefaction should require developers to comply with recommendations contained in the required site specific geotechnical report. It is very possible that the development of the base will be undertaken by an entity that need not comply with the City of San Bernardino Development Code.

11.2

57 45. Section 4.4.2. The EIS indicates that the proposed action and some alternatives will lead to stormwater runoff that could impact surface and groundwater resources. However, there is no evaluation of the significance of these impacts.

12.5

58 46. Section 4.2.2. It is inappropriate for the EIS to conclude that the proposed actions and alternatives will not have a "major" impact on groundwater resources when the region of influence for the project already consumes more water than can be

12.6

annually drawn from local aquifers and the proposed action will increase demand for the entire region by more than a full percentage point. 58 12.6

47. Section 4.4.2.3. The "assumed" procedures that would be used to mitigate aggregate mining operations should be required as mitigation measures. 59 12.7

48. Section 4.4.3. The discussion of construction-related air pollutant emissions does not provide a decisionmaker or the public with an accurate assessment of the construction impacts on surrounding communities. First, by ignoring the emissions that are produced by construction equipment, the EIS underestimates air quality impacts. Second, by merely stating that elevated concentrations of particulates will "fall off rapidly with distance" the EIS does not inform the reader about the extent to which these particulates may affect surrounding uses. 60 13.2

49. Section 4.4.3. The discussion of cumulative air quality impacts does not provide any information regarding the significance of those impacts. Instead, the discussion merely mentions the mitigation requirements for projects that contribute to cumulative impacts. Therefore, this discussion fails to fulfill its primary purpose. 61 13.3

50. Sections 4.4.3.1, 4.4.3.2, and 4.4.3.3. Although the proposed action and the airport alternatives will cause local NO2 concentrations to exceed one hour and annual standards, no mitigation is suggested to address this impact. 62 13.4

51. Section 4.4.3.3 and 4.4.3.5. The EIS provides no evaluation of the significance of the difference between particulate emissions caused by alternatives involving mining operations, and particulate emissions caused by other alternatives. 63 13.5

52. Section 4.4.4. Noise impacts from airport related uses are one of the most critical concerns to jurisdictions surrounding Norton Air Force Base. Unfortunately, the EIS analysis of these impacts is cursory. For example, the EIS does not recognize the added significance of noise impacts on very sensitive receptors. According to Table 4.4-15, five hospitals would be exposed to overflight noise which exceed, unadjusted, 65dB. Furthermore, with one exception, the management mitigation measures will not reduce noise impacts. These measures merely require landing fees, monitoring systems, and a community relations office. Although the EIS does recommend curfews, the EIS does not suggest appropriate times for the curfews nor does 64 14.1 65 14.2 66 14.3

the EIS address noise impacts to sensitive receptors during non-curfew hours. 66 14.3

53. Section 4.4.4.1. Although the EIS acknowledges that project traffic will expose residences to noise levels that exceed a DNL of 65dB and cumulative traffic impacts will increase areas exposed to DNL 65dB by up to 300%, no mitigation measures are recommended. The EIS must recommend mitigation measures to address adverse impacts. 67 14.4

54. Section 4.4.4.2, 4.4.4.3 and 4.4.4.4. Despite aircraft overflight and traffic noise impacts similar to the proposed action, no mitigation measures are recommended for the alternatives discussed in these sections. Mitigation measures must be identified to address adverse impacts. 68 14.5

55. Section 4.4.5. The evaluation of biological impacts contains no analysis of impacts on the Gnat Catcher, the San Diego Horned Toad Lizard, and the Spiney Flower. The impacts to these species should be addressed. 69 15.2

56. Section 4.4.5. Despite the identification of impacts to coast live oak trees and a sensitive vegetation habitat, the EIS does not recommend mitigation measures for these impacts. 70 15.3

57. Sections 4.4.5.1 and 4.4.5.2. These Sections do not address impacts to each of the sensitive species identified by the EIS as potentially inhabiting the base and the vicinity. 71 15.4

58. Section 4.4.5.3 and 4.4.5.5. The EIS states that "[m]itigation measures would be needed to offset the temporary loss of wetland and riparian habitat along the Santa Ana River channel." However, the EIS does not identify such mitigation measures. Instead, the EIS has merely stated that there is a need for mitigation measures. 72 15.5

59. Section 4.4.5.4. The EIS should include mitigation measures to address the specific impacts caused by the proximity of human population to sensitive habitats. 73 15.6

60. Section 4.4.6. If archeological site CA-SBR-6096H is excavated due to mining activities, the EIS should require that the excavation be overseen by a qualified archeologist, at the miner's expense, and that all found material be properly catalogued and reported to the San Bernardino County Museum, in Redlands. 74 16.2

61. Section 4.6. This section should compare the value of the proposed action's short term use with value of maintaining the long term productivity of the base and its surroundings. 75 3.13

62. The EIS does not address the impacts of the proposed action and alternatives on fire and rescue services. Several potential impacts should be addressed. 76

First, the reuse of Norton Air Force Base for airport purposes leads to a risk that an aircraft emergency will occur in the City of Redlands. At present, the Fire Department of the City of Redlands would have difficulty responding to such an emergency. 17.2

Secondly, the development of Norton Air Force Base may require mutual aid assistance from the City of Redlands with regard to either suppression of fires or with regard to hazardous materials issues. Currently, the budget of the Redlands' Fire Department would not support such mutual aid assistance.

Third, the added burden of surface traffic on transportation routes within the City of Redlands will lead to additional incidents of traffic collisions. This, in turn, will create additional needs for paramedic services and, potentially, hazardous materials spill response. Such congestion would also impact response times of the Redlands' Fire Department.

Finally, any development on the perimeter of the City of Redlands which falls within the response jurisdiction of the Redlands' Fire Department could significantly overburden existing Fire Department resources.

The City recommends that the EIS analyze these impacts and that coordination be established between the fire authorities in the cities of San Bernardino, Highland, Loma Linda, Colton and San Bernardino County so that resource allocation is not duplicated.

Thank you for your attention to these comments. If you would like to discuss these comments further, please do not hesitate to contact the City.

Very Truly Yours,

Laurence S. Wiener

LSW:lj
a5en.ltr

DOCUMENT 10

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
Office of Environmental Affairs
600 Harrison Street, Suite 515
San Francisco, California 94107-1376

ER92/46 March 3, 1992

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFRCE-BMS/DEV
Norton Air Force Base, CA 92409-6448

Dear Lt. Col. Bartol:

The Department of the Interior has reviewed the Draft Environmental Impact Statement for the Disposal and Reuse of the Norton Air Force Base, California and has no comments.

Thank you for the opportunity to review this document.

Sincerely,

Patricia Sanderson Port
Regional Environmental Office

cc: Director, OEA (w/orig. incoming)
State Director, BLM, Sacramento
Regional Director, Bureau of Mines, Spokane

DOCUMENT 11

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

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 project entitled Disposal and Reuse of Norton Air Force Base, San Bernardino 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.

On 5 January 1989, the Secretary of Defense announced the closure of Norton Air Force Base (Norton AFB) pursuant to the Base Closure and Realignment Act. Previous environmental documentation includes a Final EIS for the Closure of Norton AFB (July 1990) and a Record of Decision for this action (October 1990). The base is scheduled for closure March 1994. The Air Force will retain three parcels totalling 146 acres for continued use by the Ballistic Missile Organization and as military family housing for Air Force officers and non-commissioned officers.

The DEIS analyzes the potential environmental consequences of base disposal and reuse alternatives. The Proposed Action is reuse of base property as a civilian airport and office industrial park. The plan was developed by the Inland Valley Development Agency formed from local jurisdictions to formulate reuse plans. Other alternatives evaluated are airport and mixed use, aircraft maintenance center, non-aviation (residential and commercial development), independant land use options, and no-action. Under the no-action alternative the base would remain under federal control in caretaker status.

Norton AFB is listed on the Superfund National Priorities List (NPL) which is EPA's list of contaminated sites potentially posing the greatest long-term threat to public health and the environment. This listing is based on actual and potential

DOCUMENT 11

releases of hazardous materials into the environment. Under Superfund law [Section 120(h)(3) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); better known as the Superfund program], the Air Force has a statutory requirement to take all necessary remedial action to protect public health and the environment before the transfer of base property. If the land transfer is by deed, the Air Force must provide an agreement, prior to transfer, that guarantees that all necessary remedial action has been taken.

As previously stated in our comments on George AFB and Mather AFB disposal and reuse, EPA believes 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, it is critical that the redevelopment community, as well as the community concerned with the remediation activities,
1 be provided with adequate information on the impending
10.12 interaction of these two programs. We recommend that the FEIS include more detailed information on the status of the investigation of each site, possible cleanup actions, results of past and current IRP efforts, and future studies.

2 It is our understanding that the proposed action involves a
3.14 long-term lease arrangement for the Lockheed Commercial Aircraft Corporation (Lockheed) to occupy Air Force facilities at Norton AFB as an interim user and post-base closure user tenant. We
3 believe this arrangement should be fully described in the FEIS.
10.13 Furthermore, information regarding Lockheed's compliance with hazardous waste requirements (e.g., Resource Conservation and Recovery Act), including EPA Waste Generator Numbers, should be clearly documented in the FEIS.

4 Recent groundwater data regarding the Norton AFB TCE plume
10.14 indicates it is much larger in size and contaminant level than originally believed by the Air Force. Furthermore, the plume has migrated off-site. This groundwater contamination problem could have a significant impact on future water resource use. EPA believes the FEIS should include the most recent data regarding the groundwater contamination at Norton AFB and the Air Force's plan of action for addressing the problem of quantity and quality of water that might be available for future development at Norton AFB.

5 Norton AFB is located in a nonattainment area for ozone and
13.6 fine particulates (PM10). All reuse alternatives, except no-action, may potentially interfere with attainment and maintenance of the federal air quality standards. Federal agencies are required by the Clean Air Act to assure that actions will not cause or contribute to any new violation of any standard, increase the frequency or severity of any existing violation, or delay timely attainment of standards (Clean Air Act, Section 176(c)). Therefore, EPA believes a commitment to mitigate for potential air quality impacts should be made in advance of project initiation.

DOCUMENT 11

6 We suggest an interagency agreement or Memorandum of
13.7 Understanding (MOU) be considered to ensure Federal compliance with the Clean Air Act and timely State submittal to EPA of adequate attainment plans. Such an MOU was signed in August 1991 for the Pease AFB reuse action in New Hampshire. This MOU reconciled the potential air quality impacts of anticipated uses of Pease AFB with the State's obligations to submit adequate attainment plans and with conformity requirements applicable to Federal actions.

After completion and consideration of the EIS, the Air Force states they will prepare decision documents outlining the terms and conditions under which the dispositions will be made, including the mitigation measures, if any, that may be taken by the Air Force or be required of the recipients of base property (pg. S-1). This action, according to the DEIS, may affect the environment by influencing the nature of the future use of the property. 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. We believe that the Air Force has an excellent opportunity to use the NEPA process to positively influence the nature of the future use of Norton AFB. While we understand that the Air Force may not dictate future uses of the property, we have identified several long-term potentially significant environmental impacts which could be alleviated by providing specific terms and conditions upon conveyance of the property.

Based upon our review of the DEIS, we have classified this document as category EO-2, Environmental Objections - Insufficient Information (see attached "Summary of the EPA Rating System"). While this document is much improved over previous Air Force disposal and reuse EISs, sufficient information is not provided on risk factors associated with Norton's IRP sites, conformity with the Clean Air Act, future water supply sources, and compliance with the 404(b)(1) Guidelines. Our detailed comments are enclosed.

We appreciate the opportunity to review this DEIS. Please send three copies of the FEIS to this office at the same time it is officially filed with our Washington, D.C. office. If you have any questions, please call Jacqueline Wyland, Chief, Office of Federal Activities, (415) 744-1584, (FTS 484-1584) or Laura Fujii, of her staff, at (415) 744-1579, (FTS 484-1579).

Sincerely,

Deanna Wieman, Director
Office of External Affairs

3 Enclosures: (19 pages)

Filename: Norton.ltr
92-009
MI001064

cc: Mr. Terry Yonkers, HQ AFBDA/BDV, Washington, D.C.
Mr. J.B. Cole, Director AFCEE, Brooks AFB, Texas
Base Commander, Norton AFB
Mr. Phil Lammi, AFRCE, San Francisco, CA.
Mr. Brad Hicks, CWQCB, Lahonton Region
Mr. John Scandura, CA DTSC, Region 4 .
San Bernardino Co. Air Pollution Control District
Inland Valley Development Agency
San Bernardino Association of Governments

COMMENTS

HAZARDOUS WASTE COMMENTS

Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) Comments

7 To ensure sufficient information is provided to the public
interested in the reuse of Norton AFB, a discussion of the risk
10.15 based decision process of the Installation Restoration Program
(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
8 options. It is important that the EIS make clear that the Air
Force will take all necessary actions, with specifics determined
pursuant to the Federal Facility Agreement (FFA), to comply with
10.1 the land transfer requirements of CERCLA Section 120(h), i.e.,
the Air Force has a statutory requirement to take all necessary
remedial action to be protective of public health and the
environment prior to and as a condition for transferring base
property.

9 Additionally, text in the FEIS should be expanded to note
that other aspects of the IRP work (not just remedial design) may
10.16 restrict future development. It is possible that some uses
(e.g., residential) may be prevented by institutional controls
and that implementation of remedial actions may take longer than
design.

10 The DEIS also assumes that the areas of contamination are
confined to the 22 IRP sites. These areas are "known areas" of
contamination and should not imply that potential other areas of
contamination may not be revealed during the remedial
10.17 investigation/feasibility study (RI/FS) and remedial
design/remedial action (RD/RA) phase of the project (e.g., soil
contamination, asbestos contamination of structures and
facilities). The DEIS fails to adequately discuss how the Air
Force will deal with contamination that may be discovered during
the remediation phase.

EPA supports the establishment of a cooperative planning body for hazardous materials and waste management as suggested in the DEIS (pg. 4-81).

Resource Conservation and Recovery Act (RCRA) Comments

As part of its interim use of Air Force facilities at Norton AFB, the Lockheed Commercial Aircraft Corporation (Lockheed) has modified existing structures and excavated and removed contaminated debris and soils. The Air Force and EPA have

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informed the Inland Valley Development Agency (IVDA) and Lockheed that Norton AFB's EPA Waste Generator number may not be used by Lockheed for its waste removal and treatment activities because Lockheed's commercial operations are not contractually related nor in support of the Air Force's mission at Norton AFB. Lockheed has maintained that it has obtained a separate EPA Waste Generator Identification Number for the removal and treatment of contaminated soils but has not provided the requested documentation to the Air Force.

The EPA Hazardous Waste Generator Numbers cited in Table K-
1: Norton AFB Permits (pg. K-6), are numbers issued by the State
of California Equalization Board. The Board does not have the
authority to issue EPA numbers. Moreover, the numbers cited are
11 not consistent with the alpha sequencing of the identification
numbers issued by EPA. Due to Federal statutory RCRA
requirements and potential liability issues associated with the
10.13 removal of contaminated soils and debris, especially at NPL
sites, the FEIS should clearly document Lockheed's compliance
with RCRA requirements, including accurate and current permit
numbers for Lockheed.

Asbestos

12 The FEIS should provide specific information on the results
10.3 of the asbestos survey cited in the DEIS (pg. 3-72). We note
that the proposed action calls for demolition of the majority of
existing facilities. Many of these facilities are old and could
contain asbestos which would have to be handled and disposed of
in accordance with the Clean Air Act National Emissions Standard
13 for Hazardous Air Pollutants. Demolition and disposal of
asbestos containing structures may therefore be more difficult
10.3 then portrayed in the DEIS. The FEIS should address this issue
of asbestos removal and disposal in relation with reuse
alternatives.

Specific Comments

1. **"Purpose and Need," (Page S-1), *fourth paragraph*.** *This section*
appears quite vague relative to the Air Force's statutory obliga-
tion under CERCLA to take all necessary action to protect public
health and the environment. It seems to imply that some actions
14 may be taken by the Air Force while others may be assigned to fu-
ture users. **Recommendation:** Clarify the Air Force's obligation
1.1 under CERCLA.

2. **"Scope of Study," (Page S-4), second paragraph.** The DEIS
states that the Air Force is developing a Socioeconomic Impact
15 Analysis Study as a companion document to the EIS. **Recommenda-
tion:** *The Air Force should, at least, provide in the FEIS a*
17.3

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15
17.3 tentative date for publication of the Socioeconomic Impact
Analysis Study and a summary of the study's assumptions,
findings, and conclusions.

3. **Table S-2. "Summary of Impacts..." (Page S-9).** Under the
proposed action the DEIS states the *Golf Course Area (GCA)* is the
area most affected by remediation activities under the
Installation Restoration Program (IRP). Given recent data
(January 1992) relative to the size of the trichloroethylene
(TCE) plume and the level of contaminants, a more accurate
16 characterization would indicate that the entire Central Base Area
10.18 (CBA) is adversely impacted. **Recommendation:** Amend the text to
describe the entire CBA as being impacted by the TCE plume.

4. **Table S-2. "Summary of Impacts..." (Page S-9).** Under four of
the five reuse plans, the Air Force has identified asbestos as a
potential health risk *associated with the demolition of some*
structures. The Proposed Action includes areas occupied by the
Lockheed Commercial Aircraft Corporation (Lockheed), an interim
user (i.e., user tenant occupying Air Force structures, Building
(Hangar) 763, prior to base closure). Lockheed has already been
involved in demolition and construction of some structures in
order to accommodate its operational space requirements and has
plans for further such efforts as part of its Phase II expansion.
17 **Recommendations:** The FEIS should specify what structures will
require demolition and removal of asbestos by Lockheed or any
other potential interim user. Moreover, the FEIS should note
10.19 that *any additional demolition* and removal activities by Lockheed
would adversely impact the CERCLA baseline risk assessment.
Finally, the FEIS should note how hazardous waste and hazardous
materials will be treated and disposed by Lockheed or any other
interim users.

5. **Table S-2. "Summary of Impacts..." (Page S-10).** The DEIS notes
that an "increase in water demand requiring additional supplemen-
tal supply" would be an impact associated with all five reuse
18 plans. The DEIS does not discuss recent groundwater data regard-
ing the TCE plume which is much larger in size and contaminant
level than originally believed by the Air Force. More impor-
tantly, the plume has migrated off-site. **Recommendations:** This
10.14 groundwater contamination problem could have a significant impact
on future water resource use. Therefore, the FEIS should include
the most recent data regarding the groundwater contamination at
Norton AFB and the Air Force's plan of action for addressing this
problem.

6. **"Hazardous Materials..." (Page S-14).** The DEIS does not specifically address how these wastes will be handled. For example, on-site treatment of wastes is the preferred method. Any on-site treatment associated with IRP activities could poten-

3

19 tially impact the base's reuse schedule through delays. **Recommen-**
10.20 **dations:** The FEIS should discuss the Air Force's commitment for on-site treatment of waste especially for any wastes associated with IRP activities. Moreover, the document should discuss how
20 the potential impacts to cleanup goals may be affected by the
10.21 reuse decisions. While impacts associated with reuse plans are discussed (See Table S-2, "Summary of Impacts from Reuse at Norton AFB"), the DEIS fails to mention how any one of the five reuse plans may be impacted by remediation and cleanup levels for contaminated sites.

7. Radionuclides (Radon) have been detected in the groundwater at Norton AFB ranging from 58.5 to 876.7 pCi/l. The DOE has conducted studies and has concluded that radon volatilizes from drinking water via showers. The U.S. EPA has proposed a Maximum Contaminant Level (MCL) for radon of 300 pCi/l to be protective
21 of human health. **Recommendation:** The FEIS should be rewritten to
10.22 indicate that the levels of radon in the groundwater exceed the MCL and discuss the Air Force's plan to remediate this condition at the installation.

8. **"Environmental Impact Analysis Process," second paragraph. (Page 1-3).** The Air Force states that the DEIS "addresses a range of reasonable, post-disposal reuse alternatives." The Air Force has decided, for the purposes of the DEIS, to use the proposed Plan of Action adopted by the Inland Valley Development Agency (IVDA) for the purposes of this environmental impact analysis. However, this plan involves interim use by Lockheed and is,
22 therefore, inconsistent with the Air Force's aforementioned ob-
3.14 jective for this EIS. **Recommendation:** The FEIS should clearly state that the IVDA's proposed reuse plan is a current interim or pre-disposal reuse alternative with Lockheed as the central corporate entity. Lockheed is occupying Air Force property via a sub-lease with the IVDA which in turn has leased the property (Hangar 763) from Norton AFB.

9. **"Installation Restoration Program," (Page 1-8).** The DEIS defines the IRP as being outside the scope of the EIS. EPA believes 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, it is critical that the redevelopment community, as well as the community concerned with the remediation activities, be provided with adequate information on the impending interaction of these two programs. We commend the Air Force for the discussion in the DEIS of the impact of the existing contamination at the 22 IRP sites and pending cleanup work on the five reuse alternatives (See Section 4.3, "Hazardous Materials/Hazardous Waste," pages 4-75 ff). We urge further
23 disclosure of the interaction of these programs and the risk
10.12 based decision process of the IRP. **Recommendation:** We recommend

23 that the FEIS include more detailed information on the status of
10.12 the investigation of each site, possible cleanup actions, results of past and current IRP efforts, and future studies. Revise Section 1.3.2. "Issues Beyond the Scope of the EIS," accordingly.

10. **Section 2.2.3. "Industrial," fourth paragraph, (Page 2-13).** This section discusses the demolition and removal of existing
24 structures during reuse. However, the DEIS fails to mention the possibility that soil beneath the structures could be contaminated that may not have been identified previously under the IRP. For example, Lockheed, an interim use tenant, conducted
10.17 demolition and removal operations in Building (Hangar) 763 and encountered extensively contaminated soil that had not been previous known as part of the IRP effort. **Recommendation:** Appropriate mitigation measures should be identified in the FEIS to preclude adverse impacts from the removal of contaminated soil in order to be protective of the workers, public and environment.

25 11. **Section 2.3.5. "No Action Alternative," last paragraph (Page 2-44).** This section fails to mention whether the Industrial Waste Treatment Plant (IWTP) will be closed or not should this reuse alternative be adopted and the Air Force retain responsibility for base property indefinitely. If the IWTP is to be closed, the FEIS should state the closure process and whether it will be in accordance with RCRA and Title 22. **Recommendation:** The DEIS should clarify the status of the IWTP
9.10 under this reuse alternative.

12. **Section 3.2.4.2. "Wastewater,"(Page 3-51).** This section fails to mention whether the IWTP will be closed or whether the Air Force will continue its use with the appropriate hazardous waste treatment permit. This is particularly important because Lockheed, as part of the expansion of its commercial aircraft maintenance operation at Norton AFB, has indicated that it will be seeking permission from the Air Force to use the IWTP in support of its waste treatment and disposal operations. **Recommendation:** Clarify the status of the IWTP relative to this interim reuse (i.e., the IVDA's proposed Plan of Action, as well as for all reuse alternatives).

26 13. **3.3. "Hazardous Materials/Hazardous Waste Management," last sentence in the second paragraph (Page 3-58) and Figure 3.3.1. "Installation Restoration Sites," (Page 3-59).** The text's characterization and the accompanying figure's depiction of the TCE plume does not incorporate the most recent groundwater data
10.14 (i.e., December 1991 and January 1992) which indicates that the magnitude (i.e., size) and level of TCE contamination of the plume is much greater than originally believed by the Air Force. Moreover, the plume has migrated off-site into the community located southwest of Norton AFB. **Recommendations:** In the last sen-

26 tence in the second paragraph of this section of the DEIS, the conditional phrase "may exceed" should be deleted and the sentence changed to read as follows: "... contaminated groundwater
10.14 plume beneath the central base area, which extends beyond the southwest base boundary." Additionally, the illustration of the TCE plume in Figure 3.3.1 should be re-depicted to show the current magnitude of the plume.

14. **"Closure Baseline," last sentence, second paragraph (Page 3-60).** The statement, "If the Air Force authorizes interim use of the base facilities..." is misleading since, in fact, the Air Force has authorized Lockheed's interim use of Building 763 via a
27 lease arrangement with the IVDA. **Recommendations:** Correct the EIS
3.14 to indicate that the Air Force has authorized interim use. Also, the FEIS should specifically include a statement that indicates the status of planned or actual other interim users. In addition, the FEIS should indicate whether or not it has ruled out any other interim use proposals for facilities at Norton AFB.

15. **3.3.2. "Hazardous Waste Management," second paragraph (Page 3-60).** In view of the fact that Lockheed is an interim user of Norton AFB facilities and a generator of waste with its aircraft
28 maintenance operation located at an identified IRP site, the EIS should discuss Lockheed's compliance with waste management pro-
10.13 cedures. **Recommendation:** This description should address how the current interim use tenant of Building (Hangar) 763, Lockheed, is complying with appropriate hazardous waste management regulations.

29 16. **3.3.3. "Installation Restoration Program Sites," first sentence, first paragraph (Page 3-63).** The description of Norton AFB's placement on the NPL is inaccurate. It was placed on the list because of extensive groundwater contamination, not just
10.23 because part of the plume was located in the "northeast portion of the base." **Recommendation:** Delete "in the northeast portion of the base" from the first sentence in the first paragraph on page 3-63.

30 17. **3.3.3.1. "IRP Site Descriptions" (Pages 3-65 to 3-68).** This section of the DEIS does not include the most recent information regarding the site description. For example, radioactivity is suspected near Site 19 due to Norton AFB's participation in the
10.12 atmospheric testing program in the 1950's. Also, recent data regarding the buried low-level radioactive waste bunker is not reflected in the text's description of Site 20. **Recommendation:** The Air Force must ensure that the IRP site descriptions identified in the FEIS include the most recent field work data.

18. **Section 3.4.2.2. "Groundwater Quality," (Page 3-83).** This section is somewhat vague relative to Norton AFB being the source

31 for the TCE groundwater contamination. As currently described, the text implies that the plume originates from an upgradient
12.8 source. **Recommendation:** This section of the DEIS should be corrected to clearly state that Norton AFB is the source for the TCE identified in the groundwater.

32 19. **4.3. "Hazardous Materials/Hazardous Waste," (Page 4-75 to 4-97).** See comments under number 17 discussed previously relative to the need to ensure that the IRP descriptions in the DEIS are inclusive of most recent field work data. For example on page 4-77, the DEIS states that "no known contamination extends beneath the existing runways or pavement identify under the proposed action." However, recent record search information suggests that radioactive waste may have been either stored, washdowned or buried in an area which has subsequently been paved over when the tarmac for Hangar 763 and the runway were extended. Additionally, vinyl chloride gas releases have been detected near
10.12 Site 20. Level B field work will begin in this area in February 1992.

In fact, the RI/FS process is still underway and with the exception of only a few sites, the Air Force does not know the full extent and magnitude of contamination at most of the IRP sites. Funding delays have also slowed the RI phase of the field work effort. Consequently, references to "no further action necessary" (e.g., see PCB removal discussion on page 4-77) are yet to be verified by the regulatory agencies and are not considered to be conclusive statements.

Moreover, with respect to this section of the DEIS, particularly regarding description of sites, the text may be overstating the hazardous waste characterization status of the IRP sites. Until the ROD is signed, hazardous waste information, in many instances, is frequently partial, incomplete or contradictory. In addition, proposed land uses across the five reuse plans frequently incorporates significant areas of previous hazardous waste use and/or disposal (e.g., see Figures 4.3.2. to 4.3.4 that depict residential development in areas of previous use and/or disposal of hazardous wastes or currently contaminated with known carcinogens such as benzene, TCE, etc.).

Recommendation: The Air Force must ensure that the DEIS' descriptions regarding contaminated sites include the most current field work data.

20. **"Mitigation Measures," applicable to all five reuse plans (Pages 4-75 to 4-178).** As a measure to protect public health and the environment, any demolition or excavation of structures outside the 22 identified IRP sites should be preceded by appropriate field sampling techniques. Further, the South Coast

Air Quality Management District's (SCAQMD) Rule 1166 mandates air monitoring during excavation and ceasing operations when
33 contaminated soil is detected. **Recommendations:** The FEIS must clearly state that the Air Force will comply with Rule 1166, and
10.24 follow applicable regulations and field sampling and quality assurance/quality control (QA/QC) protocols with respect to any demolition or excavation of structures.

NATIONAL ENVIRONMENTAL POLICY ACT COMMENTS

34 EPA recommends site- and project-specific environmental
1.15 analyses and documentation be considered for future redevelopment actions. Transfer and redevelopment of Norton AFB may occur over a long period of time due to potential interaction with the IRP program, funding, and other socioeconomic factors. Furthermore, actual decisions on reuse of the property will be made by its recipients subsequent to transfer or conveyance from the Air Force (pg. 1-3). Site- and project-specific analyses and documentation will ensure a long range planned approach which could minimize potential environmental impacts of proposed redevelopment.

35 The FEIS should discuss the need and demand associated with
2.1 the proposed alternatives. We believe such an assessment would be of benefit to the redevelopment community given the large number of existing regional airports, airspace congestion problems, and adequate regional reserves of aggregate resources. Furthermore, we understand that Lockheed Commercial Aircraft Corporation (Lockheed) will be an interim user and post-base closure tenant under a long-term lease arrangement. We note that Lockheed is currently occupying Building 763 (hanger 763) and has
36 plans to expand its maintenance and refurbishing of commercial
3.14 aircraft to other facilities at Norton AFB. The FEIS should more fully described Lockheed's interim and post-base closure reutilization plans.

Mitigation

NEPA requires that the EIS discuss all relevant and reasonable mitigation measures that could improve the project even if they are outside the jurisdiction of the lead agency (40 CFR Section 1502.14(f) and Question 19b, March 16, 1981 CEQ Memo on NEPA Regulations). Although possible mitigation measures are
37 discussed during the evaluation of potential impacts, they are not addressed in detail. The FEIS should demonstrate that
1.16 potential mitigation measures will be reasonably effective; describe the schedule, funding, and responsible parties; and demonstrate enforceability of mitigation implementation.

AIR QUALITY COMMENTS

Existing Conditions

The DEIS accurately portrays the serious air quality problems in the South Coast Air Basin. As stated, the project area is classified nonattainment for O_3, CO, NO_2, and PM_{10}. Therefore, not only is an air quality attainment plan required under State law in 1991, but a complete attainment plan must be submitted to EPA by November 15, 1994. EPA has significant concerns with potential impacts to attainment and maintenance of the federal air quality standards since the DEIS correctly identifies interference with attainment as a potential impact of reuse alternatives.

Impact Analysis

EPA commends the Air Force for their attempt to quantify both the direct and secondary impacts associated with reuse
38 alternatives. Nevertheless, EPA requests additional information on the Air Force's EDMS modeling system in order to compare this
13.8 system with our own approved models. At a minimum, EPA requests emission burden analyses for determination of compliance with the Federal air quality standards.

Until such information is available, EPA remains concerned with potential carbon monoxide (CO) violations, fine particulate (PM10) emissions, and ozone. The appropriate ozone analysis should be of projected emissions. Any increase in ozone
39 emissions above current levels would be assumed to contribute to existing standard violations. The EIS should also address the consistency of projected emissions with the California Clean Air
13.9 Act attainment plan and provide a full description of modelling assumptions.

40 We are concerned that construction activities are discussed in the DEIS in terms of being temporary activities, especially since project development may encompass a 20 year period. Although some of the construction phase emissions could be termed "temporary," we disagree with the approach that discounts an
13.10 analysis of such emissions by focusing on "estimating the amount of uncontrolled fugitive dust that may be emitted from disturbed areas (pg. 4-111)." 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 fugitive dust as well as other construction-related emissions.

We commend the Air Force for presenting potential mitigation measures for cumulative impacts (pgs. 4-122 to 4-124). The DEIS states there would be no cumulative impact on the region if mitigation and offsets by future reuse developers were successful (pg. 4-122). While this statement may be valid in relative terms, we are concerned with the implication that mitigation would be successful or that sufficient offsets would be available, especially in this extreme nonattainment area. We do not believe it can be assumed that sufficient emissions from
41 project alternatives would be eliminated to totally discount cumulative effects. The FEIS should discuss cumulative impacts
13.9 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.

Conformity

42 The DEIS does not fully address conformity to air quality
13.11 plans. Federal agencies are required by the Clean Air Act to assure that actions conform to an approved implementation plan (Section 176(c) Clean Air Act). 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 any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standards or any required interim emission reductions or other milestones in any area." (Clean Air Act, Section 176(c)).

The conformity analysis should use the same emissions model as in the State Implementation Plan in order for emissions factors to be consistent. Given the mandate that air quality attainment plans for particulates, carbon monoxide and ozone be submitted in a federally approvable form in 1991, 1992 and 1994, respectively, it is imperative that approval of any of the proposed reuse alternatives include enforceable commitments that proposed redevelopment of the facility not interfere with the timely attainment of air quality standards. 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 a finding of conformity, consistent with the CAA, or 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.

43 We encourage the Air Force to support development of a Memorandum of Understanding (MOU) to reconcile potential air
13.7 quality impacts of anticipated uses of Norton AFB with the State's obligations to submit attainment plans and with conformity requirements applicable to Federal actions.

Mitigation

The EIS correctly states that emissions associated with the proposed reuse alternatives will have to be mitigated to the fullest extent possible and that the remainder must be offset by emission reductions from mobile, stationary, and other area sources. As described in the DEIS, mitigation may be difficult, time consuming, and expensive and will require early and
44 extensive coordination with the San Bernardino Air Pollution Control District and California Air Resources Board. We
1.16 recommend that mitigation be expressed as commitments in the Record of Decision and included in the property conveyance.

45 To assure conformity, mitigation plans should: demonstrate
1.16 that effectiveness estimates for mitigation are reasonable; describe the schedule, funding, and responsibilities for the measures; demonstrate enforceability; and show that projected emissions will fully conform.

TRAFFIC/TRANSPORTATION COMMENTS

46 The DEIS describes a number of intersections and roadways
7.14 which will require improvements to preclude a drop of service to the level of service (LOS) F rating. It is assumed that these roadway segments would be improved (pg. 4-37). This assumption should be validated with a description of existing or proposed projects to implement the improvements or of specific enforceable
47 mechanisms to ensure implementation of assumed roadway improvements. To the extent that roadway improvements would be
7.15 an impact directly related to reuse, the impacts of the improvements on neighboring businesses and residents should be presented in the FEIS.

48 We encourage the use of Transit Oriented Development for all reuse alternatives at Norton AFB due to its value in reducing air
7.16 pollution. We also suggest the FEIS evaluate the air quality benefits of modifying or phasing development of the base as a mitigation measure to minimize traffic congestion.

WATER RESOURCES COMMENTS

Water Supply Comments

The DEIS states that trichloroethylene (TCE) groundwater contamination has been discovered in the northeast portion of the base (pg. 3-63). Although no contamination above acceptable levels has been detected in potable water supply wells on the base, we remain concerned with the quantity and quality of water that might be available for future development at Norton AFB, and envision that the character and extent of development will, in
49 large part, hinge on water. We recommend the FEIS discuss
12.9 further the quality of water available for the various reuse scenarios on the base and provide current data on the quality of the base supply wells.

Groundwater provides a major portion of the regional water supply. The DEIS clearly states that projected demand will exceed groundwater availability with or without reuse of Norton
50 AFB and that other sources of water will be required (pg. 4-104).
12.10 The FEIS should address the issue of water availability and evaluate the feasibility and potential for supplemental water sources. The cost (environmental and economic) associated with delivery of this water should also be discussed.

51 We recommend the Air Force adopt a stronger water conservation position and consider base reuse as an opportunity to apply conservation and pollution prevention measures in a wide-scale, efficient manner. Wherever possible, we urge the Air
1.17 Force include water conservation measures in the terms and conditions under which the base would be conveyed. For instance, we encourage the Air Force to promote water conserving landscaping and water efficient facilities (e.g., low-flush commodes). Such an approach would be especially valuable since much of the existing infrastructure is very old and may need replacement, thus providing an opportunity to install water efficient and water reclamation systems. In addition, several proposed reuse alternatives would require up to 37% of the water supply for landscape irrigation and may benefit from increased conservation methods. 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 2). We recommend the FEIS utilize as many of these concepts as is feasible in developing the previously mentioned conditions of conveyance.

Wetlands Comments

Section Four of the Executive Order 11990, Wetlands, states:

"When 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 (1) reference in the conveyance those uses that are restricted under identified Federal, State and/or local wetlands regulations; and (2) attach appropriate restrictions to the uses of properties by the grantee or purchaser and any successor; or (3) withhold such properties from disposal."

52
15.7 EPA believes that the Air Force must ensure, prior to disposal of Norton AFB, that wetlands are fully avoided and protected.

Section 404 Comments

53 The description of regulatory requirements for wetlands, as stated on page 4-167, should be expanded to note that the discharge of fill or dredged material into waters of the United
15.8 States, including wetlands and other special aquatic sites will require authorization by the U.S. Army Corps of engineers and also must comply with EPA's 404(b)(1) Guidelines. We note that the proposed action would result in a loss of approximately 5 acres of Riversidean alluvial fan sage scrub and less than 1 acre of wetland vegetation. It is unclear how many of these acres are jurisdictional wetlands or waters of the United States.

Alternative Analysis

54 The DEIS does not demonstrate that the proposed action is the least environmentally damaging practicable alternative for base reuse. Many of the reuse alternatives are multi-purpose projects (e.g., airport and commercial purposes). EPA believes
1.18 alternatives for each project purpose should be evaluated in order to determine if the proposed composite action is the least environmentally damaging practicable alternative for all project purposes. We believe portions of the composite alternative(s) could be modified to reduce or eliminate potential impacts to wetlands and waters of the U.S. Thus we recommend that the FEIS include an alternative analysis for each project purpose or consideration of modified alternative components. Pursuant to the 404(b)(1) Guidelines, an alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (40 CFR Part 230 Section 230.3(q)).

Environmental Impacts

The DEIS states that cumulative losses would adversely affect wildlife species such as raptors that require open areas
55 for foraging (pg. 4-166). The FEIS should document potential
15.9 cumulative impacts in more detail. The discussion should evaluate all direct and indirect impacts to waters of the United States, including potential impacts to wildlife.

Aggregate mining is briefly addressed in the DEIS and may
56 result in a temporary loss of wetland. The FEIS should describe
15.10 how aggregate mining may result in only a temporary loss of wetland and wildlife habitat. Include a discussion of proposed reclamation efforts, techniques, and responsible parties. An alternative analysis of the aggregate mining project purpose should evaluate sites which do not require the discharge of fill or dredged material into waters of the United States. All practicable alternatives to the proposed discharge which do not involve discharge into special aquatic sites such as wetlands are presumed to have less adverse impact on the aquatic ecosystem unless clearly demonstrated otherwise by the applicant (40 CFR 230.10(a)(3)).

Endangered Species

57 Adverse impacts to endangered species have been identified
15.11 in reuse plans (Table S-2 Page S-11). The Air Force should ensure that the FEIS specifies how these endangered species will be protected.

Mitigation

58 Mitigation is not described for potential impacts to 5 acres of Riversidean alluvial fan sage scrub and less than 1 acre of wetland (pg. 4-163). EPA's goal is no net loss of in-kind acreage, values, and functions of waters of the United States. The FEIS should evaluate mitigation to offset unavoidable impacts to waters of the United States, including wetlands. Mitigation
15.12 should fully compensate for the acreage and values lost. The FEIS should address specific mitigation goals, site characteristics, site preparation, vegetative species and size to be used, the composition, density, and success criteria, implementation schedule, a maintenance and monitoring plan and a remediation plan should mitigation fail to meet established goals.

CONSERVATION, POLLUTION PREVENTION, WASTE MINIMISATION, RECYCLING, AND BIODIVERSITY COMMENTS

59 EPA believes the Air Force has the opportunity to assure 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 urge the Air Force to use this mechanism to incorporate specific recommendations offered in our review of the DEIS and to promote conservation, pollution prevention, waste minimization, recycling and preservation of biodiversity.

As part of the purpose and need for this action, we recommend the Air Force consider including a brief discussion on the opportunities for implementing the above principles. EPA believes these are items which should not be disjoined from the physical, economic, and political nature of the action as defined in the DEIS. For example, we suggest the FEIS discuss the Green
1.19 Lights Program and other measures which would lessen energy usage for reuse alternatives and construction.

EPA also views base transfers as an opportunity to encourage implementation of "waste" recycling and minimization programs. We encourage the Air Force to consider being a proponent of implementing the California Integrated Waste Management Act, source reduction, recycling and composting programs for reuse efforts. These programs and the principles of minimization and recycling should be seriously considered when determining the advantages/disadvantages between alternatives which propose complete demolition of existing facilities and those which propose reuse of these facilities. For instance, the FEIS should 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. Furthermore, we recommend the FEIS discuss recycle options for the demolition and construction materials which could result from base closure and reuse.

GENERAL COMMENTS

60 1. Page 1-14 Table 1.5-1. Polychlorinated biphenyls (PCBs) are
10.25 also regulated by EPA pursuant to the federal Toxic Substances Control Act (TSCA).

61 2. We recommend including preclosure statistics along side
1.20 closure statistics in the alternative descriptions to aid in comparison of alternatives.

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.

DOCUMENT 11

jbmplist 11/19/90

"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 Bay Delta 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."

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ENCL. 3

DOCUMENT 11

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.

DOCUMENT 11

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

1

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 analysed. 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.

BMP's For Which Estimates of Reliable Savings Are Not Available

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, non-recirculating 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 11

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 12

inland valley development agency

A regional joint powers authority dedicated to the reuse of Norton Air Force Base for the economic benefit of the east valley

March 9, 1992

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFRCE-BMS/DEV, Norton Air Force Base, California 92409-6448

Dear Col. Bartol:

Enclosed please find comments on the Draft Environmental Impact Statement from several City of San Bernardino Departments. These comments have been directed to the Mayor's office and subsequently directed to the Inland Valley Development Agency for submittal to the Air Force. If any further information is needed, please feel free to contact our office.

Sincerely,

Sandra L. Vlera
Executive Secretary

201 North "E" Street, 3rd Floor, San Bernardino, California 92401-1507 714/885-IVDA FAX 714/388-7991

DOCUMENT 12

SAN BERNARDINO MUNICIPAL WATER DEPARTMENT
INTEROFFICE MEMORANDUM

TO: Mayor W.R. "Bob" Holcomb

FROM: Bernard C. Kerney, General Manager/Water Department

SUBJECT: COMMENTS ON DRAFT EIS FOR THE DISPOSAL AND REUSE OF NORTON AIR FORCE BASE

DATE: February 11, 1992

COPIES: Lorraine Velarde, Tim Sabo

In the opinion of the Water Department the Reuse of NAFB Plan prepared for the Inland Valley Development Agency (IVDA) appears to be the most feasible for the Water Department to best respond to and serve. A comprehensive redevelopment approach is necessary in terms of planning for and implementing utility system upgrades (e.g. to meet fire flow requirements, and wastewater treatment requirements). Most of the alternatives appear to optimistically assume that the utility systems in place could serve any redevelopment; system upgrades will most likely be required, as best addressed in the analysis of the Proposed Action. A complete analysis and valuation of the utility systems (including the IWTP which was not addressed) would be necessary to determine costs for water, sewer, and wastewater treatment requirements for any of the other alternatives. — 1, 9.1

We anticipate that upon adoption of the proposed action, it will be necessary for the Water Department to work closely with the IVDA to define new system and treatment requirements and reach agreements for connection to the City's existing system as is feasible. A Specific Plan for redevelopment of the Base must be prepared to evaluate the master planning of new water treatment and distribution systems.

We would like to thank the Air Force for the opportunity to comment on this document and we sincerely hope consideration is given to adoption of a Final EIS for implementation of the Proposed Action.

Respectfully,

Bernard C. Kerney
General Manager

BCK:mka

DOCUMENT 12

RECEIVED FEB 7 1992 City of San Bernardino Mayor's Office

CITY OF SAN BERNARDINO
INTEROFFICE MEMORANDUM

TO: LORRAINE VELARDE, Mayor's Executive Assistant

FROM: ROGER G. HARDGRAVE, Director of Public Works/ City Engineer

SUBJECT: Comments on Draft EIS -- Disposal and Re-use of Norton A.F.B.

DATE: February 7, 1992

COPIES: Mike Grubbs: File No. 7.30-3; Reading File

The following comments are provided as requested by your memo of 1-13-92. These comments are based upon the assumption that this document is mainly to allow the disposal of Norton A.F.B., and the selected developer's plan will be subject to further environmental in the future.

1. Figure 2.2-1 -- Air Force Retained Property Parcel No. 1 is the SMO Complex, plus some portion of Norton A.F.B. north of Mill Street. In view of the continuing reductions in the defense budget, will SMO really need to expand to the north of Mill Street. If so, what mitigation will be proposed for closing Mill Street? — 2, 1.20

2. Table 2.2-3 -- Projected Flight Operations - Proposed Action - The only planes listed under Air Passenger are the B-737 - 200 and 300, while light planes are listed under air cargo. These assumptions could limit the expansion capability of the airport in those areas, but it is stated that they were provided by IVDA. — 3, 3.15

1. Section 2.2.6 -- Transportation - The assumption is made that segments of Alabama, Mill and Fifth Street, near the base, that do not currently meet our standards, will be widened to 4 lanes. However, no indication is given as to how these improvements will be financed. Also, there is no mention of Tippecanoe Avenue, south of Norton A.F.B. — 4, 7.17

4. Section 2.2.9 -- Utilities - It is stated that this action will involve almost total replacement of the utility distribution systems on the base, but doesn't address how this will be accomplished (utility companies, developer, IVDA). — 5, 9.1

LORRAINE VELARDE
Draft EIS - Norton
February 7, 1992
Page - 2 -

6 5. Figure 3.2-9 -- Regional Transportation System - This
7.18 figure shows the "loop" railway line along 30th Street, which has been relinquished.

7 6. Figure 3.1-10 -- Local Transportation System - This
7.18 figure shows the Southern Pacific Railway line in Rialto Avenue, and down to Mill Street, which has been relinquished.

8 7. Section 3.3-5 — Asbestos - States Air Force practice to only remove or manage asbestos when there is a threat of
10.3 release of friable ACM. The re-use of Norton will require the demolition or renovation of some buildings, which is not addressed.

9 8. Figure 3.4-1 - Surface Drainage of Flood Zone - The figure shows a portion of the base being within the 100 year flood
12.1 plain, but no reference is made to flood protection measures.

I trust these comments will be helpful. Please advise if you have any questions.

ROGER G. HARDGRAVE
Director of Public Works/City Engineer

RGH:rs

DOCUMENT 12

City of San Bernardino
Interoffice Memorandum

To: J. Lorraine Velarde, Executive Assistant to the Major

From: Daniel A. Robbins, Chief of Police

Subject: Norton Air Force Base Draft Socioeconomic Impact Study

Date: February 6, 1992

Copies:

The review of the Norton Air Force Base Draft Socioeconomic Impact Analysis Study has revealed several points which give cause for concern.

Mutual Aid

S The study contains references to the local municipal departments which "maintain joint response agreements with one another to facilitate cross-boundary assistance during emergencies," (2-5, 3-49).

In actuality, mutual aid is available to us through agreements with the State of California and several surrounding County Sheriff Departments which can be activated during times of extreme emergency or disaster. These mutual aid agreements have no impact at all during the course of normal policing and cannot be considered as a factor in calculating policing levels.

Security of Base Property

S In determining staffing levels for the base property, a major point of concern is whether or not the perimeter fencing will be maintained. Additionally, the use of private security by the independent users of the property will have a significant impact on the policing obligations borne by the City.

Calculation Methods

S Because of the geography and demographics of the City of San Bernardino, the ratio of one police officer per 136 acres of land is not valid for the assessment of policing needs. Police officers are deployed throughout the city based on the number of Calls-for-service generated by given area.

DOCUMENT 12

J. Lorraine Velarde
February 6, 1992
Page -2-

Using 1.6 officers per thousand population is more accurate; however, no realistic projection can be made for the base property until more concrete information is developed as to what the level of use and type of population will be (i.e., homeless, work furlough, etc.)

Summary

At the time of base closure, we will need minimum one officer 24-hours a day, seven days a week (total: 5 officers). Additional needs will be based upon determination of land use. It is also imperative that the general 1.6 officer per thousand population be maintained for the city as a whole as the overall population increases.

DOCUMENT 12

CITY OF SAN BERNARDINO
PUBLIC SERVICES DEPARTMENT
INTER-OFFICE MEMORANDUM

To: Lorraine Velarde, Executive Assistant to Mayor

From: Manuel P. Moreno, Jr., Director of Public Services

Date: February 11, 1992

Subject: Response to NAFB Draft EIS & Draft Socioeconomic Analysis

mpm- 2/11/92

History
Federal regulations state that local municipal codes do not apply to governmental bases such as Norton. In application, this means that services the City provides elsewhere on a mandatory basis are not necessarily applicable within base boundaries. This relates to sewer line maintenance, refuse collection, storm drain maintenance, etc. The changes that will affect City services are outlined below:

10 A) Solid Waste
Currently the government contracts with Cal's Disposal for commercial refuse service within base boundaries. When the final
9.11 agreements for closure are signed and Norton is no longer a base, all solid waste collection reverts to the City Public Services Refuse Division.

B) AB 939 Impact
The base closure in 1994 and subsequent redevelopment as a part of our city will have varied effects on our state-mandated solid waste planning and recycling programs. A reduction in tonnage resulting from the initial closure will mean less oversupply of recyclable materials in our planned Materials Recovery Facility system which must start up in 1995. Reconstruction and renovation, however,
11 will generate a large amount of debris. It will be necessary to coordinate source separation of materials from this phase to some degree in order to avoid overloading a Materials Recovery Facility system. This will involve a modest increase in container service from the developers to provide more than just mixed load hauling.

9.12 As new industry begins functioning between 1995 and 2000, waste generators will be subject to our by then regular programs of source reduction planning and education, composting, recycling, and waste audit programs. The largest factor to consider at this time is capacity within the Materials Recovery Facility. Since other program elements will be funded proportionately through refuse service fees, expansion will be accommodated in the fiscal years preceding each stage of economic growth in the base redevelopment program.

INTER-OFFICE MEMORANDUM
Response to NAFB Draft EIS & Draft Socioeconomic Analysis
February 11, 1992
Page 2

S | c) Public Services Street Division
If any of the current streets within Norton AFB become dedicated public easements to the City, current code provides that this department/division perform: sewer line maintenance, tree maintenance, storm drain maintenance and repair, maintenance of curbs, gutters and sidewalks, and, on existing right-of-ways (dedicated), with approval of Mayor and Council, major asphalt overlays of up to one-and-one-half-inches.

Public Works/Traffic Signing and Striping Division would be responsible for all traffic signals, street striping, curb painting, and traffic signs and directionals.

Without knowing the specific development plans, I cannot establish the specific impacts on manpower and equipment the base closure will have upon the Department of Public Services, Refuse and Street Divisions. There are also a number of factors which raise serious questions about taking on these maintenance areas. For example, with regard to storm drains and sewer lines, we have no records as to where the lines are located, what the size of lines are, or their flows, what materials were used during construction, or what materials were used during repairs. With regard to the streets, we have no idea how much base was laid, how much asphalt was laid, when the streets were laid, or when they have been repaired, and with what materials.

DOCUMENT 12

CITY OF SAN BERNARDINO
PARKS, RECREATION & COMMUNITY SERVICES DEPARTMENT

MEMORANDUM

TO: LORRAINE VELARDE, EXECUTIVE ASSISTANT TO THE MAYOR

FROM: ARNIE F. RAMOS, DIRECTOR OF PARKS, RECREATION & COMMUNITY SERVICES

SUBJECT: COMMENTS - DRAFT EIS DISPOSAL & REUSE OF NAFB

DATE: FEBRUARY 3, 1992

COPIES: M. R. "BOB" HOLCOMB, MAYOR

Staff has reviewed the above subject. The interest and concern from our perspective, of course, is the eventual outcome of the existing recreational facilities.

Initially, when it was decided to close NAFB, we were invited to review the existing recreation facilities by the National Park Service. Although there was no determination at that time for specific reuse opportunities, it was noted that some of the recreational facilities that were in very good condition should be retained and would compliment existing recreational opportunities for our community. The draft EIS indicates there will be some demolition of existing facilities including the recreational facilities to make way for the future design and use of NAFB.

12

This action as presented certainly seems logical, however, at the same time there were some recreational facilities that could also benefit the existing community. I understand the need to design recreational opportunities according to the proposed future uses and users of NAFB.

3.16

It is requested that when the time comes to start finalizing some of these ideas that we be offered the opportunity to have input on such designs so that we not only design for new users but strive to enhance the recreational opportunities also of the existing community.

Arnie F. Ramos

ARNIE F. RAMOS, DIRECTOR
Parks, Recreation and Community Services

AFR:u

DOCUMENT 12

SAN BERNARDINO CITY FIRE DEPARTMENT
INTEROFFICE MEMORANDUM

TO: J. Lorraine Velarde, Executive Assistant to the Mayor

FROM: William Wright, Fire Chief

SUBJECT: Socioeconomic and Environmental Impact Analysis, Norton Reuse Plan

DATE: February 18, 1992

After a review of the Norton Air Force Base Environmental and Socioeconomic Impact Studies, there are some unanswered questions and concerns.

13 | The study briefly covered Fire Protection but left out specifics about Fire Protection Systems. It is felt that there is insufficient information to completely analyze the existing
17.4 | Fire Protection areas from the material presented.

The areas of most concern to the Fire Department need to be adequately addressed to cover the following items.

A. Is the existing Fire Protection System sufficient?

14
9.3 | 1. Can a 40-60 year old water supply system flow the required amounts and durations? Will the existing flows meet today's standards?

15 | 2. Have the existing buildings changed usage since original configuration? If so, would they meet City Codes without costly upgrades? I.E. Fire separations and sprinkler coverage.

6.2 | 3. When the warehouses were converted to offices, were the fire protection systems upgraded to meet the requirements for such as proper exiting systems, proper fire wall construction, and sprinkler heads rated for the type of combustibles in the building?

B. When another business moves into a previously occupied building it is very common practice for the new tenant to do improvements to the building, especially older buildings. Would these improvements require the rest of the building to meet Code?

DOCUMENT 12

16
9.4 | C. Since all the existing Fire Hydrants are incompatible with all surrounding Fire Agencies, who will pick up the cost and responsibility for the upgrade and replacement of the existing Fire Hydrants on the Norton complex?

17 | D. According to the Uniform Fire Code and City Municipal Codes, existing vacant sprinklered buildings require on line operational systems. If these buildings were turned over to the City who would be responsible to certify and
6.2 | maintain these buildings and systems?

E. Is the buildings that are to be reused and/or remodeled should a certificate of occupancy to approve that the building meets current Life and Safety Standards be required?

18
9.4 | F. All the existing water and sprinkler systems should be FULL FLOW TESTED and shown to meet requirements of Fire Protection. If we accept the property who would provide the certificates of approved tests to mitigate the City's liability for protection of the properties?

19
6.2 | G. Any building located in an area that does not meet minimum fire flow requirements would require a fully operational sprinkler system. If no systems exists, one must be installed prior to occupancy. If a system exists it must meet current standards. Since there are existing City standards, would Norton Air Base be required to meet these standards prior to any takeover of Life and Property protection on the Base grounds?

DOCUMENT 12

SAN BERNARDINO CITY FIRE DEPARTMENT

MEMORANDUM

TO: Lorraine Velarde, Executive Assistant to the Mayor

FROM: William Wright, Fire Chief

SUBJECT: Environmental Impact Norton Air Force Base

DATE: February 7, 1992

APPROVAL:

Evaluation of the Environmental Impact Statement draft materials has revealed some important areas of concern to the San Bernardino City Fire Department.

Responsibility of the base facility in regards to fire suppression is mentioned in the materials
20 provided. A concern to this department is when will the responsibilities of structural fire protection, aircraft crash rescue, fire prevention, paramedic services and hazardous materials response be turned over to the department?

4.10 What will be the extent of equipment to be left for crash fire type protection? Will the current fire suppression equipment at Norton be turned over to the City of San Bernardino Fire Department? In addition to the large fire apparatus, what will the disposition of the safety gear, proximity suits, and all other fire related equipment be?

As the Proposed Actions affect the overall future operations of this department, continuous contact with the airport management will be necessary. The fire department has much to offer in the coordination and smooth transition of the facility. As more information becomes available, we feel our continued input into the conversion process is essential.

If we can be of further assistance, please call me at 384-5286.

WW:sig

DOCUMENT 12

CITY OF

San Bernardino

FIRE DEPARTMENT
WILLIAM L. WRIGHT
FIRE CHIEF

February 5, 1992

Mr. Marshall Julian
Acting Deputy Director
Inland Valley Development Agency
201 North "E" Street, Third Floor
San Bernardino, CA 92401

Ref: Environmental Impact Study and Socioeconomic Impact Analysis Study, January 1992

Dear Mr. Julian:

Evaluation of the two referenced books above indicates the expansion of the Norton facility to commercial air carriers, general aviation, and maintenance of large aircraft. This brings about a need to develop a plan for the San Bernardino City Fire Department.

As stated in the Socioeconomic Impact Analysis (page 4-33, 4.4.4. Fire Protection under the Proposed Action.), San Bernardino City Fire Department would, on a per-capita basis, experience the greatest demand for fire protection and staffing as the base closes. Also stated in the study, responsibility of fire protection services at the main base would revert to the San Bernardino City Fire Department. The demands are based on the increased population expanding and the area if service increases 2,675 acres.

It is my understanding that Lockheed Air Terminal Services is currently working as the interim airport management. Contact with the management personnel at Lockheed Air Terminal Services is requested by this department as we continue to plan, budget and train for the new service area. Please contact us by February 12, 1992 so this department can have input into the feasibility study currently being undertaken by your contractor. Our contact person is Chief Will Wright or Deputy Chief Dan Dickerson. Our telephone number is (714) 384-5286.

Sincerely,

William L. Wright - Fire Chief

cc: Mayor W.R. "Bob" Holcomb
Co-Chair, IVDA
Supervisor Robert L. Hammock
Co-Chair, IVDA
Mr. Richard Bermudez

200 EAST THIRD STREET, SAN BERNARDINO, CALIFORNIA 92410-4889
714/384-5286 - FAX: 714/[illegible]

PRIDE IN PROGRESS

DOCUMENT 13

REVIEW COMMENTS ON

DRAFT ENVIRONMENTAL IMPACT STATEMENT

FOR DISPOSAL AND REUSE OF NORTON AFB

The Draft Environmental Impact Statement (DEIS) for Disposal and Reuse of Norton Air Force Base (AFB) as prepared by the Air Force is, in general, comprehensive and well prepared. However, the Proposed Action as presented by the DEIS does not fully reflect the scope of the Inland Valley Development Agency (IVDA) Base Reuse Plan. The following is presented for Air Force's consideration in finalizing the DEIS.

The Redevelopment Plan for the Project Area, as adopted by IVDA, states:

> The Agency's prime purpose and mission in the adoption of this Redevelopment Plan is to provide the mechanism and funding to:
>
> 1. Acquire the Air Base and facilitate the successful reuse of the property;
> 2. Ensure that adequate access exists to and from the major transportation systems and the Air Base; and
> 3. Promote economic development within the area surrounding the Air Base.

The significance of the IVDA Redevelopment Plan is that it provides the institutional and financial
1 vehicle to implement the Base Reuse Plan. It is necessary that the Alternatives to the IVDA
3.17 Proposed Use be analyzed within the context of the IVDA Redevelopment Plan to properly reflect the comparative impacts as follows:

1. The Alternatives to the Proposed Action as presented in the DEIS appear to be driven by the concept of retaining the existing on-base residential cantonment areas. In developing the environmental impacts in Section 4 it is acknowledged
2 that the Proposed Action is compatible with SCAG's regional plans and the general plans for the cities of San Bernardino and Highland. However, the Air Force retained housing would constitute a nonconforming residential land use for the other Alternatives. The basis for retaining such on-base housing is supported primarily by the proposed higher density housing areas which form a transition
6.15 area easterly to the realignment of Tippecanoe-Del Rosa. This Air Force proposal would mitigate the aesthetic impacts on the existing cantonment area and the NCA housing along Third Street. It appears as though the Air Force is making every effort to bolster the notion for the retention of an existing land use, viz., the housing cantonment areas, by concocting a land use plan to include such housing when this retained housing land use does not have a long term land use planning justification.

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DOCUMENT 13

3
6.16 • The development or redevelopment of land by private enterprise or public agencies within the IVDA redevelopment area must be consistent with the objectives of the Redevelopment Plan;

• IVDA has the power of eminent domain which would be exercised to eliminate nonconforming land uses;

4
1.22 • The status of BMO activities at Norton AFB is in a state of flux, with indications that it too may be departing shortly after Base closure.

2. Approximately 2.5 million square feet of existing on-base buildings for the Airport Mixed Use Alternative are proposed for retention and reuse. The majority of the buildings selected for reuse are within the proposed OIP area. Over 1 million square feet of this total consists of 1940-1960 vintage buildings. The DEIS makes no allowance for their age, configuration or condition and assumes a perpetual
5 reuse. It is not reasonable to assume that existing 50-year-old nonconforming buildings can function productively another 30 years without requiring major renovation and retrofit. The DEIS recognizes this situation, but makes no allowance for it in developing the Alternatives. The basis for this assumed
3.2 continuing use is not documented in the DEIS; if there is documentation, it should be set forth. The DEIS should contain an analysis of the buildings that could be retained in an "as-is" condition for an economically viable period of time and those buildings that must be demolished as a result of the necessity of private non-governmental users to comply with City of San Bernardino Building and Safety Code requirements. Apart from any economic feasibility issues as to whether to demolish or retain such buildings, the environment will be adversely impacted by extensive retrofit and renovation of substantial square footage that would be required to comply with modern building code requirements when such older vintage buildings used by private businesses.

3. In Section 5, the Socioeconomic Impact Analysis Study (SIAS) for Norton AFB dated January 1992 states that:

> "...Between 1996 and 2004, the total number of regional direct and secondary jobs created from construction and operation activities associated with each of the reuse Alternatives would differ by about 5,400 jobs, with the Proposed Action providing the lowest number of jobs during most of this period."

6 This statement is depicted graphically in Figure 4.1-1 and numerically in Tables 4.1-1 and 4.1-2 of the SIAS. Employment impacts, indicated by the Figure, show the presence of some 2,000 to 2,500 jobs at the time of Base closure for all Alternatives except the Proposed Action. The basis for this assumption is not
17.5 clear. All Alternatives, including the Proposed Action, are stated to have the same immediate operational impact from aviation related activities. The initial direct construction related jobs also are shown to be about equal (section 4.1.1, 4.1.2, and 4.1.3 of SIAS), yet no immediate job credit is given to the IVDA Plan. At a minimum the Proposed Action should be credited with the existing Lockheed

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DOCUMENT 13

operation jobs projected to be about 1,200 by the time of Base closure. Table 5.1-1 of the SIAS, in footnote (b), acknowledges the Lockheed activities and the related employment. The results, however, are credited for all Alternatives, except
S the Proposed Action and the No-Action Alternative. It should also be noted that the Non-Aviation Alternative should not be credited with aviation related jobs as implied by the footnote.

It appears that the perceived reuse of existing on-base facilities results in a superior economic advantage in the Alternatives. The DEIS should, at minimum, consider the following issues relative to the feasibility of implementing Alternatives to the Proposed Action:

7
- The acquisition of the Base by an entity other than the IVDA will constitute purchasing lands within an urbanized area without land use entitlements and without proper zoning designations. The IVDA Reuse Plan is
6.16 consistent with the land uses designated by the City of San Bernardino. Any development proposal will require an amendment to the City's General Plan, and the implementation of such amendments will be time consuming, without any assurance that such amendment could be accomplished. This could result in considerable delay while the Specific Plan and the zoning issues are being resolved, and related EIR processes are completed. IVDA, on the other hand, has performed preliminary work toward resolving such issues and such potential delays would be
8 minimized under the Proposed Action. The DEIS fails to adequately address the size, age and condition of all infrastructure and utilities and erroneously assumes that utility services and transportation routes will be
9.13 allowed by the City of San Bernardino to be converted from military to civilian use and maintenance responcibility without substantial upgrades being required once the Base properties are accessible by the general public.

- IVDA is the local agency with the ability to secure financial resources needed to finance the Redevelopment Project. Job generation can best be effected if the funding mechanism is in place to offer incentives and
9 initiate and sustain the reuse process. The assumption that a certain number of additional jobs will be created immediately under any Alternative is baseless unless a realistic funding mechanism for reuse is in place.

17.6
- To support Base reuse, major capital expenditures for offbase infrastructure is required. The Redevelopment Plan estimates this cost to be in excess of $300,000,000. It is doubtful that viable reuse could become a reality, in a timely manner, in the absence of the redevelopment mechanism.

10
- The IVDA Base Reuse Plan targets approximately 86 percent of the
3.18 buildings for demolition during the first 10 years of the reuse project, as opposed to the 98 percent figure stated in the DEIS. The Proposed Plan seeks to maximize reuse of suitable existing buildings that can be cost-

3

DOCUMENT 13

effectively used to generate employment during the initial phases of the
11 Base reuse. The actual reuse potential of existing facilities can only be established based on a comprehensive facilities analysis and inventory and current market analysis.

3.2
- In the absence of a comprehensive facilities inventory and market analysis, the assumption that the infusion of World War II vintage buildings into an existing over-built market will generate demand and jobs, in the near term, is highly speculative and questionable.

12
6.17
- The need for on-base residential development to support the project is not supportable, especially when the job-related in-migration population impact is estimated to be about 30 percent. Much of the IVDA Redevelopment Project area consists of vacant and/or inadequately formed or shaped lots. The major inhibitor to housing development is inadequate public improvements. The IVDA Redevelopment Project will be the vehicle to implement proper residential development and to meet future housing needs. This is particularly true with respect to low and moderate income housing.

Very truly yours,

Denny Fouladpouly/URS Consultants

Marshall W. Julian
Deputy Executive Director/IVDA

4

DOCUMENT 14

City of HIGHLAND Inc. 1987

March 9, 1992

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFRCE-BMS/DEV
Norton AFB, CA 92409-6448

RE: Draft EIS Disposal and Reuse of Norton AFB, CA

Dear Colonel Bartol,

I would like to thank you for the opportunity to review and comment on the above referenced document. As a result of my review the following comments are provided for your consideration:

1. It is clear that the EIS is intended to primarily address the eventual disposal of the Base and is fairly general in nature because it is unknown exactly how the Base will ultimately be reused, if it is in fact turned over to an agency other than
1 the Department of Defense. Therefore, it is imperative that the EIS specify that the actual reuse of the Base must require the preparation of a separate Environmental Impact Report which will address in detail the impacts of the reuse on the environment including all major areas addressed by this document. Although the IVDA has previously
1.23 prepared a reuse plan and airport master plan those documents should be considered as preliminary documents and before the Base is turned over to the IVDA or another agency, or a specific development is proposed, the Department of Defense should require the preparation of a Plan which specifically addresses the factual aspects of the reuse and also require that that plan be prepared in consultation with those jurisdictions which are adjacent to the Base and are thereby affected by its reuse.

2 2. The EIS identifies the fact that there are numerous hazardous wastes sites on the Base which must be
10.1 cleaned up before reuse can occur. As an adjacent City we are very concerned that this clean up be done as soon as possible and in a safe manner as

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Highland CA 92346
(714) 864-6861
FAX (714) 862-3180

City Council

Dennis Johnson
Mayor

Warren T. Wheeler
Mayor Pro-Tem

Laura Tully Payne
Jody Scott
Jim Rissmiller

City Manager
Sam J. Racadio

DOCUMENT 14

possible. Hazardous waste site clean up certainly will have an impact on how and when the Base will be ready for any type of reuse. Not only does the existence of the waste sites on the Base pose a health threat to users of the Base, but it poses a threat to those individuals residing in the general area. In addition to the health threat, if the sites are not cleaned up in an expeditious manner the delay in their clean up could have a severe economic impact by not allowing the Base to turned over for eventual reuse purposes.

3 3. Any alternative being considered for aggregate
4.11 mining activities is a major concern and one which should not be supported. Current mining activities in the vicinity of the Base have a major impact on the City of Highland with regards to traffic, air quality and aesthetics. The impacts on traffic can be attributed to the increased truck traffic which occurs from the additional trucks necessary to transport the products from the mines as well as the wear and tear that the trucks will have on the local roads. In reviewing documents prepared for the City of Redlands a passenger car equivalency of three (3) was used meaning that each sand and gravel truck was assumed to be equal to three cars on the circulation system.

4 This portion of the South Coast Air Basin currently exceeds air quality standards for particulates and with each new permit granted for mining in the Santa Ana Wash area it becomes exceedingly harder
13.5 to meet the established standards. Particulate material not only affects visibility, but they also have the potential to affect the health of individuals who are exposed to high levels.

5 Such mining can also cause a visual scarring of the
6.18 environment. The mining activities require not only the digging of deep pits which are not filled back up, but also large stockpiles which project into the skyline.

4. Traffic impacts as a result of reuse of the Base is a major concern to the City of Highland. The Base is located within the City of San Bernardino and therefore any reuse will provide direct economic
6 impacts to San Bernardino and the indirect impacts for Highland are unknown. The San Bernardino Associated Governments which has been appointed as
7.19 the Congestion Management Agency for the County of San Bernardino is currently preparing a Congestion Management Plan (CMP) as required by Proposition 111. The traffic section of the EIS should address

7.19 [6] the draft CMP and the impacts which the reuse of the Base will have on the CMP network.

[7] The EIS has identified some improvements to the local road system as a result of reuse of the Base. However, before it is determined that those improvements listed in the EIS are the only improvements necessary, a specific traffic study must be prepared which addresses the precise reuse of the Base. In addition, it is imperative that before the traffic study is prepared that the consultant responsible for preparing the study meet with the Highland City Engineer/Public Works Director to discuss the project. Any proposal for reuse of the Base which includes the construction

7.20 of a passenger terminal in the vicinity of Victoria Avenue or for the other improvements shown in the EIS must provide for street improvements on Victoria Avenue from Highland Avenue to Third Street. The City of Highland has a list of other street improvements including signalization improvements, drainage improvements and street widening which should be addressed before approving any reuse of the Base. Specific improvements should include, but should not be limited to the following:

Widening of 3rd Street to 4 lanes between Tippecanoe Avenue and the 3rd Street/5th Street/Church Avenue intersection (east of Palm) and the widening of 5th Street between the 3rd/5th/Church Avenue intersection to the SR 30 Freeway. This would include the widening of the City Creek Bridge, east of Palm, to 4 lanes. This would require signal modification at Tippecanoe, Victoria, and Palm and new signals at Sterling, Lankershim, and Church Avenues.

Widening of Alabama/Palm to 4 lanes between the southerly Highland City Limits to 5th street, including intersection and traffic improvements.

Signal modification on Victoria at Ninth, Base Line, and Pacific. Install new signal at 14th and Victoria.

Install drainage improvements along Sterling (i.e. Line 17), Victoria (Line 31) and Third Streets (Line 32) in accordance with the County Drainage Master Plan.

Again I would like to thank you for the opportunity to review and comment on this very important document. Should you have any questions, please feel free to

contact me at (714) 864-8732.

Sincerely,

Bruce A. Coleman

Bruce A. Coleman, Community Development Director

cc: Sam Racadio, City Manager
Peg Satterahy, City Attorney
Ernie Wong, City Engineer/Public Works Director
Steve Walker, City Planner

DEPARTMENT OF HEALTH & HUMAN SERVICES — Public Health Service

Centers for Disease Control
Atlanta GA 30333
March 5, 1992

Lt Col Thomas J. Bartol
Director of Environmental Division
AFCEE/ESE
Norton AFB, California 92409-6448

Dear Lt Col Bartol:

We have completed our review of the Draft Environmental Impact Statement (DEIS) for the Disposal and Reuse of Norton AFB, California. We are responding on behalf of the U.S. Public Health Service.

We have reviewed the DEIS for potential adverse impacts on human health. We note that the proposed land use zones would host many operations that are yet to be defined. Although airport operations would likely involve the largest quantities of hazardous materials and have the most extensive emergency response capability, we concur that "mutual aid agreements with surrounding

1 communities may require additional scrutiny and training of emergency staff."
10.26 It is unclear who would be responsible for providing needed training of emergency staff under the proposed action (page 4-76). We believe other health related issues have been adequately addressed.

Thank you for the opportunity to review and comment on this draft document. Please ensure that we are included on your mailing list to receive a copy of the Final EIS, and future DEIS's which may indicate potential public health impacts 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

CITY OF SAN BERNARDINO — 300 NORTH "D" STREET, SAN BERNARDINO, CALIFORNIA 92418

PUBLIC WORKS DEPARTMENT
ROGER G. HARDGRAVE
Director of Public Works

February 12, 1992
File No. 7.30-3

Lt. Col. Thomas J. Bartel
Director of Environmental Division
AFRCE-BMS/DEV
Norton Air Force Base, CA 92409-6448

Re: **Comments on Draft Environmental Impact Statement -- Disposal and Re-use of Norton Air Force Base, California**

Dear Colonel:

We are pleased to have this opportunity to offer the following comments on this draft EIS.

1 1. Flood Control - An inundation study by the U.S. Army Corps of Engineers found that the majority of the Base is presently subject to flood waters up to two feet in depth. However, upon completion of the Seven Oaks Dam, in late 1997, the area of potential flooding will be reduced to approximately the Santa Ana River bed.

12.1 New developments on the base would, therefore, be subject to potential flooding between the time that the Base is turned over for re-use in 1994 and the completion of the Seven Oaks Dam in late 1997.

Even after completion of the dam, any development adjacent to north dike for the Santa Ana River would most likely be required to do a study for flooding, particularly for damage from erosion.

2 We understand that there are many problems with local
12.2 drainage on the Base. A comprehensive drainage system will need to be installed during implementation of the selected re-use plan in order to solve these problems.

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2. On-Base Roadways - An inventory of infrastructure on the base revealed that the majority of the streets were constructed with a pavement section of 6 inches of Portland Cement Concrete over native material. These streets were apparently constructed in the early 1940's, and the pavement sections are nearing the end of their normal service life. This fact would soon necessitate the complete removal and replacement of the pavement sections, even if no widenings or re-alignments were contemplated.

It is the City's policy to have any planned work on utilities completed prior to repaving a street. This policy will result in every effort being made to have all necessary utility work completed prior to construction of the new pavement.

3 The draft E.I.S. states that - "ultimately the entire on-base network would be upgraded and reconstructed to accommodate new land uses in accordance with an approved specific plan for re-use." We feel that the upgrading and reconstruction of these roadways would need to be done as the re-use is accomplished, instead of at the ultimate time. No estimate of cost is given, but it is obvious that the expense would be considerable.

7.1

4 7.17

5 3. Utilities - Section 2.2.9 states that the Proposed Action involves almost total replacement of base utility distribution system. As previously stated, some of these replacements will need to be coordinated with the upgrading and reconstruction (possibly on new alignment) of the on-base streets.

9.1

Replacement of almost all of the utility distribution represents a large expenditure for either the base re-use developer, Inland Valley Development Agency, or utility providers.

4. Storage Tanks - It is stated in Section 3.3.4 that 58 active underground storage tanks have been identified, and a contract has been set for a study to identify and locate any unknown underground storage tanks on the base. All tanks that do not meet current regulations will be deactivated and removed.

6 While these proposals are encouraging, it is almost certain that some of the underground storage tanks will not be compatible with the base re-use, which will necessitate their removal and deactivation in accordance with regulations in effect at that time. This situation could result in a fairly large expenditure for the base re-use developer or Inland Valley Development Agency.

10.5

7 The draft also states that the base is currently operating under a waiver from DEHS, which allows the base to postpone compliance with leak detection, spill and overspill prevention, and cathodic protection. Since this waiver will not expire until 1998, does this mean that the owner will have to comply with these requirements at that time, provided that it is transferable?

10.6

We would like to reserve the right to submit a more detailed response by the end of the review and comment period on 3/9/92.

Very truly yours,

ROGER G. HARDGRAVE
Director of Public Works/City Engineer

RGH/ckc

cc: Marshall Julian, Exec. Dir. IVDA

Robert Castro & Associates

Investment Consultants

Real Estate • Land Development • Finance • Land Aquisition • Indian Affairs

March 9, 1992

To : Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFRCE - BMS/Dev.
Norton Air Force Base, California 92409-6448

From: Robert Castro

Re : Norton Air Force Base Closure

Dear Lt. Colonel Bartol:

1 This letter will serve as preliminary notice to the DoD, that the San Manuel Band of Mission Indians intends to submit a proposal, for the acquisition of the surplus lands now known as Norton Air Force Base. These surplus lands are located in the County of San Bernardino, State of California.

Robert Castro, Tom Burke and Pacific Alliance Realty/Treptow Development are working on a formal, more specific proposal, to be submitted on behalf of The San Manuel Band of Mission Indians, in the very immediate future.

4.12 The San Manuel Band of Mission Indians are a group of Federally recognized Native Americans that are indigenous to the County of San Bernardino, State of California. At one time the San Manuel Band of Mission Indians occupied lands throughout what is now known as the County of San Bernardino. The San Manuel Band of Mission Indians have dwelled in this area for well over Fifteen (15) Hundred Years.

The San Manuel Band of Mission Indians shall ask the DoD to recognize the Tribe as a small economically disadvantaged minority, and to afford the Tribe preference as prescribed by current governing Federal Laws and DoD Policy. The San Manuel Band of Mission Indians shall ask the DoD to recognize the Tribe as a Non-Profit Municipal Organization. The San Manuel Band of Mission Indians have the right by Federal Law to be classified in the same context as the State of California, County of San Bernardino, and/or any other Local Government Jurisdictions as a Public Agency, for the purposes of establishing Priority Status with the DoD. As a Federal & State recognized Public Agency, the San Manuel Band of Mission Indians have equal priority status as the aforementioned Government Jurisdictions(Public Agencies), with respect to chronological priority status consideration by the DoD in its process of disposal of the surplus lands known as the Norton Air Force Base.

The San Manuel Band of Mission Indians claim their right (by ancestral use) to these surplus lands now known as Norton Air Force Base. The San Manuel Band of Mission Indians plan to place into trust with the Department of the Interior, any surplus lands deeded by the DoD to the Tribe.

P.O. Box 1110 • Coachella,Ca., 92236 • 82-489 Docille Dr. • Indio,Ca. 92201 • 619-342-1009

as Tribal Trust Lands, to be known as a portion of the San Manuel Indian Reservation.

The purpose of the The San M[illegible]d of Mission Indians Proposal will be to negotiate the purchase of surplus [illegible]n as Norton Air Force Base in its entirety or any portion thereof. The San M[illegible]and of Mission Indians plan to occupy, use and own the surplus land.

The San Manuel Band of Mission Indians intend to reuse the land as a resource for Tribal Economic Development Projects. The reuse plan is to create and develop a Major International Enterprise Zone. The zone will be conducive to facilitating Domestic and International Trade, Distribution, Research & Development, and clean Light Manufacturing. The Tribe can facilitate this type of Economic Development through the establishment of a Free Trading Zone, Bonded Warehousing and various types of Tax Abatement.

The San Manuel Band of Mission Indians are legally equipped via their sovereign rights over lands in their possession, to create the International Enterprise Zone. The impact of the Tribal Enterprise Zone to the local surrounding communities, will be of equal or greater positive economic impact, in comparison to the present alternatives presently contemplated by other competing Public Agencies (including the IVDA) submitting proposals.

The Tribe's Developer/Financing consultants do not see the development of a Municipal Airport as a viable economic reuse of the land. Air Cargo Freight is the only type of aviation activity (and aviation freight distribution related business activity) contemplated at this time, as a possible component part of the reuse plan. It is anticipated that Ontario International Airport presents itself as very stiff competition for commercial passenger market share, and coupled with the negative noise impact to the surrounding community from increased flight operations, these two conditions will have a negative effect on the economics of the operation of a Municipal Airport.

It is very possible that the San Manuel Band of Mission Indians will abandon the use of the airfield all together, in favor of developing all of the land for Office, Commercial and Industrial use. The reuse of the land as a International Enterprise Zone does not require that the airfield to be intact or inuse to facilitate a successful outcome to the project. The fact is that unless the airfield can be an initially profitable Air Cargo Freight Port for the Tribe's Master Lessees, the Tribe will not reuse the airfield for flight operations. The Tribe plans to demolish and clear away all existing structures. The Tribe plans to redevelop a new infrastructure for the entire property or any portion thereof deeded to the Tribe by the DoD.

DOCUMENT 17

Lt. Colonel Bartol
March 9, 1992
Page 3

The San Manuel Band of Mission Indians can better facilitate a smooth transfer of the surplus land by the DoD. to the Tribe vs to another Public Agency. with regard to the issue of access & liability. as it relates to Hazardous Waste Remediation on the Base. as a mandated performance requirement of the DoD. by the Congress of the United States.

The San Manuel Band of Mission Indians are empowered to designate land use zoning entitlements over Tribal Trust Lands. Generally the reuse development plan will be consistant with the land use alternative plan already selected by the County of San Bernardino. The San Manuel Band of Mission Indians are prepared to expedite a Specific Plan and begin the reuse development process as soon as the Tribe has completed its negotiations and has been deeded the land by the DoD.

The San Manuel Band of Mission Indians are empowered to finance Economic Development programs through the use of Public Finance Issues. These issues may be non taxable & taxable bond methods and or any other Public Finance method available to Public Government Agencies.

The San Manuel Band of Mission Indians have Investment Bankers available to them, that are capable of generating all of the funds necessary to complete all of the planned redevelopment of the surplus land. The Investment Bankers have at their disposal, several billion dollars worth of Institution Investment Capital ready willing and able to underwrite the Acquisition & Development cost of this project. The San Manuel Band of Mission Indians are (together with their Development/Finance Consultant Partners) better equipped, to immediately begin implementation of reuse than any competing Public Agency.

In conclusion. the San Manuel Band of Mission Indians. through the aforementioned consultants. will be submitting a formal proposal to the DoD Base Closure Office in Washington D.C. in the immediate future. Also enclosed is a copy of a Tribal Resolution by the San Manuel Band of Mission Indians General Council to pursue the Norton Air Force Base.

Thank you for your Time and Consideration

Sincerely,

Robert Castro

DOCUMENT 17

RESOLUTION OF THE
SAN MANUEL BAND OF MISSION INDIANS GENERAL COUNCIL

WHEREAS, the San Manuel Band of Mission Indians ("Tribe") is indigenous to the County of San Bernardino, State of California, and at one time occupied land throughout said County; and

WHEREAS, Norton Air Force Base, which is currently under the control of the Department of Defense, is located in San Bernardino County, but the use of which by said Department of Defense will be terminated in the near future; and

WHEREAS, the Tribe desires to use, occupy and own part or all of said Air Force Base as part of its reservation in order to provide resources for tribal economic development projects; and

WHEREAS, the Tribe is entitled to preferential consideration in connection with the use and occupancy of said base, and

WHEREAS, the Tribe desires the assistance of Robert Castro in preparing and submitting proposals to obtain said use and occupancy;

NOW, THEREFORE, BE IT RESOLVED that the Tribe hereby declares its interest in obtaining title to, and the use and occupancy of, all or part of said base and will be utilizing the efforts of Robert Castro in connection with such efforts, and that all communications in connection therewith shall be directed to the Tribe's legal counsel, Jerome L. Levine, 2029 Century Park East, Suite 1700, Los Angeles, California 90067, telephone (310) 553-8400; telefax (310) 553-8455, and the Tribal Chairperson, Norma Manzano in Tribal Hall, 5771 No. Victoria Avenue, Highland, California 92346, telephone (714) 864-8933, telefax (714) 864-3370.

C E R T I F I C A T I O N

I, the undersigned, duly elected Chairman of the San Manuel Band, do hereby certify that the foregoing resolution was adopted by the members of the San Manuel Band at a duly called general meeting on December 16, 1991, a quorum being present, by a vote of 14 "for" and 0 "against."

Dated: December 20, 1991

NORMA MANZANO,
Tribal Chairman

DOCUMENT 18

CITY OF Riverside PUBLIC UTILITIES DEPARTMENT 3900 Main Street Riverside California 92522
(714)-782-5509
FAX: (714)-369-0548
File: Norton Air Force Base
March 5, 1992

BILL D. CARNAHAN
Public Utilities Director

Lt. Col. Thomas J. Bartol, Director
USAF Environmental Division
AFCEE/ESE
Norton AFB, CA 92409-6448

RE: Draft Environmental Impact Statement for the Disposal and Reuse of Norton Air Force Base (Norton AFB), January 1992

Dear Col. Bartol:

Thank you for providing us with a copy of the "Draft Environmental Impact Statement (EIS)" for the Disposal and Reuse of Norton AFB. The purpose of the Draft EIS is limited to support of the decisions of the Air Force and the cooperating agencies, such as the Federal Aviation Administration (FAA) and the Forest Service of the U.S. Dept. of Agriculture, relating to disposal (page S-1 of Draft EIS). We understand that reuse proponents may need to perform further environmental analysis (page S-1). The Air Force assessed the environmental impacts of reuse of Norton AFB assuming that the primary portion of Norton AFB would be used as a civilian airport and office industrial park (page S-2). The Air Force acknowledged that it cannot precisely predict the details of reuse (page S-4).

The Air Force proposes to close Norton AFB in March of 1994 pursuant to the Base Closure and Realignment Act (Public Law 100-256, 24 October 1988). We commend the Air Force for issuing the Draft EIS, as promised, for review and comment between January and March 1992. The City of Riverside is interested in the reuse of Norton AFB after base closure because previous and current investigations of hazardous materials identified twenty two (22) Installation Restoration Program (IRP) sites within Norton AFB.

1 | 10.27 The City of Riverside (COR) owns municipal wells downstream and in the immediate vicinity of Norton AFB. Some of those wells downstream of Norton AFB show contamination from contaminants suspected of originating from Norton AFB. In February 1992, the Air Force formally acknowledged that trichloroethylene (TCE) and tetrachloroethylene (PCE) groundwater contaminant plume(s) had migrated off-base in the direction of our wells. The Air Force can minimize our concerns by fully remediating all groundwater and soil contamination, attributable to the Air Force, in the vicinity of Norton AFB.

DOCUMENT 18

2 | 10.28 We are concerned that the quantities of hazardous materials and wastes used and generated by the proposed action may be somewhat greater (page S-12) and that responsibility for managing the wastes would shift from a single user to multiple users. We are also

3 | 10.29 concerned that the area identified for potential mining includes a former base landfill (page S-15). We encourage the Air Force to take immediate measures to delineate and mitigate the landfill. We are encouraged that the Air Force will remove existing underground storage tanks (UST) that are not in conformance with existing regulations and all equipment with greater than 5 parts per million (ppm) of PCB prior to base closure (page S-13).

4 | 10.30 We are concerned that some of the concerns and issues regarding the IRP that we raised during the scoping process were determined to be beyond the scope of the EIS because the IRP is a separate process (page 1-8). We are pleased that the closure of Norton AFB will not

5 | 10.31 affect the ongoing IRP activity (page 3-64). We request that the Air Force comply with the leak detection, spill and over-spill prevention, and cathodic protection before base closure rather than wait until 1998, when the temporary waiver expires (page 3-69). We request that the Air Force provide us with a copy of the report with the outcome of the contract (to be completed in Spring 1992) to identify and locate any unknown UST (page 3-69).

Thank you for the opportunity to review the Draft EIS.

Sincerely,

David V. Garcia
Water Engineering Manager

DVG/BMO:dh

cc: Congressman George E. Brown
Mayor Terry Frizzel - COR
Chairman Glen Stevens - Board of Public Utilities, COR
Bill Carnahan, Public Utilities Director - COR
Dieter P. Wirtsfeld, Assistant Public Utilities Director - COR
Mike Baldwin, Assistant Public Utilities Director - COR
Merle Gardner, Planning Department Director - COR
Gene McMeans, USAWRA
Ira Pace, USAWRA

South Coast
AIR QUALITY MANAGEMENT DISTRICT
21865 E. Copley Drive, Diamond Bar, CA 91765-4182 (714) 396-2000

March 6, 1992

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFCEE/ESE
Norton AFB, CA 92409

Dear Lt Col Bartol:

Re: Comments on the Draft Environmental Impact Statement for Norton Air Force Base Reuse Plan

SCAQMD# SBC920114-01

The South Coast Air Quality Management District (District) is responsible for adopting, implementing, and enforcing air quality regulations in the non desert portions of San Bernardino County. The District reviews and analyzes environmental documents for projects that may generate significant adverse air quality impacts. In that capacity, the District advises the lead agency.

The District has reviewed the Draft Environmental Impact Statement (Draft EIS) for the Norton Air Force Base Reuse Plan. Based on our analysis, the District concludes this project will generate significant construction and operation-related adverse air quality impacts. The proposed project presents significant air quality impacts due to its size, location, and character. The impact analysis contained in the Draft EIS does not adequately address these adverse air quality concerns. A detailed discussion of the District's analysis is contained in the attached Staff Assessment. The District's comments are intended to advise the Air Force in addressing and mitigating the potential adverse air quality impacts caused by the project.

The District appreciates the opportunity to comment on the Draft EIS for the proposed Norton Air Force Base Reuse Plan. A response to our comments prior to the filing of the Final Environmental Impact Statement would be appreciated. If you have any questions regarding our comments, please contact Connie Day, Program Supervisor, at (714) 396-3055.

Sincerely,

Cindy S. Greenwald
Planning Manager

CSG:CAD:GB

Attachments

SCAQMD STAFF ASSESSMENT
Of
NORTON AIR FORCE BASE REUSE PLAN

Project Description and Location

The Norton Air Force Base Reuse Plan proposes to redevelop 1,959 acres, including the airfield and main administrative, industrial and residential areas of the base and two noncontiguous parcels. The two noncontiguous parcels are a 30 acre site within the City of Highland and a 3 acre site near the southwest end of runway 6/24. The land uses presented in the proposed action provide a framework for development of a civilian airport and office industrial park. This plan was prepared by the Inland Valley Development Agency (IVDA). The plan centers around the establishment of a commercial aviation, general aviation, and aviation maintenance airport in the area of the existing base airfield. The types of permitted land uses would include 1,256 acres of aviation related uses, and 703 acres of non aviation related uses. Non-aviation related land uses include industrial, commercial, and recreational uses. The project site is located in the City of San Bernardino, in the southwestern portion of San Bernardino County.

Air Quality Setting

The District maintains several air quality monitoring stations in the South Coast Air Basin. The Draft EIS analyzed air quality data from source receptor areas 23, 34, and 35, for the years 1987 - 1990. The designated monitoring station for the proposed project area is the San Bernardino Air Monitoring Station, source receptor area 34.

According to the latest air quality data collected at the San Bernardino station, the area exceeded state and federal ozone standards on 129 and 78 days, respectively. PM10, which consists of fine particles with an aerodynamic diameter of 10 microns or less, exceeded state and federal ozone standards on 58.3 and 3.3 percent of days sampled, respectively. Of the samples monitored, carbon monoxide and nitrogen dioxide levels did not exceed state or federal standards.

CEQA Review

1 The District is concerned why this document is not being processed in accordance with the California Environmental Quality Act (CEQA). The proposed project is the plan prepared by the IVDA. It is our understanding since the proposed project was developed by the IVDA, the project would not fall under the sole
1.24 environmental review procedures of the National Environmental Protection Act (NEPA), but also CEQA. The Final EIS needs to discuss why an EIR/EIS was not prepared and if any additional environmental review will be required by the IVDA in accordance with CEQA.

Construction Related Air Quality Impacts

2 The Draft EIS defines air quality impacts resulting from construction activities as
13.2 temporary and not subject to air quality regulation. The state and federal ambient

2 air quality standards are health-based standards. Therefore, if these standards are exceeded, they become health concerns and are subject to air quality regulation.

13.2 The Draft EIS identified and quantified air quality impacts from excavation and grading. The Draft EIS did not identify or quantify emissions from mobile sources, demolition activities including asbestos removal, or form the stationary sources used in construction related activity. The emissions from those stationary area and mobile sources must be quantified to the extent possible. When calculating mobile source emissions it is important to remember that the exhaust emissions from the construction crew's motor vehicles and construction equipment must both be considered.

The Draft EIS estimates the average daily construction related emissions to be 6,600 pounds of particulates per day. With the implementation of dust control measures it could be reduced to approximately 3,300 pounds per day. That figure is clearly in
3 excess of the District's 150 pounds per day significance threshold for particulates.
13.12 The Draft EIS did not estimate average daily construction related air quality impacts for carbon monoxide (CO), nitrogen (NOx), and reactive organic gases (ROG). The District's daily thresholds of significance are 550 pounds for CO, 100 pounds for NOx, 75 pounds for ROG.

4 The Draft EIS has not adequately addressed the construction related emissions.
13.2 The District disagrees that construction emissions would be considered insignificant simply because they maybe of a short term nature. Specific mitigation measures will be required to reduce construction related air quality impacts. Attachment 2 contains additional feasible and appropriate mitigation measures to reduce construction related air quality impacts. All applicable mitigation measures must be employed to reduce emissions to a level at or below significance if possible.

Analysis of Toxic Emissions

5 Hazardous materials and hazardous waste management activities at Norton AFB
13.13 are governed by specific environmental regulation. However, the EIS needs to address toxic emissions that could have an impact on sensitive receptors. If toxic emissions are identified they must be quantified to the extent possible.

Operation Related Air Quality Impacts

The Draft EIS indicates that operational or long-term air quality impacts at the project site will occur from both stationary and mobile emission sources. Mobile sources include sources such as aircraft, and aircraft operation support equipment. The primary source of stationary emissions will be the combustion of natural gas and use of electricity.

6 The proposed project involves the development of approximately 703 acres of commercial, industrial and recreational land uses. No details were provided as to the specific projects which would be developed. Based on the nature of general
13.14 commercial and industrial land uses, there is a potential for "area sources" to occur on site. Area sources include such uses as gas stations, dry cleaning, eating, and printing establishments among others. Such area sources could emit reactive organic gases and particulates. The Draft EIS did not analyze or quantify the potential emissions from likely area sources.

This plan is similar in nature to a General Plan or Specific Plan in that it may not be known at this time exactly what type of land uses would be permitted on individual sites. Recognizing the District concern whether additional review will occur of the
7 IVDA's plan, the District recommends that all feasible and appropriate mitigation measures be incorporated into the Specific Plan as development regulations or
13.15 action strategies (see attachment 2) to ensure that the Norton Air Force Base Reuse Plan maintains high air quality standards. Furthermore, applicable control measures contained in the 1991 Air Quality Management Plan (AQMP) should also be considered as development regulations. The format of these mitigation measures should written so that they can be adopted and amended into the Specific Plan. The inclusion of the control and mitigation measures is an effort to minimize to the greatest extent feasible the potential air quality impacts attributable to a fully developed project.

Mobile sources will represent a large source of emissions due to increased vehicular traffic and aircraft operations. The project will generate 97,357 average daily trips or 1,022,248 vehicle miles traveled by the year 2015. Several pollutants are directly emitted from motor vehicles including CO, NOx, reactive organic gases (ROG), and
8 PM10. The Draft EIS has evaluated and estimated emissions from mobile sources and claims they do not have the potential to generate a significant impact.

The data included in the Draft EIS dose not support that conclusion. The Draft
13.16 EIS's (Table 2-5) clearly shows that ROG, CO, and NOx emissions from the project will substantially exceed the "significant threshold criteria" established by the District. Specifically, total daily emissions of ROG, CO, and NOx, are estimated to be 3,240 pounds, 5,000 pounds, and 4,580 pounds, respectively. Those levels are well in excess of the District daily thresholds of significance.

9 The EIS assumes the District will impose a variety of control measures on indirect
13.17 and area sources to reach and maintain attainment of project emission thresholds. It is not solely the responsibility of the District to apply control measures, but also other government agencies, public sector and private sector entities. To ensure attainment of the thresholds, the project must incorporate existing AQMP control measures to the greatest extent feasible. Consequently, mitigation measures are
10 required to reduce operational air quality impacts. While some mitigation measures
13.18 were identified in the Draft EIS, others also are feasible and must also be included where possible (see Attachment 2).

Cumulative Impacts

11 The Draft EIS was inadequate in it's analysis of cumulative impacts. The Final EIS
13.3 should analyze the collective or combined effect of both the project in question and other nearby projects. Due to the proximity of Ontario International Airport, the addition of another commercial airport could create significant cumulative impacts. Identifying the cumulative impacts from other similar projects as required by CEQA will assist in identifying appropriate mitigation measures.

Consistency with Regional Plans

It is essential that the Final EIS clarify the regional setting and especially the regional plans that deal with large-scale environmental problems such as air quality.
12 The EIS must consider consistency of the project with all other applicable plans,
1.25 including:

12 Air Quality Management Plan

Regional Growth Management Plan (population projects)

Regional Mobility Plan (transportation projects)

Local Adopted Congestion Management Program (impacts on established
1.25 levels of service)

Any other plans that are applicable to the project.

The EIS should analyze the plan for inclusion of the goals, objectives, assumptions and measures for effectiveness contained within the regional plans. The analysis should incorporate other elements of the proposed project such as transportation, which correlate policies and action strategies with the requirements of the applicable regional plans.

Project Alternatives

13 The regional and project vicinity air quality analyses assessed the impacts of the
13.19 alternatives. Each alternative was modeled and analyzed. However, the EIS did not establish why the proposed project would be environmentally superior and have the least adverse impacts.

Conclusion

The District staff's review indicates that the impact analysis contained in the Draft EIS does not adequately address project-related air quality issues. The emission levels identified in the Draft EIS indicate that development under the Norton Air Force Base Reuse Plan could generate significant construction and operation related adverse air quality impacts.

Before the filing of the Final EIS, additional analysis of air quality issues must be
14 prepared and presented. The District staff recommends the following:
1.24 A discussion on how the project will be reviewed in accordance with CEQA.

15 Identify and quantify emissions from mobile sources, asbestos emissions due
13.2 to demolition activities, and field office stationary sources for construction related activity

16 Inclusion of mitigation measures as development regulations or
13.15 implementation strategies

13.3 17 The identification and analysis of cumulative impacts.

18 The quantification and mitigation for potential reactive organic gases and
13.18 particulates from the potential area sources.

13.13 19 The identification and quantification of toxic emissions.

1.25 20 An analysis of conformity with the AQMP.

21 Establishment of why the proposed project would be environmentally
13.19 superior and have the least adverse impacts.

22 The inclusion of all feasible and appropriate mitigation measures and a
13.20 mitigation monitoring program.

23 The Air Force should consider all mitigation measures identified in the Draft EIS,
13.6 this assessment, and all other mitigation measures that are subsequently identified. The Final EIS should then discuss which mitigation measures will be implemented, by whom, and determine the level of emissions which will remain. Mitigation monitoring procedures and/or techniques must be discussed and provided in the Final EIS to ensure that these measures can and will actually be implemented.

ATTACHMENT 2

POTENTIAL MITIGATION MEASURES
NORTON AIR FORCE BASE REUSE PLAN

To reduce particulate emissions from paved and unpaved roads, construction activities, and agriculture operations.

MITIGATION:

- o Use low emission mobile construction equipment (e.g., tractor, scraper, dozer etc.).
- o Develop trip reduction plan to achieve 1.5 AVR for construction employees.
- o Water site and clean equipment morning and evening.
- o Spread soil binders on site, unpaved roads and parking areas.
- o Apply chemical soil stabilizers according to manufacturers specifications, to all inactive construction areas (previously graded areas which remain inactive for 96 hours).
- o Reestablish ground cover on construction site through seeding and watering.
- o Implement or contribute to an urban tree planting program to off-set the loss of existing trees at the construction site.
- o Employ construction activity management techniques, such as: extending the construction period; reducing the number of pieces of equipment used simultaneously; increasing the distance between the emission sources; reducing or changing the hours of construction; and scheduling activity during off-peak-hours.
- o Pave construction roads, and sweep streets if silt is carried over to adjacent public thoroughfares.
- o Reduce traffic speeds on all unpaved road surfaces to 15 miles per hour or less.
- o Require a phased-schedule for construction activities to minimize emissions.
- o Suspend grading operations during first and second stage smog alerts.
- o Suspend all grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour.
- o Wash off trucks leaving the site.
- o Maintain construction equipment engines by keeping them tuned.
- o Use low sulfur fuel for stationary construction equipment.
- o Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.
- o Use low emission on-site stationary equipment.

To reduce automobile emissions by reducing the number of vehicles driven to a work site on a daily basis:

MITIGATION

- o Provide local shuttle and regional transit systems and transit shelters.
- o Provide bicycle lanes, storage areas, and amenities.
- o Ensure efficient parking management.
- o Provide dedicated parking spaces with electrical outlets for electric vehicles.
- o Provide peripheral park-n-ride lots.
- o Provide preferential parking to high occupancy vehicles and shuttle services.
- o Charge parking lot fees to low occupancy vehicles.

To reduce automobile emissions by reducing the number of persons who must drive to a work site on a daily basis:

MITIGATION

- o Promote Transportation Management Associations (TMAs).
- o Establish telecommuting programs, alternative work schedules, and satellite work centers.
- o Work with cities/developers/citizens in the region to implement TDM goals.

To reduce vehicular emissions through traffic flow improvements:

MITIGATION

- o Configure parking to minimize traffic interference.
- o Minimize obstruction of through-traffic lanes.
- o Provide a flagperson to guide traffic properly and ensure safety at construction sites.
- o Schedule operations affecting traffic for off-peak hours.
- o Develop a traffic plan to minimize traffic flow interference from construction activities. Plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service.
- o Schedule goods movements for off-peak traffic hours.
- o Synchronize traffic signals.
- o Provide adequate ingress and egress at all entrances to public facilities to minimize vehicle idling at curbsides.
- o Provide dedicated turn lanes as appropriate.

To reduce the length of work trips while expanding the supply of affordable housing and creating an urban form that efficiently utilizes urban infrastructure and services.

MITIGATION

- o Achieve a job/housing balance compatible with the Regional Growth Management Plan.
- o Encourage growth in and around activity centers, transportation nodes and corridors.
- o Promote future patterns of urban development and land use , making better use of existing facilities, and promoting mixed use development involving commercial and residential uses.

To reduce stationary emissions of operation related activities.

MITIGATION:

- o Require development practices which maximize energy conservation as a prerequisite to permit approval.
- o Improve the thermal integrity of buildings, and reduce the thermal load with automated time clocks or occupant sensors.
- o Introduce window glazing, wall insulation, and efficient ventilation methods.
- o Introduce efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces and boiler units.
- o Incorporate appropriate passive solar design, and solar heaters.
- o Use devices that minimize the combustion of fossil fuels.
- o Capture waste heat and reemploy it in nonresidential buildings.
- o Landscape with native drought-resistant species to reduce water consumption and to provide passive solar benefits.

To protect sensitive land uses from major sources of air pollution.

MITIGATION:

- o Integrate additional mitigation measures into site design such as the creation of buffer zones between a potential sensitive receptor's boundary and potential pollution source.
- o Require design features, operating procedures, preventive maintenance, operator training, and emergency response planning to prevent the release of toxic pollutants.

SCAG
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS
818 West Seventh Street,12th Floor • Los Angeles, California 90017-3435 (213) 236-1800 • FAX (213) 236-1825

March 13, 1992

Lt. Col. Thomas J. Bartol
Director of Environmental Division
AFRCE-BMS/DEV
Norton Air Force Base, CA 92409

RE: Draft EIS Disposal and Reuse of Norton Air Force Base (NAFB), California (SCAG No: SB-55469-NPR)

Dear Col. Bartol:

Thank you for the opportunity to review and comment on the Draft EIS (DEIS) for Norton Air Force Base (NAFB) Disposal and Reuse. As areawide clearinghouse for regionally significant projects, SCAG assists cities, counties, and other agencies to review projects and plans for consistency with the Regional Housing Needs Assessment (RHNA), the Regional Mobility (RMP), Growth Management (GMP), and Air Quality Management (AQMP) Plans, all of which are included in the State Implementation Plan (SIP).

It's our understanding that the Draft EIS is intended to respond to federal environmental review requirements under the National Environmental Policy Act addressing the disposal of Norton AFB by the Department of Defense (DOD). The DEIS is not being proposed as a response to requirements of the California Environmental Quality Act (CEQA) to conduct environmental review of actions by local jurisdictions to adopt local land use plans for Norton AFB after it is disposed of by the Department of Defense.

1.26 Given the limited application of the current document and the fact that local actions to adopt state mandated land use plans have not been finalized, SCAG's will limit its comments to a preliminary assessment of issues which SCAG feels should be addressed in subsequent EIR's. Additional comments will be submitted in response to subsequent EIR's addressing local actions to adopt plans for the reuse of NAFB.

Norton AFB EIS
March 9, 1992
Page 2

If you have questions about the attached comments, please contact Bill Boyd at (213) 236-1960. He will be happy to work with local jurisdictions in meeting state environmental review and planning requirements for the reuse of Norton Air Force Base.

Sincerely,

ANNE BAKER
Director of Environmental Planning

SCAG ADMINISTRATIVE COMMENTS

DEPARTMENT OF DEFENSE DISPOSAL OF NORTON AIR FORCE BASE

PROJECT DESCRIPTION

Norton AFB currently consists of approximately 2,105 acres and is an active Air Force Base. The land is currently being used as an airfield with associated facilities supporting the 63rd Military Airlift Wing, 445th Military Airlift Wing (Reserve), tenant units and miscellaneous organizations. Use of the installation fall into a number of categories which include airfield operations, flightline operations, maintenance, logistics, administration, support and training facilities, dormitories, community and recreational facilities and family housing.

The land to be disposed of by the Air Force comprises 1,959 acres, including the airfield and main administrative, industrial, and residential areas of the base and two noncontiguous parcels: a 3-acre parcel near the southwest end of the runway which contains airport navigation equipment and a 30-acre parcel within the City of Highland, currently used for recreation. The Air force will be retaining three parcels of the Base totalling 146 acres for continued use by the Ballistic Missile Organization (BMO) and as military family housing for Air Force officers and non-commissioned officers.

REGIONAL PLAN POLICIES

The California Environmental Quality Act requires that EIR's discuss any inconsistencies between the proposed project or plan with the applicable general plans and regional plans (Section 15125[b]). Accordingly, one of our major interests would be to ensure that future EIR(s) prepared by local jurisdictions clearly identify any policies, objective or programs which are inconsistent with the RHNA, RMP, GMP, or AQMP. If there are inconsistencies, an explanation and rationalization for such inconsistencies should be provided.

There are a number of policies expressed in the Growth Management Plan (GMP) which are particularly relevant to this project. Among them are policies which would:

- o Promote future patterns of urban development and land use which reduce costs of infrastructure construction and make

better use of existing facilities, and to achieve a good match between future growth and the phasing of new facilities or expansion of existing ones.

- o Encourage growth to occur in and around:
  - Activity Centers
  - Transportation Corridor Nodes
  - Underutilized Infrastructure Systems
  - Areas Needing Recycling and Redevelopment
- o Encourage mixed-use developments and other planning techniques to locate employment centers within walking distance of major housing areas or transit corridors.
- o Achieve better job/housing balance at the subregional level through:
  - Incentives to attract housing growth in job-rich subregions
  - Incentives to attract job growth in housing-rich subregions
- o To the degree possible, achieve a balance, by subregion of the type of jobs with the price of housing.
- o To encourage employment development in job-poor localities through support of labor force retraining programs and other economic development measures.
- o To support a water policy for Southern California which calls for:
  - The provision of a dependable and reliable supply of water
  - Preservation of the quality and integrity of surface and groundwater resources
  - A commitment to water conservation
  - Accomplishment of water supply and quality improvements in a cost-effective manner
- o To encourage mitigation measures that reduce noise levels in locations exceeding noise standards.

GROWTH MANAGEMENT

According to SCAG's designation of subregions in the Growth Management Plan (GMP), NAFB is located in the East San Bernardino Subregion which had a job/housing ratio of 0.93 in 1984. This

ratio indicated that the subregion was "housing-rich" in that base year (a subregion is considered "balanced if the job/housing ratio equals that of the region: 1.27 in 1987 and 1.22 in 2010). GMP Baseline projections show that the subregion will become more housing-rich by 2010 with a projected ratio of 0.79 (GMA-1). If greater weight is given to more recent trends, the trend toward housing-rich development becomes even more severe (0.65 [GMA-4 MOD TREND]).

To correct this trend toward increasing housing-rich development the GMP policy projections establishes a performance ratio of 0.76 for all new development between 1984 and 2010. If this performance ratio is adhered to within the subregion, the subregion will remain housing-rich by 2010 but, at a more balanced ratio of 0.84.

Using existing methodology for general development plans and projects, Norton AFB reuse proposals would be consistent with the GMP jobs/housing policy if new growth (since 1984) within the project area adhered to a jobs/housing ratio of 0.76. However, the projections adopted within the GMP are for the East San Bernardino Subregion and include assumptions which affect all jurisdictions within the Subregion. Moreover, the projections provided for in the GMP did not anticipate the closure of NAFB. Any environmental assessment of the reuse of Norton AFB must, therefore, consider two things in assessing the jobs/housing impact of the redevelopment of the base:

1. The impact of the redevelopment of NAFB within the context of growth within other jurisdictions within the East San Bernardino Subregion, and
2. The loss of current jobs and housing from the closure of NAFB.

Draft EIR(s) prepared by local jurisdictions for local land use plans for the base should provide calculations for the amount of employment within the project area that could be generated by the proposed commercial and industrial land uses depicted in any reuse plan. This should be followed by calculations of jobs/housing relationships of the proposed reuse plan. New employment should first be considered as replacement for jobs lost from the closure of NAFB. New employment and housing beyond that necessary to replace lost jobs and housing at NAFB should conform to the GMP performance ratio of 0.76 to be consistent with GMP policies. For the purpose of coordinating regional planning with local planning efforts, it is of vital importance to address job/housing relationships in the EIR.

Subjects which require discussion include:

1. An estimate of the number of workers that would be generated

by buildout of the commercial and industrial land uses proposed by the plan.

2. A target or goal for the number of housing units that should be developed within any mixed-use areas.
3. Where the future work force would live.
4. The affordability of housing for workers in the project area.
5. Subregional job/housing relationships - existing and future - and possible VMT reduction alternatives.
6. The feasibility of a plan alternative that places major emphasis on mixed-use development and TDM measures as a means to minimize trips and VMT consistent with GMP and AQMP/SIP.

State Planning Law requirements for local land plans require such plans to recognize the price of housing as compared to the income of the resident population. Ideally, this would ensure a jobs/housing balance for the reuse of NAFB which accomplishes an economic match between types of jobs and housing. Draft EIR(s) should assess the degree of success local jurisdictions would have in accomplishing this balance.

Local EIR's and land use plans should provide that when individual projects are reviewed by local jurisdictions, a jobs/housing analysis is undertaken to determine the appropriate number of housing units (or jobs) which should be associated with that particular project. An example of this type of analysis is provided in Appendix E of the General Development Chapter of SCAG's Conformity Review Handbook.

Also, mention should be made in subsequent EIR's of any initiative by local jurisdictions to enter into arrangements with other jurisdictions in the East San Bernardino Subregion to address growth management planning. This is one of the key programs of the GMP and should be considered as a possible mitigation measure for the traffic and circulation impacts of any reuse plan.

TRANSPORTATION DEMAND MANAGEMENT

Reuse plans should include policies and programs related to Transportation Demand Management (TDM) including compliance with the local AQMP and Congestion Management Plans. TDM program(s) adopted by the Authority or member cities should encourage telecommuting, parking management, non-motorized transportation, adoption of ordinances enforcing TDM measures, and the concentration of land uses near transportation corridors and public

transit facilities.

To be adequate for the purposes intended by the RMP, the TDM program should include the following elements:

1. A detailed description of TDM measures incorporated into the plan as mitigation measures or features of the plan.
2. Expected effect and VMT/VT reduction targets for each component of the TDM program.
3. Funding sources for each program component.
4. Identification of the agencies or persons responsible for monitoring and administering the TDM program.
5. An implementation schedule for each TDM program component.

In summary, the TDM policies and programs of the Redevelopment Plan should be designed to include commitments to specific TDM programs with clear delineation of responsibilities, trip reduction targets, financial arrangements and specific schedules for action on each specific measure.

SIP CONFORMITY

A plan or project is found to be in conformance with the State Implementation Plan (SIP) when it has satisfied the following three criteria:

1. It improves the subregion's job/housing balance performance ratio or is contributing to attainment of the appropriate subregional VMT target.
2. It reduces vehicle trips and vehicle miles traveled to the maximum extent feasible by implementing transportation demand management strategies.
3. The plan's environmental documentation should provide an air quality analysis which demonstrates that the plan will not have a significant negative impact on air quality in the long term (5 years or longer).

   This requirement is satisfied by:

   a. Implementation of growth management policy through improved jobs/housing balance or through the application of appropriate TDM strategies to reduce VMT/VT equivalent to that expected from achieving jobs/housing balance

targets for the subregion.

   b. Use of land use and energy conservation control measures to the maximum extent feasible to mitigate the impact of the plan on air quality.

   c. Analysis of air quality impacts at the city or subregional level and at the regional level.

Draft EIR's for local reuse plans should address each of the control measures identified for implementation by local government in the AQMP/SIP and indicate how these measures are addressed in the reuse plan.

SCAG encourages local jurisdictions to adopt local general plans in a manner which makes them consistent with AQMP and other regional plans. One of the advantages of this is that this action triggers a change in SCAG's intergovernmental review procedures. Jurisdictions which have incorporated adequate air quality planning requirements into their adopted general plans are eligible for delegation of authority to conduct "conformity" reviews for regionally significant projects.

If local reuse plans for Norton AFB included key elements to make them consistent with the AQMP, such plans could serve to assist local jurisdictions in updating their general plans so that they might be eligible for delegation of authority to conduct reviews of subsequent development proposals to determine conformity with the regional AQMP.

The process for determining general plan conformity with AQMP/SIP is described in Chapter IV of SCAG's Guidelines for the Development of Local Air Quality Elements published in March, 1990. the steps necessary for certification of a general plan as adequate for are:

1. Adopt appropriate general plan provisions (or equivalent Action Plan) that includes objectives consistent with the AQMP and Air Quality Element.
2. Make a commitment to implement the appropriate local government measures from the AQMP identified in the Guidelines and AQMP.
3. Adopt necessary changes to the general plan to make the plan internally consistent (and/or consistent with the Air Quality Action Plan).
4. Approve a schedule and assign staff responsibilities for implementing the adopted local air quality objectives

consistent with the AQMP and the Guidelines.

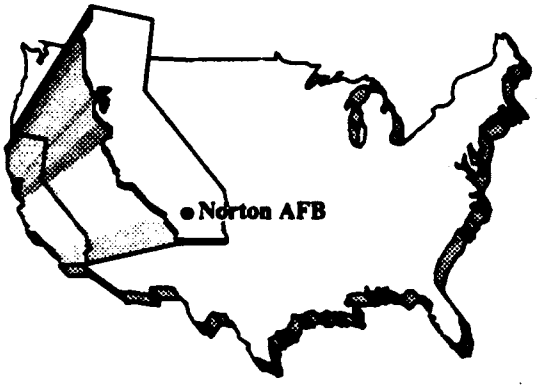
5. Determine that the city has been making reasonable further progress toward implementing the local government measures in the AQMP as measured by the Annual Reasonable Further Progress Reports.

After the necessary steps for self-certification of your General Plan have been successfully completed, local jurisdictions can notify SCAG and obtain a delegation of responsibility for reviewing regionally significant general development projects on its own behalf.

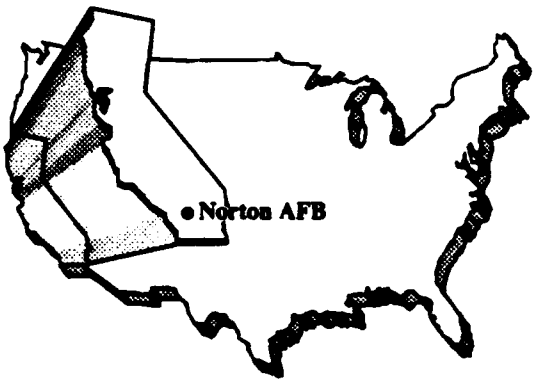
CONCLUSION

Please be assured of SCAG's willingness to assist local jurisdictions in preparing appropriate documentation for the reuse of Norton AFB. Requests for assistance in preparing local EIR's should be addressed to Bill Boyd at (213) 236-1960.

Local jurisdictions submitting subsequent environmental documents to SCAG for review should allow a minimum of 45 days for their review.



APPENDICES



APPENDIX A

APPENDIX A

GLOSSARY OF TERMS AND ACRONYMS/ABBREVIATIONS

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GLOSSARY OF TERMS AND ACRONYMS/ABBREVIATIONS

GLOSSARY OF TERMS

A-Weighted Sound Level. A number representing the sound level which is frequency weighted according to a prescribed frequency response established by the American National Standards Institute (1983) 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 U.S. Code 470).

Aesthetics. Referring to the perception of beauty.

Aggregate. Materials such as sand, gravel, or crushed stone used for mixing with a cementing material to form concrete or alone as railroad ballast or graded fill.

Aircraft operation. A takeoff or landing at an airport.

Airport Radar Service Area. Regulatory airspace surrounding designated airports wherein air traffic control provides vectoring and sequencing on a full-time basis for all IFR and VFR aircraft.

Airport Traffic Area. Airspace within a radius of 5 statute miles of an airport with an operating control tower, encompassing altitudes between the surface and 3,000 feet above ground level in which an aircraft cannot operate without prior authorization from the control tower.

Alluvial plain. Plain produced by deposition of alluvium.

Alluvial fan. Alluvial deposit of a stream where it issues from a gorge upon a plain. Viewed from above, it is the shape of an open fan, with the apex at the mouth.

Alluvium. Clay, silt, sand, gravel, or similar material deposited by running water.

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, total suspended particulates, ozone, and lead), 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).

Aquifer. The water-bearing portion of subsurface earth material that yields or is capable of yielding useful quantities of water to wells.

Archaeology. A scientific approach to the study of human ecology, cultural history, and cultural process.

Arterial. Signalized street that serves primarily through-traffic and provides access to abutting properties as a secondary function.

Artificial recharge. Spreading of water in infiltration ponds or direct injection of water in wells to replenish groundwater.

Asbestos. A carcinogenic substance formerly used widely as an insulation material by the construction industry; often found in older buildings.

Association. Two or more soils occurring together in a characteristic pattern.

Attainment area. A region that meets the National Ambient Air Quality Standards for a criteria pollutant under the Clean Air Act.

Average Annual Daily Traffic. For a 1-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.

Average travel speed. The average speed of a traffic stream computed as the length of a highway segment divided by the average travel times of vehicles traversing the segment, in miles per hour.

Avigational. Pertaining to the flight of aircraft.

Benzene. Colorless volatile, flammable, toxic liquid aromatic hydrocarbon.

Biophysical. Pertaining to the physical and biological environment, including the environmental conditions crafted by man.

Biota. The plant and animal life of a region.

Capacity. The maximum rate of flow at which vehicles can be reasonably expected to traverse a point or uniform segment of a lane or roadway during a specified time period under prevailing roadway, traffic, and control conditions.

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).

Commercial aviation. Aircraft activity licensed by state or federal authority to transport passengers and/or cargo for hire on a scheduled or nonscheduled basis.

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.

Cone of depression. A depression in the water table that develops around a well from which water is being withdrawn.

Contaminants. Undesirable substances rendering something unfit for use.

Control Zone. Controlled airspace with a normal radius of 5 statute miles from a primary airport plus any extensions needed to include instrument arrival and departure paths, encompassing altitudes between the surface and 14,449 feet mean sea level.

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. Established by the National Environmental Policy Act (NEPA), the CEQ consists of three members appointed by the President. CEQ regulations (40 Code of Federal Regulations 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 U.S. 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. Prehistoric and historic districts, sites, buildings, objects, or any other physical evidence of human activity considered important to a culture, subculture, or a community for scientific, traditional, religious, or any other reason.

Cumulative impacts. The combined impacts resulting from all activities occurring concurrently at a given location.

Day-Night Average Sound Level. 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. 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.

Easement. A right or privilege (agreement) that a person may have on another's property.

Effluent. Waste material discharged into the environment.

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. The federal and/or state agency that regulates environmental matters and oversees the implementation of environmental laws.

Erosion. Wearing away of soil and rock by weathering and the action of streams, wind, and underground water.

Escarpment. A long, more or less continuous, cliff or steep slope facing one general direction separating two or more level or gently sloping surfaces produced by erosion or faulting.

Faults. Fracture in earth's crust accompanied by a displacement of one side of the fracture with respect to the other and in a direction parallel to the fracture.

Fault block. Crustal units bounded by faults.

Fleet mix. Combination of aircraft used by a given agency.

Floodplain. The lowland and relatively flat areas near streams, rivers, lakes, playas, coasts, etc. that have a one percent or greater statistical chance of being inundated by flood waters in a given year.

Freeway. A multilane divided highway having a minimum of two lanes for exclusive use of traffic in each direction and full control of access and egress.

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, formerly in cycles per second.

Friable. Easily crumbled or reduced to powder.

Functional Hierarchy of Roadways. Classification of roadways by the relative importance of the movement and access function assigned to them.

Fungicides. Any substance which kills or inhibits the growth of fungi.

General aviation. All aircraft which are not commercial or military aircraft.

Geomorphic. Pertaining to the form of the earth or its surface features.

Ground acceleration. Force from an earthquake causing movement of bedrock. Measured in fraction of the acceleration of gravity.

Groundwater. Water within the earth that supplies wells and springs.

Groundwater basin. Subsurface structure having the character of a basin with respect to collection, retention, and outflow of water.

Groundwater recharge. Absorption and addition of water to the zone of saturation.

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, Occupational Safety and Health Administration (OSHA), and Superfund Amendments and 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 (22.9 grams/molecule) that forms soaps on reaction with fatty acids.

Herbicides. A pesticide, either organic or inorganic, used to destroy unwanted vegetation, especially various types of weeds, grasses, and woody plants.

Hydrocarbons. 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.

Impacts. An assessment 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 Council on Environmental Quality regulations, the word impact is used synonymously with the word effect.

Infrastructure. The basic installations and facilities on which the continuance and growth of a community, state, etc. depend (e.g., roads, schools, power plants, transportation, and communication systems, etc.).

Installation Restoration Program. 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.

Liquefaction susceptibility. Potential for fluidization and loss of mechanical strength of saturated soils during an earthquake.

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).

Level of service. 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.

Loam, loamy. Rich, permeable soil composed of a mixture of clay, silt, sand, and organic matter.

Loudness. The qualitative judgment of intensity of a sound by a human being.

Magnitude. Richter scale logarithmic measurement of the energy released by an earthquake.

Masking. The action of bringing one sound (audible when heard alone) to inaudibility or to unintelligibility by the introduction of another sound.

Military Operations Area (MOA). Airspace areas of defined vertical and lateral limits established for the purpose of separating certain training activities, such as air combat maneuvers, air intercepts, and acrobatics, from other air traffic operating under instrument flight rules.

Mineral. Naturally occurring inorganic element or compound.

Mineral resources. Mineral deposits that may eventually become available, known deposits not recoverable at present or yet undiscovered.

Mitigation. A method or action to reduce or eliminate program impacts.

Modal split. The division of travel between transit and automobiles.

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. Section 109 of the Clean Air Act requires the U.S. Environmental Protection Agency to set nationwide standards, the National Ambient Air Quality Standards (NAAQS), 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. Public Law 91-190, passed by Congress in 1969. The National Environmental Policy Act (NEPA) 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 have 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 atmospheric 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 U.S. Environmental Protection Agency or the appropriate state air quality agency, as exceeding one or more National or California Ambient Air Quality Standards.

100-year floodplain. See floodplain.

100-year flood zone. Land area having a 1-percent chance of being flooded during a given year.

Ozone (ground level). 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.

Passenger car equivalent. The number of passenger cars that are displaced by a single heavy vehicle of a particular type under prevailing roadway, traffic, and control conditions.

Permeability. The capacity of a porous rock or sediment to transmit a fluid.

Pesticides. Any substance, organic or inorganic, used to destroy or inhibit the action of plant or animal pests; the term thus includes insecticides, herbicides, fungicides, rodenticides, miticides, fumigants, and repellents. All pesticides are toxic to humans to a greater or lesser degree. Pesticides vary in biodegradability.

Physiographic Province. A region in which all parts are similar in geologic structure and climate.

Pitchblende. A mineral formed by radioactive decay, often found in sulfide-bearing veins.

Pleistocene. An earlier epoch of the Quaternary period during the "ice age" beginning approximately 3 million years ago and ending 10,000 years ago. Also refers to the rocks and sediments deposited during that time.

Plume. An elongated mass of contaminated fluid moving with the flow of the fluid.

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 teratogenic effects. They also decompose very slowly.

Potable water. Suitable for drinking.

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 Prevention of Significant Deterioration 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.

Prime farmland. Environmentally significant agricultural lands protected from irreversible conversion to other uses.

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.

Restricted Area. Designated airspace in which aircraft activity, while not prohibited, is subject to certain restrictions.

Ruderal. Weedy or introduced vegetation growing in disturbed areas.

Sediment. Material deposited by wind or water.

Seismicity. Relative frequency and distribution of earthquakes.

Seismic Zone IV. Area designated in the Uniform Building Code as susceptible to major earthquake damage and intensities of VII or more on the Modified Mercalli Scale and in proximity to a major fault system.

Short ton. 2,000 pounds.

Shrink/swell potential. Volume change possible upon wetting or drying.

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 form 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.

Specific Plan. A plan regulating development within a defined area of a city, consistent with the city's General Plan. Specific plans are required prior to development in specified areas that have not been zoned for particular land uses.

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.

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 SO_2 were emitted in the United States, according the Office of Technology Assessment. The major source of SO_2 in the United States is coal-burning electric utilities.

Tectonic framework. Structural elements of a region including the rising, stable, and subsiding areas.

Therm. A measurement of units of heat.

Threatened species. Plant and wildlife species likely to become endangered in the foreseeable future.

Toluene. Liquid aromatic hydrocarbon used as solvent.

Total suspended particulates. The particulate matter in the ambient air. The previous national ambient air quality standard for particulates was based on total suspended particulate levels; it was replaced in 1987 by an ambient standard based on PM_{10} levels.

Traffic assignment. The allocation of traffic flows among routes available between any two places.

Transportation Demand Management (TDM). The implementation of measures which encourage people to change their mode of travel or not to make a trip at all, e.g., ridesharing, telecommunications, parking management, pricing incentives.

Transportation System Management. Short-range programs dealing with traffic operations improvement, ridesharing, transit and high-occupancy vehicles, approximate provisions for pedestrians and bicycles, parking control, flex-time, staggered work hour, and others.

Trichloroethylene (TCE). An organic solvent used in dry cleaning and removal of grease from metal.

Trip distribution. A determination of the interchange of trips among zones in the region.

Trip generation. A determination of the quantity of trip ends associated with a parcel of land.

2, 4-dichlorophenoxyacetic acid. A specific (selective) organic herbicide permitting elimination of weeds without injury to crops.

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.

Vehicle trip end. A one-direction vehicle movement with either the origin and/or the destination or both inside the study site.

Volume. The number of vehicles passing a point on a lane, roadway, or other trafficway during some time interval.

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 prerequ to development. Zones are generally shown on a map and the text of the zoning ordina ecifies requirements for each zoning category.

ACRONYMS/ABBREVIATIONS

AADT	average annual daily traffic
AAVS	Aerospace Audiovisual Service
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing materials
ACS	Area of Concentrated Study
AFB	Air Force Base
af/yr	acre-feet per year
AHERA	Asbestos Hazard Emergency Response Act
AICUZ	Air Installation Compatible Use Zone
ALP	Airport Layout Plan
AMC	Air Mobility Command
APZ	Accident Potential Zone
AQMP	Air Quality Management Plan
ARSA	Airport Radar Service Area
ARTCC	Air Route Traffic Control Center
ASV	annual service volume
ATA	airport traffic area
ATC	air traffic control
ATCT	Air Traffic Control Tower
AT&SF	The Atchinson Topeka and Santa Fe Railway
BACM	Best Available Control Measures
BACT	Best Available Control Technology
BARCT	Best Available Retrofit Control Technology
BCRA	Base Closure and Realignment Act (Public Law 100-526)
BMO	Ballistic Missile Organization
BRM	Biological Resource Management
CAA	Clean Air Act (Federal)
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBA	Central Base Area
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations

CNEL	Community Noise Exposure Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
COE	Corps of Engineers
CZ	Clear Zone
dB	decibel
DEHS	Department of Environmental Health Services (San Bernardino County)
DEIS	Draft Environmental Impact Analysis
DERP	Defense Environmental Restoration Program
DHS	California Department of Health Services
DMT	disposal management team
DNL	Day-night average sound level
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
DTSC	Department of Toxic Substances Control
EDMS	Emissions and Dispersion Modeling System
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ERC	emission reduction credits
EVCDS	East Valley Corridor Development Study
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FEIS	Final Environmental Impact Analysis
FFA	Federal Facilities Agreement
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FPMR	Federal Property Management Regulations
FPTA	Fire Protection Training Area
FS	Feasibility Study
gpm	gallons per minute
HIRL	high intensity runway lighting
HMTA	Hazardous Materials Transportation Act
HUD	Department of Housing and Urban Development
I	Interstate highway
IFR	instrument flight rules
IH	heavy industrial
IL	light industrial
ILS	instrument landing system
IRP	Installation Restoration Program
IVDA	Inland Valley Development Agency

IWTP	Industrial Wastewater Treatment Plant
JPA	Joint Powers Agency
kV	kilovolt
L_{eq}	equivalent sound level
L_{max}	A-weighted maximum sound level
LOS	level of service
MAP	million annual passengers
MAW	Military Airlift Wing
$\mu g/m^3$	micrograms per cubic meter
MG	million gallons
MGD	million gallons per day
MLS	Microwave Landing System
MOA	Military Operations Area
mph	miles per hour
MRZ	Mineral Resource Zone
MSA	Metropolitan Statistical Area
MSDS	Material Safety Data Sheet
MSL	mean sea level
MW	megawatts
MWH	megawatt-hours
NAAQS	National Ambient Air Quality Standards
NBA	Northeast Base Area
NCP	National Contingency Plan
NCO	Non-Commissioned Officer
NEPA	National Environmental Policy Act of 1969
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NLR	noise level reduction
nm	nautical mile
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NOISEMAP	Noise Exposure Model
NPDES	National Pollutant Discharge Elimination System
NPI	nonprecision instrument
NPL	National Priorities List
NRHP	National Register of Historic Places
NSR	new source review
O_3	ozone
OIP	Office/Industrial Park
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PA	Preliminary Assessment

PAPI	precision approach path indicator
PA/SI	Preliminary Assessment/Site Inspection
PCBs	polychlorinated biphenyls
PCE	tetrachloroethylene
pCi/l	picocuries per liter
PF	public facility
P.L.	Public Law
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in diameter
POL	petroleum, oils, and lubricants
ppm	parts per million
PSD	Prevention of Significant Deterioration
PVC	polyvinyl chloride
RA	Remedial Action
RAMP	Radon Assessment and Mitigation Program
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RECLAIM	Regional Clean Air Incentive Market
REIL	runway end identifier lights
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROG	reactive organic gases
ROI	Region of Influence
RPZ	Runway Protection Zone
RVR	runway visual range
SANBAG	San Bernardino Associated Governments
SARA	Superfund Amendments and Reauthorization Act
SBCFCD	San Bernardino County Flood Control District
SBIAA	San Bernardino International Airport Authority
SBRWTP	San Bernardino Regional Wastewater Treatment Plant
SBVMWD	San Bernardino Valley Municipal Water District
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCG	Southern California Gas Company
SEL	sound exposure level
SHPO	State Historic Preservation Officer
SI	Site Inspection
SIAS	Socioeconomic Impact Analysis Study
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act

SO_2	sulfur dioxide
SR	State Route
SWMD	San Bernardino Solid Waste Management Department
TACAN	Tactical Air Navigation
T-BACT	Best Available Control Technology for Toxics
TCE	trichloroethylene
TD	technology development
TDM	Transportation Demand Management
TERPS	Terminal Instrument Approach Procedures
TMA	Transportation Management Association
TOD	transient oriented development
TRACON	Terminal Radar Approach Control
TSCA	Toxic Substances and Control Act
TSD	treatment, storage, or disposal
UIC	Underground Injection Control
USC	U.S. Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VA	U.S. Department of Veterans Affairs
VASI	visual approach slide indicator
VFR	visual flight rules
VMT	vehicle miles traveled
VOC	volatile organic compounds
VORTAC	very-high frequency omnidirectional range tactical air navigation
VTE	vehicle trip end

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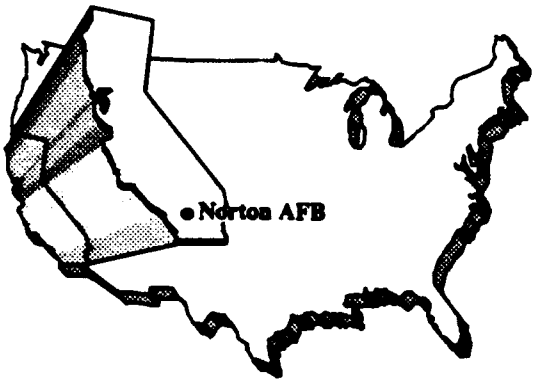

APPENDIX B

APPENDIX B

RECORD OF DECISION, CLOSURE OF NORTON AIR FORCE BASE

RECORD OF DECISION

CLOSURE OF NORTON AIR FORCE BASE

The Final Environmental Impact Statement (EIS) was prepared to assess the potential environmental impacts resulting from the closure of Norton Air Force Base (AFB), California. The closure is the result of the Base Closure and Realignment Act (Public Law 100-526) and recommendations of the Secretary of Defense Commission on Base Realignment 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 Norton AFB will involve the inactivation of the 63rd Military Airlift Wing (MAW) and a portion of the 445th MAW (Associate Reserve Wing). Although the Commission's recommendation was for transfer of the major portions of these Wings to March AFB, the Secretary of Defense announced on January 29, 1990 the inactivation of the 63rd MAW and portions of the 445th MAW. This decision was based on fiscal constraints and force structure cuts resulting from the Defense Management Review. The closure will involve the relocation of Norton AFB's current major assets to March AFB, California; McChord AFB, Washington; and Kirtland AFB, New Mexico. Additionally, Headquarters US Air Force recommended relocating selected smaller units from Norton AFB to Luke AFB, Arizona, and to Travis, McClellan, and Los Angeles AFB's in California.

Norton closure plans call for the Ballistic Missile Organization (BMO) to remain at Norton AFB. Some construction and modification of several buildings will be required to retain BMO. Isolation of utilities and security controls will also be required. As a Defense Management Review initiative to streamline activities, the BMO recently became part of the Space Systems Division (SSD) located at Los Angeles AFB. A separate EIS is being prepared to analyze the move of SSD due to the proposed closure of Los Angeles AFB. Possible relocation of BMO, along with SSD, is being evaluated in the SSD/Los Angeles EIS.

Additionally, in order to reduce the shortage of family housing in the local area, Norton AFB military family housing--264 family units--will be retained as satellite housing for use by personnel assigned to March AFB.

Interim joint use of part of Hangar 763 on Norton AFB by Lockheed Corporation, sublessee to the Inland Valley Development Agency, is in effect. Lockheed will be conducting commercial maintenance on Boeing 747 aircraft, similar to the type of maintenance conducted by the Air Force on C-141 aircraft at Norton AFB. After Norton AFB closes, Lockheed will continue operations in accordance with the lease.

The Act also makes the Secretary of Defense responsible for management and disposal of the closed bases. In addition to the EIS on closure of Norton AFB, the Air Force will prepare a second EIS on the final disposition of base property which will include proposals from the civilian community reuse plan. The second EIS will address the environmental impacts of potential reuse of the base. The Air Force is sensitive to the community concerns caused by the closing of a major employer like Norton. The Norton disposal EIS will also include socioeconomic impacts as they are found to have direct impacts on the biophysical environment. A separate comprehensive study of the socioeconomic impacts will be completed by the Air Force which will more comprehensively review the socioeconomic impacts. This study will examine overall effects of reuse on such factors as the loss of tax revenue, housing and school impacts, and the loss of employment from base closure. Regardless of the document in which these socioeconomic analyses appear, they will be part of the analysis process and presented to the public on a timely basis for full public review and comment.

The environmental impacts of closing Norton AFB tend to be negligible or positive. Operation of a major installation creates environmental impacts; removal of the operation lessens them.

The primary impacts related to the withdrawal of troops and movement of equipment occur in the area of transportation, primarily between Norton AFB and March AFB (located about 20 miles apart). Traffic congestion will increase slightly on area roadways and intersections, contributing to an already congested situation. Much of the transportation impact results from people commuting from the Norton AFB area to March AFB on a daily basis. It is expected that much of this commuting pattern would be for the short term as Air Force personnel living off the base are rotated out of their positions at March and new personnel locate nearer March AFB. Civilian personnel transferred from Norton to March will, on average, experience a longer commute from their residences to March. Housing for 264 families will be retained at Norton for use by Air Force personnel at March. Commuting requirements for these personnel will continue for the long term.

Mitigation options available for Norton and March AFB's include car/vanpooling and staggering work hours. Since the increase in traffic, less than two percent to begin with, has been reduced considerably because of the inactivation of the 63rd MAW, the respective installation commanders will determine whether these mitigations need to be implemented. Impacts of closure had only negligible effects on other environmental resources. In the aggregate, however, the environmental impacts of the closure are expected to be beneficial or neutral.

Important contributors to this 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:

All leaking PCB transformers and capacitors will be replaced or reclassified. To ensure that remaining transformers do not leak and create site contamination, transformers will be inspected every three months. All nonleaking PCB's (500 parts per million and over) and PCB-contaminated transformers with 50 parts per million or greater PCB's will be reclassified or removed from service prior to closure.

Norton expects to complete its asbestos survey prior to September 30, 1991; potential users will be notified of the findings of the survey. If friable asbestos is encountered during rehabilitation of buildings required for the retention of BMO, it will be removed or encapsulated by trained personnel using approved procedures.

Scheduled removal of deteriorated underground tanks, overfill protection, and other tank work will be done in accordance with a plan submitted and approved by San Bernardino County regulations as part of the closure action.

The Air Force will continue the Installation Restoration Program (IRP), including investigation and remediation of contaminated sites in accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). The cleanup will occur through the process of an Interagency Agreement (IAG), signed June 29, 1989, by the Air Force, the California Department of Health Services (CADHS), and EPA Region IX.

The following measures will ensure that the closure action does not negatively affect the IRP: 1) Continue monitoring the contamination plumes to provide early warning of significant changes during the period between closure and cleanup for reuse. This will include at least quarterly monitoring of area water wells. If contaminant levels are observed to change, consideration will be given to modeling groundwater contaminant transport to determine groundwater pumping or another strategy, as an interim measure, to retard plume spread. 2) Continue current base security functions to prevent unauthorized entry into IRP site areas that could lead to direct contact with contaminated soils or groundwater.

The closure of Norton AFB is not expected to have an effect on any threatened or endangered species. However, if the US Fish and Wildlife Service's report confirms the presence of such a species on Norton AFB, the Air Force will request the Service's recommendations for mitigative measures.

There is no indication that closure activities will have an effect on any property potentially eligible for the National Register of Historic Places. Several cultural resources investigations are occurring or soon to begin on Norton. If these investigations disclose any properties potentially eligible for the National Register and to be affected either by the withdrawal of units or modifications to facilities for BMO, the Air Force will comply with requirements of the National Historic Preservation Act.

All hazardous materials on base will be shipped in accordance with all applicable Department of Transportation regulations. Hazardous waste will be disposed of through the Defense Reutilization and Marketing Office (DRMO), and accumulation points will be formally closed as required by the Resource Conservation and Recovery Act (RCRA). Closure of the DRMO storage site on Norton will also include closing out the interim (Part A) permit for that site.

Many of these commitments are normal operational processes done to comply with environmental laws and regulations. The detailed outcomes of those processes will often be dependent on investigations and coordinations still in progress. Any lack of specificity is not an indication of a lack of interest--the Air Force is committed to being responsive to environmental concerns and will work with federal and state agencies to achieve that result.

The Air Force is committed to continue the cleanup of hazardous waste sites after base closure. The Air Force's IRP is part of a larger Department of Defense program 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 Norton 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 at Norton.

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 Norton AFB.

The Air Force will be responsible for on-base contamination or the off-base migration of contaminants caused by Air Force activities at Norton AFB. All property transfers will be conducted in compliance with CERCLA, Section 120(h).

Cleanup activities will be accomplished in accordance with applicable federal and state laws and regulations. The time frame for completing the investigations and the ultimate remediation have been established as provided in the Interagency Agreement and will be reviewed and approved by EPA and CADHS.

Based on the analysis and evaluation process carried out, I have decided to proceed with the closure of Norton AFB in accordance with the approaches described in the EIS and this Record of Decision. This closure is necessary to comply with the provisions of the Base Closure and Realignment Act (Public Law 100-526) and recommendations of the Secretary of Defense's Commission on Base Realignment and Closure. This action is wholly in conformance with all relevant federal, state, and local statutes and regulations. All practicable efforts to avoid or minimize environmental harm from the closure have been incorporated. The EIS did not identify any alternative strategies for closing the base which are environmentally preferable to the one adopted.

10/3/90 Date _____ Signature

James F. Boatright
Deputy Assistant Secretary of the Air Force
(Installations)

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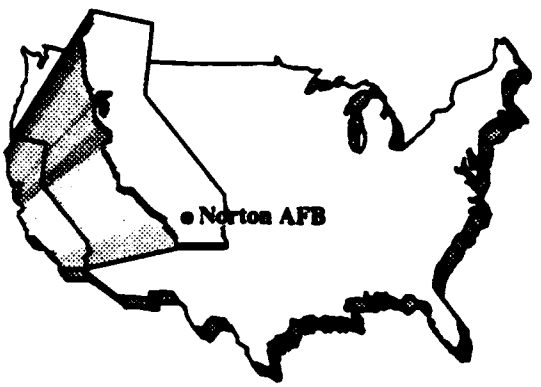

APPENDIX C

APPENDIX C

NOTICE OF INTENT

APPENDIX C

NOTICE OF INTENT

The following notice of intent was circulated and published by the Air Force in the February 19, 1991 Federal Register in order to provide public notice of the Air Force's intent to prepare an Environmental Impact Statement of disposal and reuse of Norton Air Force Base. This Notice of Intent has been retyped for clarity and legibility.

NOTICE OF INTENT
TO PREPARE ENVIRONMENTAL IMPACT STATEMENT
DISPOSAL/REUSE OF NORTON 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 Norton Air Force Base (AFB) near San Bernardino, California. On October 3, 1990, the Air Force signed a Record of Decision (ROD) for closure of Norton AFB.

The disposal and 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 March 20, 1991 at 6:30 p.m. in the San Bernardino City Council Chambers, 300 North "D" Street, San Bernardino, 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 disposal and reuse alternatives that should be addressed in the EIS. In soliciting disposal and 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 Norton AFB. These alternatives will be analyzed in the EIS. The resulting environmental impacts will be considered in making disposal for Norton AFB.

To ensure the Air Force will have sufficient time to consider public inputs on issues to be included in the disposal and 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 April 19,1991. 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 Norton AFB disposal and reuse, and EIS activities, contact:

Lt Colonel Tom Bartol
AFRCE-BMS/DEV
Norton AFB, California 92409-6448
(714) 382-4891

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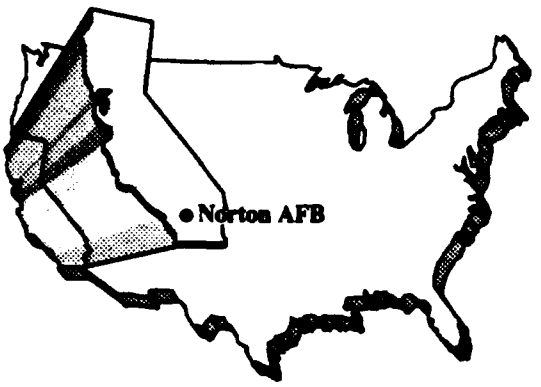


APPENDIX D

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.

ELECTED OFFICIALS

Federal Officials

U.S. Senate

The Honorable Barbara Boxer
The Honorable Diane Feinstein

U.S. House of Representatives

The Honorable George E. Brown Jr.
The Honorable Jay Kim
The Honorable Jerry Lewis

State of California Officials

Governor

The Honorable Pete Wilson

State Legislature

State Senate

The Honorable Ruben S. Ayala
The Honorable Bill Leonard

State Assembly

The Honorable Joe Baca
The Honorable Jim Brulte
The Honorable Paul Woodruff

Local Officials

Gary Boyles, Mayor
City of Fontana

Robert Christman, Mayor
City of Loma Linda

Charles Demirjyn, Mayor
City of Redlands

Frank Gonzales, Mayor
City of Colton

W. R. Holcomb, Mayor
City of San Bernardino

John Longville, Mayor
City of Rialto

Byron R. Mattesson, Mayor
City of Grand Terrace

Jon Mikels, Chairman
San Bernardino County/Board of Supervisors

John Timmer, Mayor
City of Highland

GOVERNMENT AGENCIES

Federal Agencies

Advisory Council on Historic Preservation
Claudia Nissley

Argonne National Laboratory
Dr. Gary Marmer

Department of Health and Human Services
Office of Environmental Affairs

Department of Housing and Urban Development
Office of Environment and Energy

Department of Interior
Office of Environmental Affairs

Department of Justice
Federal Bureau of Prisons

Department of Labor
Occupational Safety and Health Administration

Department of Transportation
Federal Highway Administration
Thomas D. Larson, Administrator

Department of Veterans Affairs
Allen T. Maurer

Federal Aviation Administration

General Services Administration
Office of Program Initiatives

Department of Defense

AFCEE/ESS Western Region
Jim Washington

AFFTC/XRX Edwards AFB
Wendy Waiwood

Army Corps of Engineers
Waltham, Massachusetts
Sue Brown

Federal Aviation Administration
Office of the Air Force Representative

HQ MAC/LEEV
Sharon Geil

OSD/OEA
Ken Matzkin

SW Division NAVFAC
Mike Barbusca

Regional Offices of Federal Agencies

Advisory Council on Historic Preservation
Western Regional Office
Robert Fink

Army Corps of Engineers
Los Angeles Division

Department of Agriculture
Soil Conservation Service

Department of Commerce
Economic Development Administration

Department of Education
Seattle, Washington
George E. Hoops, Director

Department of Health and Human Services
Quy Tu

Department of Housing and Urban Development
Region IX
Community Planning and Development Division

Department of the Interior
Fish and Wildlife Service
Laguna Niguel Regional Office
Ventura Field Office

Department of Transportation
Division of Aeronautics
Sacramento, California

Department of Veterans Affairs
Jerry L. Pettis Memorial Veterans Hospital
Fred Wilburn

Department of Veterans Affairs
Western Region

Environmental Protection Agency
Region IX
Air Management Division

Environmental Protection Agency
Region IX, Federal Activities
Laura Fuji

Environmental Protection Agency
Region IX
Water Management Division

Federal Aviation Administration
Airports Division
Lawndale, California
Peter Melia

Federal Highway Administration
Region IX
Edwin Wood, Regional Director

Federal Housing Administration

National Park Service
Western Region
John D. Cherry

Native American Heritage Commission
Sacramento, California

U.S. Bureau of Mines
Spokane, Washington
Dave Lockard

U.S. Forest Service
San Bernardino National Forest

U.S. Geological Service
Menlo Park, California
Howard Wilshire

U.S. Postal Service, General Mail Facility
San Bernardino, California
Gary Miller

State of California Agencies

Air Resources Board
Barbara Fry

Caltrans - District 8
Harvey Sawyer

Department of Education
Deputy Superintendent for Specialized Programs
Shirley Thornton

Department of Fish and Game
Environmental Branch
Jack Spruill

Department of Health Services
Kenneth Kizer, Director

Department of Water Resources
Reports Review

Heritage Preservation Commission
Patricia Eckert

National Guard Military Department
M. Gen. Robert C. Thrasher, Adjutant General

Office of Historic Preservation
State Historic Preservation Officer
Kathryn Gualtieri

Parks and Recreation Department
Planning Division
Jim Heiner

Regional Water Quality Control Board - Santa Ana Region (8)
Executive Director

Resources Agency
Douglas P. Wheeler

South Coast Air Quality Management District
Office of Planning and Rules
Ms. Connie Day

State Clearinghouse
Office of Planning and Research

Local Government Agencies

City of Colton, City Manager
Ed Satello

City of Fontana, City Manager
Russell A. Carlsen

City of Grand Terrace, City Manager
Thomas Schwab

City of Highland, City Manager
Sam Racadio

City of Highland
Deputy City Clerk

City of Highland
Planning Department

Inland Valley Development Agency
Sandra Viera

City of Loma Linda, City Manager
John Bernardi

City of Redlands, City Manager
James Wheaton

City of Redlands
Planning Department

Redlands Redevelopment Agency
Norman McMenemy

City of Rialto, City Manager
Gerald Johnson

City of Riverside,
Public Utilities Department
David Garcia

Riverside County Transportation/Flood Control

San Bernardino Associated Governments (SANBAG)
Ty Schuling

City of San Bernardino
Ms. J. Lorraine Valarde
Mayor's Executive Assistant

City of San Bernardino
Planning Department
Valerie Ross

San Bernardino County
East Valley Airport Land Use Commission
Ron Riley

San Bernardino County
Airport Division
James Monger

San Bernardino County
Department of Health Services
Sanitary Engineering Section

San Bernardino County
Environmental Health Services Department
Pamela Bennett

San Bernardino County
Environmental Management
Albert Reid

San Bernardino County
Transportation, Flood Control, and Airports

San Bernardino County
Work Furlough Program
Barbara J. Frank

San Bernardino Valley Municipal Water District
Louis Fletcher, General Manager

Libraries

A.K. Smiley Public Library, Redlands

California State University, San Bernardino

Colton City Library

Norman F. Feldheym Central Library,
San Bernardino

San Bernardino County Branch Libraries:

Fontana
Grand Terrace
Highland
Rialto

OTHER ORGANIZATIONS/INDIVIDUALS

Archi-System Maurice Kurtz

ARCO Corporation
Steve Vandenesook

Frank Bianchini

Joseph E. Bonadiman & Associates

Michael Brandman Associates
Miles Ehrlich

Robert Castro & Associates
Robert Castro

Bill Christensen

Financial Research Group
Steve Dietrich

Graham & James
San Francisco
Paul Minault

HNTB
Michael B. Green

Heart Bar Ranch
Warner Hodgdon

Invirex Demolition, Inc.
Peter Barbeosch, Jr.

Labat Anderson, Inc.

Lewis Homes
Linda Fabrizo

Livingston-Graham

Lockheed Commercial Aircraft Center, Inc.
Adelle Renee Laikin

Martin-Marietta Energy Systems
Oak Ridge, Tennessee
Jim Kulesz

Inland Valley Daily Bulletin
Candycce Miller

John Miskell

Dan Moser

Mel Picazo

Press Enterprise
Don McAuliffe

Russell Seely

Ronald Siegel

Southern California Association of Governments (SCAG)
Riverside, California

Southern California Association of Governments (SCAG)
Los Angeles, California
Mr. Birchhead

Southern California Edison
San Bernardino Region

Southern California Gas Company

Harry French Smith

Capt. Mike Stodelle

The Sun

Sverdrup Corporation
Randolph Tabor

Tetra Tech, Inc.
Marianne Schebeck

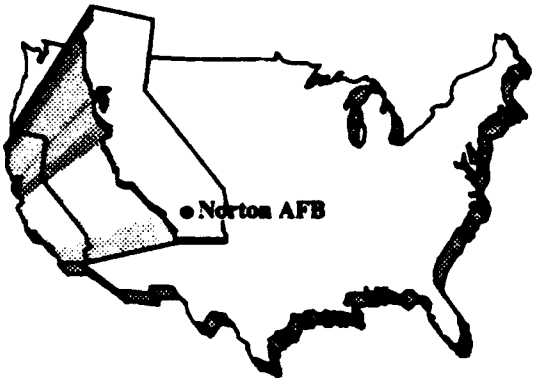
Patti Troup

TRW Corp.
Martin Prisco

Watkins Johnson Environmental, Inc.
Bill Gallant

Carolyn Whetzel

Graham Witherall



APPENDIX E

APPENDIX E

METHODS OF ANALYSIS

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METHODS OF ANALYSIS

1.0 INTRODUCTION

This section describes the methods used in preparing this environmental impact statement (EIS). These methods were designed and implemented to evaluate the potential environmental impacts of disposal of Norton AFB and incident reuse. Since future reuse of the site is uncertain in its scope, activities, and timing, the analysis considered several alternative reuse scenarios and evaluated their associated environmental impacts. The reuse scenarios analyzed in this EIS were defined for this study to span the anticipated range of reuse activities that are reasonably likely to occur due to disposal of the base. They were developed based on proposals put forth by affected local communities, interested individuals, and the Air Force, and considered general land use planning objectives.

The various analysis methods used to develop this EIS are summarized here by resource. In some instances, more detail is included in another appendix. These instances are noted for each resource in its respective subsection below.

2.0 LOCAL COMMUNITY

2.1 COMMUNITY SETTING

The section on community setting was developed to provide the context within which other biophysical impacts could be assessed. Community setting impacts were based on projected direct and secondary employment and resulting population changes related to reuse of Norton AFB. These projections were used to quantify and evaluate changes in demand on community services, demand on transportation systems, air quality, and noise. A complete assessment of socioeconomic effects was conducted through a separate Socioeconomic Impact Analysis Study (SIAS) for the Disposal and Reuse of Norton AFB, which is the source for baseline and projected statistics used in this EIS.

The primary metropolitan statistical area (MSA) of San Bernardino and Riverside counties was used to evaluate cumulative effects of population and employment changes on regional goals and trends. An Area of Concentrated Study (ACS) comprising the cities of San Bernardino, Highland, Redlands, Loma Linda, and Colton was used to evaluate changes in jobs, population, and housing demands in the communities closest to Norton AFB most affected by activity at the base.

The SIAS used information from sources including the U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics, U.S. Council of Economic Advisors, California Employment Development Department, Southern California Association of Governments, and the cities of San Bernardino, Highland, Redlands, Loma Linda, and Colton. The analysis used the Regional Interindustry Multiplier System (RIMS II) model to generate demographic and economic projections associated with the Proposed Action and alternatives.

2.2 LAND USE AND AESTHETICS

Potential land use impacts were projected based on compatibility of land uses associated with the Proposed Action and alternatives with adjacent land uses and zoning; consistency with general plans and other land use plans, regulations, regional plans and policies; and effects of aircraft noise and safety restrictions on land uses.

The region of influence (ROI) for the majority of direct land use impacts for this study consisted of Norton AFB, the cities of San Bernardino, Highland, and Redlands surrounding the base, and unincorporated parcels of San Bernardino County interspersed among those cities. Noise-related land use impacts were determined by the extent of noise contours created by reuse alternatives and potentially included the cities of Colton, Loma Linda, Rialto, and Fontana.

Maps and windshield surveys were used to characterize on- and off-base land uses. Applicable policies, regulations, and land use restrictions were identified from the land use plans and ordinances of municipalities in the ROI, as well as the Southern California Association of Governments (SCAG). The proposed and alternative reuse plans were compared to existing land use and zoning to identify areas of conflict, and compared to local planning goals and objectives as set forth in community general plans. The other land use concepts were also examined for compatibility with adjacent land uses and with the Proposed Action and alternatives using the same process.

Alternatives incorporating airfield uses were examined for consistency with FAA regulations and recommended land uses in the vicinity of airfields. Impacts of airfield-generated noise were assessed by comparing the extent of noise-affected areas and receptors under different reuse alternatives against preclosure baseline conditions.

For the aesthetics analysis, the affected environment was described based upon the visual sensitivity of areas within and visible from the base. These areas were categorized as high, medium, and low sensitivity. The Proposed Action and alternatives were then evaluated to identify land uses to be developed, visual modifications that would occur, and new areas of visual sensitivity and to determine whether modification of unique or otherwise

irreplaceable visual resources would occur and detract from the visual qualities or setting. Consistency with applicable plans that protect visual resources was also examined.

2.3 TRANSPORTATION

Potential impacts to transportation due to the Proposed Action and alternative reuse plans for Norton AFB focus on key roads, local airport use, and passenger rail service (AMTRAK) in the area, including those 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 Norton AFB personnel. The need for improvements to on-base roads, off-base access, and regional arterials was considered. The analysis was derived using information from state and local government agencies, including the California Department of Transportation (Caltrans); city, county, and regional road and planning departments (including SCAG and San Bernardino Associated Governments [SANBAG]); local airport authorities; and AMTRAK. Other data sources used for the roadway analysis include the Institute of Transportation Engineers and the Transportation Research Board. The ROI for the transportation analysis includes the San Bernardino Valley area with emphasis on the area surrounding Norton AFB.

The number of vehicle trips expected as a result of specific land uses on the site was estimated for three phases of reuse (1995-2000, 2000-2005, and 2005-2015) on the basis of direct on-site jobs and other attributes of on-site land uses (such as the number of dwelling units, projected airport passenger volume, commercial and industrial development, and other factors). Trip Generation Data from the Institute of Transportation Engineers was used to determine vehicle trips. Vehicle trips were then allocated to the local road network using prior patterns and expected destinations and sources of trips. When appropriate, the local road network was adjusted to account for changes over time from presently planned road capacity improvements and improvements required by the proposed reuse scenarios. Changes in work and associated travel patterns were derived by assigning or removing traffic to or from the most direct commuting routes. Freeway-bound traffic was determined as a percentage of total trips, then distributed to key regional roads based on trip length distribution. Changes in traffic volumes arising from reuse alternatives at Norton AFB were estimated and resulting volume changes on key local, regional, and on-base roadway segments were then determined.

The transportation network in the ROI was examined to identify potential impacts to Levels of Service (LOS) arising from future baseline conditions (caretaker status of Norton AFB) and effects of reuse alternatives. Planning computations from the Highway Capacity Manual were used to determine the number of lanes required to provide for a given LOS. The planning

application provided estimates of traffic and anticipated LOS where the amount of detail and accuracy of information was limited. The planning procedures used in this analysis were based on forecasts of average annual daily traffic and on assumed traffic, roadway, and control conditions. Changes in work and associated travel patterns were derived by assigning or removing workers (by place of residence) to or from the most direct commuting routes. Freeway-bound traffic was determined as a percentage of total trips, then distributed to key regional roads based on trip length distribution. The results provided a basic assessment of whether or not capacity was likely to be exceeded for a given volume. Intersection analyses were then integrated into the planning capacity analysis for each roadway section analyzed and the results provided an estimate of the changes in LOS ratings expected by traffic volume changes on key local, regional, and on-base roadway segments.

The local roads expected to carry most project-generated traffic are Third, Fifth, and Mill streets in the east-west direction, and Tippecanoe Avenue, Del Rosa Drive, Victoria Avenue, and Palm Avenue/Alabama Street in the north-south direction. Other roadways in the vicinity, such as Sterling, Rialto, Central, and San Bernardino avenues were identified as complementary roadways primarily serving to collect and distribute traffic to and from the base area. On-base roads would be upgraded and reconstructed to varying degrees under all reuse plans to accommodate project-generated traffic.

The regional roads likely to be most affected by activities at the site would be I-10 at the Tippecanoe Avenue interchange, I-215 at the Mill Street interchange, and SR-30 at the Del Rosa Drive and Fifth Street interchanges. Freeway-bound trips were assumed to be a percentage of total project-related daily trips. These trips were distributed and assigned to key regional roads based on the trip length distribution for 1987, the most recent year for which data were available.

For the Proposed Action, the trip distribution among access points from and to the site is projected to be split as follows: 30 percent of trips using Gate 1, 50 percent using Gate 4, and 20 percent using Victoria Avenue, which would likely become the main ground access to the proposed air passenger terminal area. Based on present patterns, 70 percent of the trips at Gate 1 was allocated to Tippecanoe Avenue and 30 percent to Mill Street; at Gate 4, 40 percent was allocated to Del Rosa Drive, 20 percent to Third Street (west of Del Rosa), and 40 percent to Third Street (east of Del Rosa); at Victoria Avenue, 40 percent of the traffic was assumed to proceed north, 40 percent to proceed east (State Route 30 and beyond), and 20 percent to proceed west. Freeway-bound traffic was assumed to account for about 36 percent of the total trips generated.

For the Airport with Mixed Use Alternative, the analysis assumes the following trip distribution from and to the base area: 10 percent of total trips would be internal (mainly, trips made by residents working and shopping on site), 30 percent of trips would use Gate 1, 40 percent would use Gate 4, and 20 percent would use the Victoria Avenue access. The assignment of trips to key roads was projected as follows: at Gate 1, 70 percent of trips are allocated to Tippecanoe Avenue and 30 percent to Mill Street; at Gate 4, 40 percent are allocated to Del Rosa Drive, 20 percent west, and 40 percent east; at the Victoria access, 40 percent traffic is assumed to proceed north, 40 percent east, and 20 percent west. Freeway-bound trips are assumed to account for 40 percent of the total trips generated.

For the Aircraft Maintenance Center Alternative the trip distribution from and to the site is assumed as follows: 10 percent internal trips, 32 percent of trips generated using Gate 1, 58 percent using Gate 4. Truck trips generated by the aggregate mining area would use Victoria Avenue onto Fifth Street, 80 percent of loaded trucks would proceed south to I-10, and 20 percent would proceed north to the city of San Bernardino. Based on the present pattern, 70 percent of trips at Gate 1 are allocated to Tippecanoe Avenue and 30 percent to Mill Street; at Gate 4, 50 percent are allocated to Del Rosa Drive, 20 percent to Third Street (west of Del Rosa), and 30 percent to the east. Freeway-bound trips were assumed to account for 38 percent of the total trips generated.

Accounting for a large residential element and mixed use development, the trip distribution pattern to and from the site was assumed as follows for the Non-Aviation Alternative: 15 percent of total daily trips would be internal trips (generated mainly by residents working and shopping on-site), 25 percent of trips would use Gate 1, 40 percent would use Gate 4, and 20 percent would use the access at Victoria Avenue. About 34 percent of total trips generated were assumed to use the freeway system.

Airspace use in the vicinity of an airport is driven primarily by such factors as runway alignment, surrounding obstacles and terrain, air traffic control and navigational aid capabilities, proximity of other airports/airspace uses in the area, and noise considerations. These same factors normally apply regardless of whether the airport is used for military or civil aircraft operations. For this reason, a preclosure reference was used in characterizing these factors related to airspace use at Norton AFB.

Historic data on military aircraft operations used to characterize airspace use at and around Norton AFB were obtained from the base and Ontario Air Traffic Control Managers. Caltrans and airport owners/operators were contacted to obtain information on civil airport use. Aviation forecasts were derived from the reuse plans and Caltrans studies, and, where necessary,

assumptions were made based on other similar airport operational environments.

The ROI for the airspace analysis is an area extending from the surface up to 13,000 feet mean sea level (MSL) and covering the area between Norton AFB and Ontario International Airport. This airspace area is within the control jurisdiction of the Federal Aviation Administration (FAA) Terminal Radar Approach Control (TRACON) at Ontario airport. Effects on airspace controlled by Los Angeles Center, including airspace above 13,000 MSL, were addressed in a general sense.

The types and levels of aircraft operations projected for the Proposed Action and alternatives were 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 air traffic control systems and/or facilities; (2) restrict, limit, or otherwise delay other air traffic in the region; or (3) encroach on other airspace areas and uses. 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 capacities were exceeded.

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 base-related enplanements from current total enplanements. For each reuse alternative, impacts on air transportation were determined by multiplying the ratio of enplanements to population by the projected future populations of the local airport service areas.

Information regarding existing rail transportation was obtained from AMTRAK. Projected effects of reuse alternatives on railroad transportation were based on projected populations, using current passenger to population ratios. Population figures were used since none of the alternatives assumes direct use of local railroads.

2.4 UTILITIES

Utility usage was determined based on land uses and projected 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), and energy generation and distribution (electricity and natural gas). Historic consumption data, service curtailment data, peak demand characteristics, storage and distribution capacities, and related information for base utilities (including projections of future utility demand for each utility provider's particular service area) were extracted from various engineering reports and the Norton AFB Comprehensive Plan. Information was also obtained from public and private utility purveyors and related county and city agencies.

The ROI for this analysis comprised the service areas of the local purveyors of potable water, wastewater treatment, and energy that serve Norton AFB and the surrounding area. It was assumed that these local purveyors would provide services within the area of the existing base after disposal/reuse.

Potential impacts were evaluated based on long-term projections of demand and population obtained from the various utility purveyors within the region (through 2015) for each of their respective service areas. In each case, purveyors provided the most recent comprehensive projections that were either made prior to the base closure announcement or that did not take into account a change in demand from the base. These projections were then adjusted to reflect the decrease in demand associated with closure of Norton 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 effects of 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 region and the future rates of per capita demand explicitly indicated by each purveyor's projections or derived from those 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 direct demand associated with activities planned on base property, as well as resulting changes in domestic demand associated with population changes in the region.

3.0 HAZARDOUS MATERIALS/HAZARDOUS WASTE MANAGEMENT

Two categories of hazardous materials/waste management issues were addressed for this analysis: (1) impacts of hazardous materials utilized and hazardous wastes generated by each reuse proposal and (2) residual impacts associated with past Air Force practices including delays due to Installation Restoration Program (IRP) site remediation. IRP sites were identified as part of the affected environment (Chapter 3), while remediation impacts associated with these sites were addressed as environmental consequences (Chapter 4). Impacts of wastes generated by each reuse proposal were also addressed in Chapter 4. Primary sources of data were existing published reports such as IRP documents, management plans for various toxic or hazardous substances (e.g., spill response, hazardous waste, asbestos), the Norton closure EIS, and survey results (e.g., radon). 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 were obtained from Norton AFB. Interviews with personnel associated with these on-base agencies provided the information necessary to fill any data gaps. City and county agencies were also contacted regarding regulations which would apply to both current and post-closure activities for Norton AFB.

The 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 trichloroethylene (TCE) groundwater contamination in the control base area which extends beyond the base boundary.

Preclosure baseline conditions as defined for this study include current hazardous materials/waste management practices and inventories pertaining to the following areas: hazardous materials, hazardous waste, IRP sites, aboveground and underground storage tanks, asbestos, pesticides and herbicides, polychlorinated biphenyls (PCBs), radon, and biomedical waste. The impact analysis considered (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 due to IRP remediation activities; and (4) remediation schedules of specific hazardous materials/waste (i.e., PCBs, biomedical waste) currently used by the Air Force.

4.0 NATURAL ENVIRONMENT

4.1 GEOLOGY AND SOILS

Assessment of potential impacts to geology from the reuse alternatives included evaluation of resource potential (especially aggregates), geologic hazards (particularly the potential for seismicity, liquefaction, and subsidence), and flooding potential. Evaluation of soils impacts addressed erosion potential, construction-related dust generation and other soils problems (low soil strength, expansive soils, etc.), and disturbance of unique soil types. Information was obtained from several federal, state, and local agencies.

The ROI for the geologic analysis included the region surrounding Norton AFB relative to seismic activity, aggregate resources, and flooding potential. The ROI for the soils analysis was limited to the base and specific areas designated for construction or renovation.

The geologic analysis was based on a review of existing literature for construction problems associated with geologic hazards, availability of construction aggregate, and whether reuse would impact the availability of known mineral resources.

The soils analysis was based on a review of Soil Conservation Service (SCS) documents for soil properties. The soils in the ROI were then evaluated for erosion potential, permeability, evidence of hardpans, expansive soil characteristics, etc., as these relate to construction problems and erosion potential during construction. Mitigations were evaluated based on county ordinances and SCS recommendations. Common engineering practices were reviewed to determine poor soil characteristics and recommended mitigation measures.

4.2 WATER RESOURCES

Analysis of impacts of the reuse alternatives on water resources considered groundwater quality and quantity, surface water quality (effects from erosion or sedimentation and contamination), surface water drainage diversion, and non-point source surface runoff to the Santa Ana River. Impacts to water quality resources resulting from IRP activities were addressed under Hazardous Material/Waste Management. Information was obtained from several federal, state, and local agencies. The ROI for water resources included the groundwater basin underlying the base, the surface drainage directly affected by runoff from the base, and the 100-year floodplain of the Santa Ana River in the vicinity of the base.

Existing surface water conditions were evaluated for flood potential, non-point source discharge, or transportation of contaminants and surface water

quality. Groundwater resources were evaluated as they pertained to adequate water supplies for each of the reuse alternatives. Groundwater quality and the potential as a potable water source for each reuse alternative was documented. The existing storm water drainage system was evaluated based on available literature, and the impacts to this system from each of the reuse alternatives were determined.

4.3 AIR QUALITY

The air quality resource is defined as the condition of the atmosphere, expressed in terms of the concentrations of air pollutants occurring in an area as the result of emissions from natural and/or man-made sources. Disposal/reuse alternatives have the potential to affect air quality depending on net changes in the release of both gaseous and particulate matter emissions. The impact significance of these emission changes was determined by comparing the resulting atmospheric concentrations to state and federal ambient air quality standards. This analysis drew from climatological data, air quality monitoring data, baseline emission inventory information, construction scheduling information, project-related source information, and transportation data. Principal sources of these data were the California Air Resources Board (CARB), the San Bernardino County Air Pollution Control District (SBCAPCD), the South Coast Air Quality Management District (SCAQMD), the Norton AFB environmental coordinator, and the base civil engineer.

The ROI was determined by emissions from sources associated with construction and operation of the disposal/reuse alternatives. For inert pollutant emissions (all pollutants other than ozone and its precursors), the measurable ROI is limited to a few miles downwind from the source, (i.e., the immediate area of Norton AFB). The ROI for ozone impacts from project emissions included much of the South Coast Air Basin.

Emissions predicted to result from the proposed disposal/reuse alternatives were compared to existing baseline emissions to determine the potential for adverse air quality impact. Impacts were also assessed by modeling, where appropriate, and compared to air quality standards and attainment levels for complying with these standards. Background concentrations were added to the project impacts for comparison with the standards and attainment levels. Impacts were considered significant if project emissions would (1) increase an off-site ambient pollutant concentration from below to above a federal, state, or local standard; (2) contribute a measurable amount to an existing or projected air quality standard exceedance; (3) be inconsistent with measures contained in the air quality attainment plans of the SBCAPCD or SCAQMD; or (4) expose sensitive receptors (such as schools or hospitals) to substantial pollutant concentrations. All other air quality impacts were considered insignificant.

4.4 NOISE

The noise analysis addressed potential noise impacts from reuse-generated aircraft operations, surface traffic, and other identified noise sources on communities surrounding Norton AFB. Most of the data were obtained from the aircraft operations and traffic data prepared for the reuse alternatives. Day-night levels (DNL) were used to determine noise impacts. A single-event noise analysis using sound exposure levels (SEL) was also performed. Scientific literature on noise effects was also referenced.

The ROI for noise was defined as the area within DNL 65 decibels (dB) contours based on land use compatibility guidelines developed from Federal Aviation Regulation (FAR) 150. The ROI for surface traffic noise impacts incorporated key road segments identified in the Transportation Analysis.

Noise levels from aircraft operations were estimated using the FAA-approved Noise Exposure Model (NOISEMAP), version 6.0. Noise contours for DNL 65 dB and above were depicted. Noise levels due to surface traffic were estimated using the Federal Highway Administration's Highway Noise Model (1978). Potential noise impacts were identified by overlaying the noise contours with land use and population information to determine the number of residents who would be exposed to DNL above 65 dB.

SELs related to reuse alternatives were provided for representative noise sensitive receptors exposed to aircraft noise from the Norton airfield. The SELs presented were outdoor levels and took into account the location of the receptors relative to the various flight tracks and aircraft profiles used. Noise reduction effects for common construction were included in the sleep interference analysis; however, evaluation of sensitive receptors relative to noise reduction levels of specific structures was not performed.

Methods used to analyze noise impacts under each reuse scenario are presented in detail in Appendix H of this EIS.

4.5 BIOLOGICAL RESOURCES

Biological resources addressed in relation to disposal and reuse of Norton AFB included vegetation, wildlife, threatened and endangered species, and sensitive habitats (e.g., wetlands). Primary data sources for the analysis included published literature and reports, the California Natural Diversity Database, field reconnaissance of the base, and contacts with agencies such as the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The ROI for the biological resources assessment comprised Norton AFB itself, other areas directly affected by reuse alternatives, and an area extending approximately 5 miles around the base property.

Vegetation and sensitive biological resources (e.g., wetlands and protected species) on the base were mapped using aerial photographs and field observations obtained during a reconnaissance survey of the base on July 11, 1991 to ground truth the photos. Wetlands on the base were delineated using the methods set forth in the "Federal Manual for Identifying and Delineating Jurisdictional Wetlands" (Federal Interagency Committee for Wetland Delineation, 1989). The resulting maps were entered into the computerized geographical information system (GIS).

The impact analysis was performed by overlaying project land use maps for each alternative onto the biological 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 disturbance of each habitat type present would be in direct proportion to the development factor. These impacts were further divided into three development phases by visually comparing maps showing the proposed schedule of development with the resource maps. 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.

4.6 CULTURAL RESOURCES

Cultural resources generally include three main categories: prehistoric and historic archaeological resources, historic structures, and Native American resources. For the purposes of this EIS, cultural resources were defined to also include paleontological resources (the fossil evidence of past plant and animal life). Data used to compile information on these resources were obtained from existing environmental documents; material on file at Norton AFB; recent cultural resource reports pertaining to the base; interviews with individuals familiar with the history, archaeology, or paleontology of the San Bernardino area; and records of the San Bernardino County Information Center of the California Archaeological Inventory. The ROI for cultural resources includes all areas within the boundaries of Norton AFB. No off-base areas were included except where ground disturbing activities (such as road widening) have been incorporated into potential reuse plans.

The EIS contains the most up-to-date information on the importance of cultural resources on Norton AFB, based on recent and ongoing evaluation of eligibility for the National Register of Historic Places (NRHP). Cultural resources for which eligibility information was unavailable were assumed to be eligible for the NRHP.

According to NRHP criteria (36 Code of Federal Regulations [CFR] 60.4), districts, sites, buildings, structures, and objects that have the following attributes could be eligible for listing on the NRHP:

- 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 NRHP, a cultural resource must meet at least one of the above criteria and must also possess integrity of location, design, setting, materials, workmanship, feeling, and 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.

The primary law governing treatment of cultural resources is the National Historic Preservation Act (NHPA). In compliance with the NHPA, the Air Force has initiated consultation with the California State Historic Preservation Officer (SHPO) required under Section 106 of the act.

There are no legally established criteria for assessing the importance of a Native American resource. These criteria are established through consultation with Native Americans according to the requirements of the American Indian Religious Freedom Act.

The Antiquities Act of 1906 provides for the protection of paleontological resources on federal land, but there are no specific Air Force guidelines for determining the importance of paleontological resources. Useful criteria developed by another federal agency (Bureau of Land Management) (Reynolds, 1990) are that 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.

Potential impacts to cultural resources were assessed by (1) identifying types and possible location of reuse activities that could directly or indirectly affect cultural resources; (2) identifying the nature and potential importance of cultural resources located in areas of probable impact; and (3) determining the level of impact from reuse activities on important cultural resources (also known as historic properties).

Adverse effects that may occur as a result of base reuse are those that have a negative impact on characteristics that make a resource eligible for listing on the NRHP. Actions that can diminish the integrity, research potential, or other important characteristics of a historic property include the following (36 CFR 800.9):

- Physical destruction, damage, or alteration of all or part of the property

- Isolating the property from its setting or altering the character of the property's setting when that character contributes to the property's qualification for the NRHP

- Introduction of visual or auditory elements that are out of character with the property or that alter its setting

- Transfer or sale of a federally owned property without adequate conditions or restrictions regarding its preservation, maintenance, or use

- Neglect of a property, resulting in its deterioration or destruction.

Regulations for implementing Section 106 of the NHPA indicate that the transfer, conveyance, lease, or sale of a historic property are procedurally considered to be adverse effects, thereby ensuring full regulatory consideration in federal project planning and execution. However, effects of a project that would otherwise be found to be adverse may not be considered adverse if one of the following conditions exists:

- When the historic property is of value only for its potential contribution to archaeological, historical, or architectural

research, and when such value can be substantially preserved through the conduct of appropriate research, and such research is conducted in accordance with applicable professional standards and guidelines

- When the undertaking is limited to the rehabilitation of buildings and structures and is conducted in a manner that preserves the historical and architectural value of the affected historic property through conformance with the Secretary's Standards for Rehabilitation and Guidelines for Rehabilitation of Historic Buildings

- When the undertaking is limited to the transfer, conveyance, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

Noise impacts can affect cultural resources by altering characteristics of the environment that contribute to the resource's eligibility for the NRHP or by causing structural damage. Historic properties in the vicinity of Norton AFB have been subjected to aircraft noise from Air Force operations since the late-1930s; therefore, noise impacts were assumed to be an issue only if noise levels would increase as a result of reuse. The potential effects of vibration on the structural integrity of historic structures were addressed generally and qualitatively based on information provided through the noise analysis.

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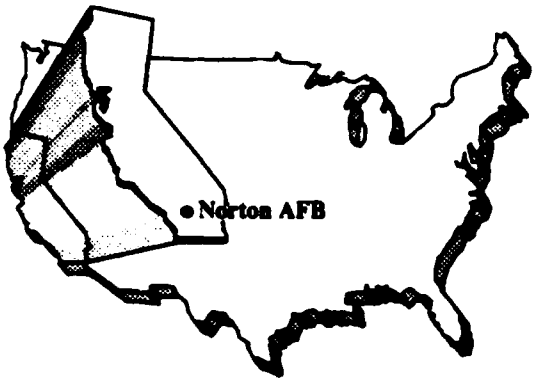


APPENDIX F

APPENDIX F

AIR FORCE POLICY MANAGEMENT OF ASBESTOS AT CLOSING BASES

APPENDIX F

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 a 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 it 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 cost 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 and P.L. 101-510.

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 and standards

   (b) A building is unsalable without removal, or 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 the decision to remove asbestos solely for economic reasons, an 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 interests 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.

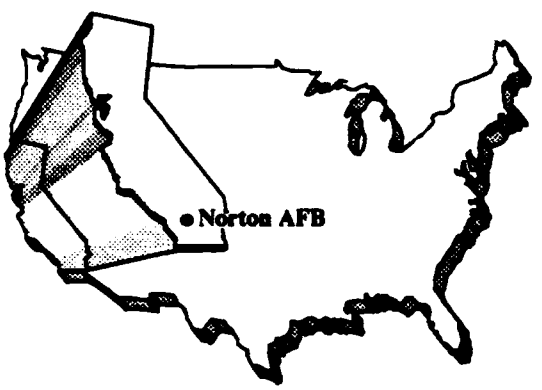
5. Encapsulated asbestos in a building structure, friable or not, is not regarded as hazardous waste by the Air Force, nor does encapsulation within the structure of a building constitute "storing" or "disposing of" hazardous waste. Asbestos incorporated into a building as part of the structure has not 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 property 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 para 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, whether individually or as a class of closely related facilities.

8. Since other considerations must be taken into 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.

This Air Force Policy on the Management of Asbestos at Closing Bases dated May 1, 1992 has been retyped for the purposes of clarity and legibility.



APPENDIX G

APPENDIX G

FARMLAND CONVERSION IMPACT RATING

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request: August 23, 1991
Name Of Project: Norton AFB - Disposal and Reuse	Federal Agency Involved: USAF, FAA and USDA
Proposed Land Use: Major airport facility	County And State: San Bernardino, CA
PART II *(To be completed by SCS)*	Date Request Received By SCS: 5Sep91

Does the site contain prime, unique, statewide or local important farmland? Yes ☐ No ☒ *(If no, the FPPA does not apply – do not complete additional parts of this form).*

Acres Irrigated	Average Farm Size

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount Of Farmland As Defined in FPPA
	Acres: %	Acres: %

Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS
		12 Sep 91

PART III *(To be completed by Federal Agency)*	Alternative Site Rating: Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	2105	2105	2105	2105
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	2105	2105	2105	2105
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*				
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)* — Maximum Points				
1. Area In Nonurban Use				
2. Perimeter In Nonurban Use				
3. Percent Of Site Being Farmed				
4. Protection Provided By State And Local Government				
5. Distance From Urban Builtup Area				
6. Distance To Urban Support Services				
7. Size Of Present Farm Unit Compared To Average				
8. Creation Of Nonfarmable Farmland				
9. Availability Of Farm Support Services				
10. On-Farm Investments				
11. Effects Of Conversion On Farm Support Services				
12. Compatibility With Existing Agricultural Use				
TOTAL SITE ASSESSMENT POINTS — 160				
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland *(From Part V)* — 100				
Total Site Assessment *(From Part VI above or a local site assessment)* — 160				
TOTAL POINTS *(Total of above 2 lines)* — 260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side)

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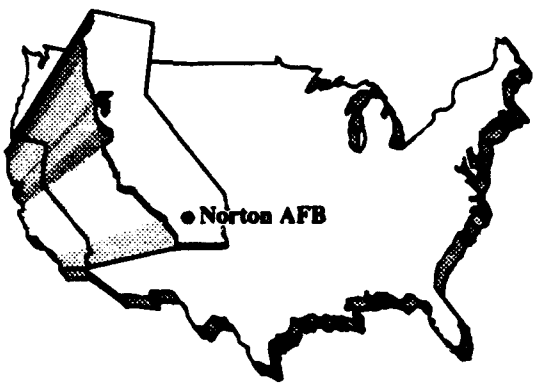

APPENDIX H

APPENDIX H

NOISE

APPENDIX H

NOISE

1.0 DESCRIPTION OF PROPOSED ALTERNATIVES

1.1 PRECLOSURE

Typical noise sources on 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 Norton Air Force Base (AFB). The air operations and noise contours for preclosure are taken from the Air Installation Compatibility Use Zone study (U.S. Air Force, 1988) for Norton AFB. The contours for preclosure operations are shown in Figure 3.4-4 in the Affected Environment chapter of this EIS. In airport analyses, areas with a Day-Night Average Sound Level (DNL) above 65 A-weighted decibels are considered in land use compatibility planning and impact assessment; therefore, the distances to areas with DNLs greater than 65 dB were of particular interest.

The baseline surface traffic noise levels in the vicinity of the base were established in terms of DNL by modeling the arterial roadways near the base using current traffic and speed characteristics. Annual average daily traffic (AADT) data were developed in the traffic engineering study presented in Section 3.2.3, Transportation, and were used to estimate preclosure noise levels. The traffic data used in the analysis are presented in Table H-1. The traffic mix was assumed to be the same as presented in the San Bernardino County Noise Element. Thirteen percent of the traffic was assumed to be nighttime traffic based on data from the state of California Office of Noise Control (Swing, 1975) and previous experience in measuring traffic noise. The noise levels generated by surface traffic were predicted using the model published by the Federal Highway Administration (1978). The noise levels are estimated as a function of distance from the centerline of the nearest road.

1.2 CLOSURE BASELINE

At closure, it is assumed that there would be no aircraft activity. The 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 H-1.

Table H-1. Surface Traffic Operations for Total Traffic Volumes (Project and Non-Project)			
Roadway	AADT	Speed Assumed	Road Width Assumed (number of lanes)
Preclosure			
Alabama Street	17,600	45	4
Palm Avenue	17,600	45	4
Tippecanoe Avenue	16,300	45	4
Mill Street	9,000	45	2
Del Rosa Drive	5,630	45	4
3rd Street (East)	7,880	45	4
3rd Street (West)	7,880	45	4
Victoria Avenue	6,060	45	4
5th Street (Waterman to Victoria)	8,100	45	2
5th Street (Victoria to Palm)	5,630	45	4
Interstate 10 (Tippecanoe to Waterman)	148,000	55	8
C Street west of 6th	7,212	45	2
6th Street between 3rd and E	15,455	45	4
6th Street between E and C	8,242	45	2
Closure			
Alabama Street	6,850	45	4
Palm Avenue	6,850	45	4
Tippecanoe Avenue	7,360	45	4
Mill Street	5,360	45	2
Del Rosa Drive	770	45	4
3rd Street (East)	3,910	45	4
3rd Street (West)	3,910	45	4
Victoria Avenue	5,960	45	4
5th Street (Waterman to Victoria)	6,530	45	2
5th Street (Victoria to Palm)	3,830	45	4
Interstate 10 (Tippecanoe to Waterman)	164,915	55	8
C Street west of 6th	7,431	45	2
6th Street between 3rd and E	15,923	45	4
6th Street between E and C	8,492	45	2

1.3 PROPOSED ACTION

The Proposed Action for the reuse of Norton AFB would result in a comprehensive reuse plan centered around a civil aviation facility. Primary components of the aviation action include air passenger operations, air cargo operations, general aviation operations, training, and maintenance operations. Non-aviation land uses include office/industrial park, commercial, and recreational lands.

The fleet mix and annual aircraft operations for each of the modeled years are contained in Table H-2. Air passenger operations for the years 2000 and 2005 are divided between Stage 2 (B-737-200) and Stage 3 (B-737-300) aircraft. In reality, the conversion is mandated to be completed by the year 2000. Since Stage 2 aircraft are noisier, this approach results in a conservative estimate of noise levels, and actual noise levels in 2000 and 2005 are likely to be less than projected. The DNL contours for the proposed flight operations and the proposed flight tracks modeled are presented in Section 4.4.4, Noise. The day-night split for all aircraft operations is shown in Table H-3. Stage lengths for aircraft operations are given in Table H-4.

Engine runup operations were assumed to occur at the north end of the west apron. The number of runup operation is presented in Table H-5. 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 200 degrees.

Additional aircraft operations associated with terminal activity (e.g., waiting at the terminal for passenger boarding), would not significantly effect the noise environment and were not included in the analysis.

General aviation operations were divided into five types:

- Single-engine (COMSEP) - A composite single-engine propeller plane was modeled.
- Multi-engine - Beech Baron 58P was assumed to be a typical multi-engine propeller plane.
- Turboprop - Cessna Conquest II was assumed to be a typical turboprop.
- Turbojet - Cessna Citation I was assumed to be a typical turbofan.

TABLE H-2a
SCENARIO: Proposed Action
MODELED YEAR: 1995

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Passenger (Air Carrier)			0	0
B-737-200	0	0		
B-737-300	0	0		
Air Passenger (Commuter)			10,830	38
Beechcraft 1900	2,708	25		
Swearingen Metro	2,708	25		
Saab-Fairchild 340	2,708	25		
Embraer Brasilia	2,708	25		
Air Cargo			850	3
DHC-7	425	50		
BAe 146	425	50		
General Aviation			16,820	58
COMSEP (composite single engine piston)	11,750	70		
Beech Baron 58P (twin engine piston)	3,650	22		
Cessna Conquest II (turboprop)	600	4		
Cessna Citation I (turbojet)	410	2		
McDonnell Douglas 500D (helicopter)	410	2		
Aircraft Maintenance			200	1
B-747-200	200	100		
TOTAL			28,700	100

TABLE H-2b
SCENARIO: Proposed Action
MODELED YEAR:2000

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Passenger (Air Carrier)			5,000	13
B-737-200	2,500	50		
B-737-300	2,500	50		
Air Passenger (Commuter)			14,290	36
Beechcraft 1900	3,573	25		
Swearingen Metro	3,573	25		
Saab-Fairchild 340	3,573	25		
Embraer Brasilia	3,573	25		
Air Cargo			2,400	6
DHC-7	1,200	50		
BAe 146	1,200	50		
General Aviation			17,830	44
COMSEP (composite single engine piston)	11,750	66		
Beech Baron 58P (twin engine piston)	4,050	23		
Cessna Conquest II (turboprop)	810	5		
Cessna Citation I (turbojet)	410	2		
McDonnell Douglas 500D (helicopter)	810	5		
Aircraft Maintenance			300	1
B-747-200	300	100		
TOTAL			39,820	100

TABLE H-2c
SCENARIO: Proposed Action
MODELED YEAR:2005

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Passenger (Air Carrier)			11,840	25
B-737-200	5,920	50		
B-737-300	5,920	50		
Air Passenger (Commuter)			12,050	26
Beechcraft 1900	3,012	25		
Swearingen Metro	3,012	25		
Saab-Fairchild 340	3,013	25		
Embraer Brasilia	3,013	25		
Air Cargo			4,210	9
DHC-7	2,105	50		
BAe 146	2,105	50		
General Aviation			18,640	39
COMSEP (composite single engine piston)	12,150	65		
Beech Baron 58P (twin engine piston)	4,460	24		
Cessna Conquest II (turboprop)	810	4		
Cessna Citation I (turbojet)	410	2		
McDonnell Douglas 500D (helicopter)	810	4		
Aircraft Maintenance			400	1
B-747-200	400	100		
TOTAL			47,140	100

TABLE H-2d
SCENARIO: Proposed Action
MODELED YEAR:2015

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Passenger (Air Carrier)			15,560	27
B-737-200	0	0		
B-737-300	15,560	100		
Air Passenger (Commuter)			14,700	25
Beechcraft 1900	3,675	25		
Swearingen Metro	3,675	25		
Saab-Fairchild 340	3,675	25		
Embraer Brasilia	3,675	25		
Air Cargo			7,260	12
DHC-7	3,630	50		
BAe 146	3,630	50		
General Aviation			20,260	35
COMSEP (composite single engine piston)	12,150	60		
Beech Baron 58P (twin engine piston)	4,860	24		
Cessna Conquest II (turboprop)	1,220	6		
Cessna Citation I (turbojet)	1,220	6		
McDonnell Douglas 500D (helicopter)	810	4		
Aircraft Maintenance			600	1
B-747-200	600	100		
TOTAL			58,380	100

Table H-3. Day-Night Split of Aircraft Operations for Proposed Action and Alternatives

Aircraft Type	Percent Daytime	Percent Nighttime
Air Passenger	93	7
General Aviation	95	5
Maintenance	100	0
Cargo	50	50

Table H-4. Stage Lengths* Assumed for Aircraft Operations for Proposed Action and Alternatives

Group	1995	2000	2005	2015
Air Carrier	1	1	3	3
Commuter	1	1	1	1
General Aviation	1	1	1	1
Maintenance	1	1	1	1
Air Cargo	1	1	1	1

* Stage length may affect operational parameters such as takeoff or landing profiles, engine thrust settings, and aircraft speed of some aircraft; these parameters may, in turn, affect aircraft noise exposure. Stage lengths correspond to the distance flown in increments designated by the FAA. For example, stage length one corresponds to flights between 1 and 500 miles, stage length two corresponds to flights between 500 and 1,000 miles, etc. The maximum stage length used in modeling is stage length seven, which corresponds to flights over 4,500 miles.

Table H-5. Number of Daily Engine Runup Operations for the Proposed Action and Alternatives

Alternative	1995	2000	2005	2015
Proposed Action	.13	.19	.25	.38
Airport with Mixed Use Alternative	.30	.42	.46	.46
Maintenance Center Alternative	.30	.42	.46	.46

- Helicopter - McDonnell Douglas 500D was assumed to be a typical helicopter.

The touch-and-go patterns and the initial departure and final approach flight tracks used in the modeling are shown in Figure 4.4-6. The departure and arrival flight tracks used are based on existing usage. The flight tracks are primarily toward the east, due to surrounding terrain and prevailing winds. The touch-and-go flight tracks were based on those in common usage at similar sized airports. Conversations with Norton AFB personnel indicate that all arrivals were on flight tracks corresponding to the Precision Approach and Nonprecision Approaches and departures were 93 percent on D2, 2 percent on D1, and 5 percent on D3. Historically, less than 20 arrivals per year use the nonprecision instrument (NPI) approach on Runway 22 (from the east). This would result in a negligible contribution to the noise environment and was not included in the analysis. Touch-and-go operations were assumed to consist of 33 percent of all single-engine piston general aviation operations and were split on two tracks (one for Runway 06 and one for Runway 24). The operations were then dispersed according to the runway usage above. Daily operations assigned to each flight track and time period for the Proposed Action are provided in Table H-6 for each of the study years. Assignments were made in a similar way for the other alternatives.

A standard 3-degree glide slope and the takeoff profiles provided by the Federal Aviation Administration (FAA) approved Integrated Noise Model Database 3.9 were assumed for all aircraft.

Surface traffic data used in the modeling were developed from the project traffic study presented in the Section 4.2.3, Transportation, and are shown in Table H-7.

1.4 AIRPORT WITH MIXED USE ALTERNATIVE

Under the Airport with Mixed Use Alternative, as in the Proposed Action, the base airfield would be converted to civilian use. Primary components of the aviation action include air passenger, general aviation operations, and maintenance operations.

The airport layout would remain unchanged.

The fleet mix and annual operations for each of the modeled years are contained in Table H-8. As with the Proposed Action, operations are divided between Stage 2 and Stage 3 aircraft in 2000 and 2005, resulting in a likely overestimation of noise levels for those years. The DNL contours for the proposed flight operations are presented in Section 4.4.4, Noise. The proposed flight tracks modeled are the same as for the Proposed Action.

Table H-6a. Assignment of Operations for the Proposed Action
Modeled Year: 1995
Page 1 of 2

	Departure Flight Tracks								
	Departure 1			Departure 2			Departure 3		
Aircraft	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
B-737-300	-	-	-	-	-	-	-	-	-
B-737-200	-	-	-	-	-	-	-	-	-
DHC-6	0.11	0.03	0.01	5.10	1.31	0.48	0.27	0.07	0.03
Saab 340	0.11	0.03	0.01	5.10	1.31	0.48	0.27	0.07	0.03
DHC-7	-	-	-	-	0.27	0.27	-	0.01	0.01
BAe-146	-	-	-	-	0.27	0.27	-	0.01	0.01
COMSEP	0.17	0.03	0.01	7.98	1.50	0.50	0.43	0.08	0.03
BEC58P	0.08	0.02	-	3.72	0.70	0.23	0.20	0.04	0.01
CNA441	0.01	-	-	0.61	0.11	0.04	0.03	-	-
CNA500	-	-	-	0.42	0.08	0.03	0.02	-	-
OH-6A	-	-	-	0.42	0.08	0.03	0.02	-	-
B-747-200	-	-	-	0.20	0.05	-	0.01	-	-
Total	0.48	0.10	0.03	23.56	5.68	2.33	1.27	0.29	0.12

Day - 7:00 a.m. to 7:00 p.m.
Eve - 7:00 p.m. to 10:00 p.m.
Night - 10:00 p.m. to 7:00 a.m.

Table H-6a. Assignment of Operations for the Proposed Action
Modeled Year: 1995
Page 2 of 2

	Arrival Flight Tracks												Touch and Go Flight Tracks					
	Nonprecision Approach Rwy 06			Nonprecision Approach Rwy 06			Hi-ILS Rwy 06			ILS Rwy 06			06P1			06P2		
Aircraft	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
B-737-300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-737-200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DHC-6	1.37	0.35	0.13	1.37	0.35	0.13	1.37	0.35	0.13	1.37	0.35	0.13	-	-	-	-	-	-
Saab 340	1.37	0.35	0.13	1.37	0.35	0.13	1.37	0.35	0.13	1.37	0.35	0.13	-	-	-	-	-	-
DHC-7	-	0.07	0.07	-	0.07	0.07	-	0.07	0.07	-	0.07	0.07	-	-	-	-	-	-
BAe-146	-	0.07	0.07	-	0.07	0.07	-	0.07	0.07	-	0.07	0.07	-	-	-	-	-	-
COMSEP	2.15	0.40	0.13	2.15	0.40	0.13	2.15	0.40	0.13	2.15	0.40	0.13	8.16	1.53	0.51	0.43	0.08	0.03
BEC58P	1.00	0.19	0.06	1.00	0.19	0.06	1.00	0.19	0.06	1.00	0.19	0.06	-	-	-	-	-	-
CNA441	0.16	0.03	0.01	0.16	0.03	0.01	0.16	0.03	0.01	0.16	0.03	0.01	-	-	-	-	-	-
CNA500	0.11	0.02	0.01	0.11	0.02	0.01	0.11	0.02	0.01	0.11	0.02	0.01	-	-	-	-	-	-
OH-6A	0.11	0.02	0.01	0.11	0.02	0.01	0.11	0.02	0.01	0.11	0.02	0.01	-	-	-	-	-	-
B-747-200	0.05	0.01	-	0.05	0.01	-	0.05	0.01	-	0.05	0.01	-	-	-	-	-	-	-
Total	6.33	1.53	0.63	6.33	1.53	0.63	6.33	1.53	0.63	6.33	1.53	0.63	6.33	1.53	0.51	0.43	0.08	0.03

Day - 7:00 a.m. to 7:00 p.m.
Eve - 7:00 p.m. to 10:00 p.m.
Night -10:00 p.m. to 7:00 a.m.

Table H-6b. Assignment of Operations for the Proposed Action
Modeled Year: 2000
Page 1 of 2

	Departure Flight Tracks								
	Departure 1			Departure 2			Departure 3		
Aircraft	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
B-737-300	0.05	0.01	-	2.36	0.61	0.22	0.13	0.03	0.01
B-737-200	0.05	0.01	-	2.36	0.61	0.22	0.13	0.03	0.01
DHC-6	0.14	0.04	0.01	6.74	1.73	0.64	0.36	0.09	0.03
Saab 340	0.14	0.04	0.01	6.74	1.73	0.64	0.36	0.09	0.03
DHC-7	-	0.02	0.02	-	0.76	0.76	-	0.04	0.04
BAe-146	-	0.02	0.02	-	0.76	0.76	-	0.04	0.04
COMSEP	0.17	0.03	0.01	7.98	1.50	0.50	0.43	0.08	0.03
BEC58P	0.09	0.02	-	4.13	0.77	0.26	0.22	0.04	0.01
CNA441	0.02	-	-	0.83	0.15	0.05	0.04	-	-
CNA500	-	-	-	0.42	0.08	0.03	0.02	-	-
OH-6A	0.02	-	-	0.83	0.15	0.05	0.04	-	-
B-747-200	-	-	-	0.31	0.08	-	0.02	-	-
Total	0.69	0.18	0.07	32.67	8.93	4.14	1.76	0.46	0.22

Day - 7:00 a.m. to 7:00 p.m.
Eve - 7:00 p.m. to 10:00 p.m.
Night - 10:00 p.m. to 7:00 a.m.

Table H-6b Assignment of Operations for the Proposed Action
Modeled Year: 2000
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	Arrival Flight Tracks												Touch and Go Flight Tracks					
	Nonprecision Approach Rwy 06			Nonprecision Approach Rwy 06			Hi-ILS Rwy 06			ILS Rwy 06			06P1			06P2		
Aircraft	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
B-737-300	0.63	0.16	0.06	0.63	0.16	0.06	0.63	0.16	0.06	0.63	0.16	0.06	-	-	-	-	-	-
B-737-200	0.63	0.16	0.06	0.63	0.16	0.06	0.63	0.16	0.06	0.63	0.16	0.06	-	-	-	-	-	-
DHC-6	1.81	0.46	0.17	1.81	0.46	0.17	1.81	0.46	0.17	1.81	0.46	0.17	-	-	-	-	-	-
Saab 340	1.81	0.46	0.17	1.81	0.46	0.17	1.81	0.46	0.17	1.81	0.46	0.17	-	-	-	-	-	-
DHC-7	-	0.21	0.21	-	0.21	0.21	-	0.21	0.21	-	0.21	0.21	-	-	-	-	-	-
BAe-146	-	0.21	0.21	-	0.21	0.21	-	0.21	0.21	-	0.21	0.21	-	-	-	-	-	-
COMSEP	2.15	0.40	0.13	2.15	0.40	0.13	2.15	0.40	0.13	2.15	0.40	0.13	8.16	1.53	0.51	0.43	0.08	0.03
BEC58P	1.11	0.21	0.07	1.11	0.21	0.07	1.11	0.21	0.07	1.11	0.21	0.07	-	-	-	-	-	-
CNA441	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	-	-	-	-	-	-
CNA500	0.11	0.02	0.01	0.11	0.02	0.01	0.11	0.02	0.01	0.11	0.02	0.01	-	-	-	-	-	-
OH-6A	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	-	-	-	-	-	-
B-747-200	0.08	0.02	-	0.08	0.02	-	0.08	0.02	-	0.08	0.02	-	-	-	-	-	-	-
Total	8.78	2.40	1.11	8.78	2.40	1.11	8.78	2.40	1.11	8.78	2.40	1.11	8.16	1.53	0.51	0.43	0.08	0.03

Day - 7:00 a.m. to 7:00 p.m.
Eve - 7:00 p.m. to 10:00 p.m.
Night - 10:00 p.m. to 7:00 a.m.

Table H-6c. Assignment of Operations for the Proposed Action
Modeled Year: 2005
Page 1 of 2

	Departure Flight Tracks								
	Departure 1			Departure 2			Departure 3		
Aircraft	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
B-737-300	0.12	0.03	0.01	5.58	1.43	0.53	0.30	0.08	0.03
B-737-200	0.12	0.03	0.01	5.58	1.43	0.53	0.30	0.08	0.03
DHC-6	0.12	0.03	0.01	5.58	1.46	0.54	0.31	0.08	0.03
Saab 340	0.12	0.03	0.01	5.58	1.46	0.54	0.31	0.08	0.03
DHC-7	-	0.03	0.03	-	1.34	1.34	-	0.07	0.07
BAe-146	-	0.03	0.03	-	1.34	1.34	-	0.07	0.07
COMSEP	0.18	0.03	0.01	8.26	1.55	0.52	0.44	0.08	0.03
BEC58P	0.10	0.02	-	4.55	0.85	0.28	0.24	0.05	0.02
CNA441	0.02	-	-	0.83	0.15	0.05	0.04	-	-
CNA500	-	-	-	0.42	0.08	0.03	0.02	-	-
OH-6A	0.02	-	-	0.83	0.15	0.05	0.04	-	-
B-747-200	-	-	-	0.41	0.10	-	0.02	-	-
Total	0.80	0.23	0.11	37.80	11.35	5.74	2.03	0.58	0.30

Day - 7:00 a.m. to 7:00 p.m.
Eve - 7:00 p.m. to 10:00 p.m.
Night - 10:00 p.m. to 7:00 a.m.

Table H-6c. Assignment of Operations for the Proposed Action
Modeled Year: 1995
Page 2 of 2

	Arrival Flight Tracks												Touch and Go Flight Tracks					
	Nonprecision Approach Rwy 06			Nonprecision Approach Rwy 06			Hi-ILS Rwy 06			ILS Rwy 06			06P1			06P2		
Aircraft	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
B-737-300	1.50	0.39	0.14	1.50	0.39	0.14	1.50	0.39	0.14	1.50	0.39	0.14	-	-	-	-	-	-
B-737-200	1.50	0.39	0.14	1.50	0.39	0.14	1.50	0.39	0.14	1.50	0.39	0.14	-	-	-	-	-	-
DHC-6	1.53	0.39	0.14	1.53	0.39	0.14	1.53	0.39	0.14	1.53	0.39	0.14	-	-	-	-	-	-
Saab 340	1.53	0.39	0.14	1.53	0.39	0.14	1.53	0.39	0.14	1.53	0.39	0.14	-	-	-	-	-	-
														-	-	-	-	
DHC-7	-	0.36	0.36	-	0.36	0.36	-	0.36	0.36	-	0.36	0.36	-	-	-	-	-	-
BAe-146	-	0.36	0.36	-	0.36	0.36	-	0.36	0.36	-	0.36	0.36	-	-	-	-	-	-
COMSEP	2.22	0.42	0.14	2.22	0.42	0.14	2.22	0.42	0.14	2.22	0.42	0.14	8.43	1.58	0.53	0.44	0.08	0.03
BEC58P	1.22	0.23	0.08	1.22	0.23	0.08	1.22	0.23	0.08	1.22	0.23	0.08	-	-	-	-	-	-
CNA441	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	-	-	-	-	-	-
CNA500	0.11	0.02	0.01	0.11	0.02	0.01	0.11	0.02	0.01	0.11	0.02	0.01	-	-	-	-	-	-
OH-6A	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	-	-	-	-	-	-
B-747-200	0.11	0.03	-	0.11	0.03	-	0.11	0.03	-	0.11	0.03	-	-	-	-	-	-	-
Total	10.16	3.05	1.54	10.16	3.05	1.54	10.16	3.05	1.54	10.16	3.05	1.54	8.43	1.58	0.53	0.44	0.08	0.03

Day - 7:00 a.m. to 7:00 p.m.
Eve - 7:00 p.m. to 10:00 p.m.
Night - 10:00 p.m. to 7:00 a.m.

Table H-6d. Assignment of Operations for the Proposed Action
Modeled Year: 2015
Page 1 of 2

Aircraft	Departure Flight Tracks								
	Departure 1			Departure 2			Departure 3		
	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
B-737-300	0.32	0.08	0.03	14.67	3.77	1.39	0.79	0.20	0.07
B-737-200	-	-	-	-	-	-	-	-	-
DHC-6	0.15	0.04	0.01	6.93	1.78	0.66	0.37	0.10	0.04
Saab 340	0.15	0.04	0.01	6.93	1.78	0.66	0.37	0.10	0.04
DHC-7	-	0.05	0.05	-	2.31	2.31	-	0.12	0.12
BAe-146	-	0.05	0.05	-	2.31	2.31	-	0.12	0.12
COMSEP	0.18	0.03	0.01	8.26	1.55	0.52	0.44	0.08	0.03
BEC58P	0.11	0.02	-	4.95	0.93	0.31	0.27	0.05	0.02
CNA441	0.03	-	-	1.24	0.23	0.08	0.07	0.01	-
CNA500	0.03	-	-	1.24	0.23	0.08	0.07	0.01	-
OH-6A	0.02	-	-	0.83	0.15	0.05	0.04	-	-
B-747-200	0.01	-	-	0.61	0.15	-	0.03	-	-
Total	0.98	0.31	0.17	45.66	15.20	8.36	2.45	0.80	0.44

Day - 7:00 a.m. to 7:00 p.m.
Eve - 7:00 p.m. to 10:00 p.m.
Night - 10:00 p.m. to 7:00 a.m.

Table H-6d. Assignment of Operations for the Proposed Action
Modeled Year: 2015
Page 2 of 2

	Arrival Flight Tracks												Touch and Go Flight Tracks					
	Nonprecision Approach Rwy 06			Nonprecision Approach Rwy 06			Hi-ILS Rwy 06			ILS Rwy 06			06P1			06P2		
Aircraft	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night	Day	Eve	Night
B-737-300	3.94	1.01	0.37	3.94	1.01	0.37	3.94	1.01	0.37	3.94	1.01	0.37	-	-	-	-	-	-
B-737-200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DHC-6	1.86	0.48	0.18	1.86	0.48	0.18	1.86	0.48	0.18	1.86	0.48	0.18	-	-	-	-	-	-
Saab 340	1.86	0.48	0.18	1.86	0.48	0.18	1.86	0.48	0.18	1.86	0.48	0.18	-	-	-	-	-	-
DHC-7	-	0.62	0.62	-	0.62	0.62	-	0.62	0.62	-	0.62	0.62	-	-	-	-	-	-
BAe-146	-	0.62	0.62	-	0.62	0.62	-	0.62	0.62	-	0.62	0.62	-	-	-	-	-	-
COMSEP	2.22	0.42	0.14	2.22	0.42	0.14	2.22	0.42	0.14	2.22	0.42	0.14	8.43	1.58	0.53	0.44	0.08	0.03
BEC58P	1.33	0.25	0.08	1.33	0.25	0.08	1.33	0.25	0.08	1.33	0.25	0.08	-	-	-	-	-	-
CNA441	0.33	0.06	0.02	0.33	0.06	0.02	0.33	0.06	0.02	0.33	0.06	0.02	-	-	-	-	-	-
CNA500	0.33	0.06	0.02	0.33	0.06	0.02	0.33	0.06	0.02	0.33	0.06	0.02	-	-	-	-	-	-
OH-6A	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	0.22	0.04	0.01	-	-	-	-	-	-
B-747-200	0.16	0.04	-	0.16	0.04	-	0.16	0.04	-	0.16	0.04	-	-	-	-	-	-	-
Total	12.27	4.09	2.25	12.27	4.09	2.25	12.27	4.09	2.25	12.27	4.09	2.25	8.43	1.58	0.53	0.44	0.08	0.03

Day - 7:00 a.m. to 7:00 p.m.
Eve - 7:00 p.m. to 10:00 p.m.
Night - 10:00 p.m. to 7:00 a.m.

Table H-7. Surface Traffic Operations for Total Traffic Volumes (Project and Non-Project)

Alternative	2000		2005		2015		Road Width
	AADT	Speed (mph)	AADT	Speed (mph)	AADT	Speed (mph)	Assumed (no. of lanes)
Proposed Action							
Alabama Street	9,243	30	12,107	30	15,402	30	4
Palm Avenue	11,188	30	16,807	30	21,244	30	4
Tippecanoe Avenue	15,346	30	26,091	25	32,810	15	4
Mill Street	9,136	30	14,071	15	17,767	30	2*
Del Rosa Drive	7,702	30	17,458	30	21,739	20	4
3rd Street (East)	8,426	30	14,522	30	18,254	30	4
3rd Street (West)	8,626	30	15,148	30	19,031	20	4
Victoria Avenue	10,804	30	17,207	30	21,696	20	4
5th Street (Waterman to Victoria)	10,817	20	16,387	20	20,706	20	2
5th Street (Victoria to Palm)	8,333	30	14,417	30	18,117	30	4
Del Rosa-Tippecanoe Corridor (south half)	8,000	30	20,000	25	25,000	25	5
Del Rosa-Tippecanoe Corridor (north half)	7,040	30	17,600	25	22,000	25	5
Airport with Mixed Use							
Alabama Street	9,334	30	11,471	30	14,518	25	4
Palm Avenue	11,416	30	15,217	30	19,034	25	4
Tippecanoe Avenue	15,824	30	22,751	30	28,169	25	4
Mill Street	9,340	25	12,640	15	15,778	30	2*
Del Rosa Drive	6,791	30	11,621	30	14,088	30	4
3rd Street (East)	8,699	30	17,608	30	21,621	30	4
3rd Street (West)	8,699	30	12,613	30	15,600	30	4
Victoria Avenue	11,077	30	17,796	30	22,054	20	4
5th Street (Waterman to Victoria)	11,044	20	14,797	15	18,496	30	2*
5th Street (Victoria to Palm)	8,606	30	12,509	30	15,466	30	4
Del Rosa-Tippecanoe Corridor (south half)	9,030	30	17,430	25	21,000	25	5
Del Rosa-Tippecanoe Corridor (north half)	9,030	30	17,430	25	21,000	25	5

Table H-7. Surface Traffic Operations for Total Traffic Volumes (Project and Non-Project)
Page 2 of 3

Alternative	2000 AADT	2000 Speed (mph)	2005 AADT	2005 Speed (mph)	2015 AADT	2015 Speed (mph)	Road Width Assumed (no. of lanes)
Aircraft Maintenance Center							
Alabama Street	8,873	30	10,581	30	13,254	25	4
Palm Avenue	9,801	30	12,189	30	14,962	25	4
Tippecanoe Avenue	15,339	30	21,430	30	25,029	25	4
Mill Street	9,000	30	11,844	20	14,185	15	2
Del Rosa Drive	7,076	30	11,725	30	12,806	30	4
3rd Street (East)	8,246	30	11,552	30	13,476	30	4
3rd Street (West)	8,246	30	16,910	30	19,233	30	4
Victoria Avenue	9,387	30	12,094	30	14,618	30	4
5th Street (Waterman to Victoria)	11,285	20	14,984	30	17,878	30	2
5th Street (Victoria to Palm)	8,771	30	12,519	30	14,493	30	4
Del Rosa-Tippecanoe Corridor (south half)	11,000	30	20,020	25	22,000	25	5
Del Rosa-Tippecanoe Corridor (north half)	10,000	30	18,200	25	20,000	25	5
Non-Aviation							
Alabama Street	11,071	30	13,494	30	17,548	20	4
Palm Avenue	12,113	30	15,000	30	19,561		4
Tippecanoe Avenue	17,914	30	23,201	30	30,458	20	4
Mill Street	10,385	25	13,048	15	17,058	30	2*
Del Rosa Drive	7,144	30	13,062	30	17,041	30	4
3rd Street (East)	9,744	30	12,655	30	16,636	30	4
3rd Street (West)	9,744	30	20,188	30	26,702	25	4
Victoria Avenue	14,206	30	18,354	25	24,106	20	4
5th Street (Waterman to Victoria)	12,784	15	16,087	30	21,037	15	2**
5th Street (Victoria to Palm)	10,693	30	17,070	30	22,541	30	4
Del Rosa-Tippecanoe Corridor (south half)	15,300	30	22,500	25	30,000	25	5
Del Rosa-Tippecanoe Corridor (north half)	15,300	30	22,500	25	30,000	25	5

Table H-7. Surface Traffic Operations for Total Traffic Volumes (Project and Non-Project)
Page 3 of 3

Alternative	2000 AADT	2000 Speed (mph)	2005 AADT	2005 Speed (mph)	2015 AADT	2015 Speed (mph)	Road Width Assumed (no. of lanes)
No-Action							
Alabama Street	7,946	30	8,974	30	11,508	30	4
Palm Avenue	7,946	30	8,924	30	11,508	30	4
Tippecanoe Avenue	8,538	30	9,642	30	10,365	30	4
Mill Street	6,218	30	7,022	30	9,005	30	2
Del Rosa Drive	893	30	1,009	30	1,294	30	4
3rd Street (East)	4,536	30	5,122	30	6,569	30	4
3rd Street (West)	4,536	30	5,122	30	6,569	30	4
Victoria Avenue	6,914	30	7,808	30	10,013	30	4
5th Street (Waterman to Victoria)	7,575	30	8,554	30	10,970	25	2
5th Street (Victoria to Palm)	4,443	30	5,017	30	6,434	30	4

* Increased to 4 lanes by 2015
** Increased to 4 lanes by 2005

TABLE H-8a
SCENARIO: Airport with Mixed Use Alternative
MODELED YEAR: 1995

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Passenger (Air Carrier)			0	0
B-737-200	0	0		
B-737-300	0	0		
Air Passenger (Commuter)			10,830	38
Beechcraft 1900	2,708	25		
Swearingen Metro	2,708	25		
Saab-Fairchild 340	2,708	25		
Embraer Brasilia	2,708	25		
General Aviation			16,980	60
COMSEP (composite single engine piston)	11,750	69		
Beech Baron 58P (twin engine piston)	3,600	21		
Cessna Conquest II (turboprop)	810	5		
Cessna Citation I (turbojet)	410	2		
McDonnell Douglas 500D (helicopter)	410	2		
Aircraft Maintenance			490	2
B-747-200	130	27		
B-767-200	130	27		
B-757-200	70	14		
B-727-200	160	33		
TOTAL			28,300	100

TABLE H-8b
SCENARIO: Airport with Mixed Use Alternative
MODELED YEAR: 2000

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Passenger (Air Carrier)			6,000	14
B-737-200	3,000	50		
B-737-300	3,000	50		
Air Passenger (Commuter)			17,140	41
Beechcraft 1900	4,285	25		
Swearingen Metro	4,285	25		
Saab-Fairchild 340	4,285	25		
Embraer Brasilia	4,285	25		
General Aviation			17,830	43
COMSEP (composite single engine piston)	11,750	66		
Beech Baron 58P (twin engine piston)	4,050	23		
Cessna Conquest II (turboprop)	810	5		
Cessna Citation I (turbojet)	410	2		
McDonnell Douglas 500D (helicopter)	810	4		
Aircraft Maintenance			620	2
B-747-200	200	32		
B-767-200	160	26		
B-757-200	100	16		
B-727-200	160	26		
TOTAL			41,590	100

TABLE H-8c
SCENARIO: Airport with Mixed Use Alternative
MODELED YEAR: 2005

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	Category Percent of Total
Air Passenger (Air Carrier)			11,340	27
B-737-200	5,670	50		
B-737-300	5,670	50		
Air Passenger (Commuter)			11,640	27
Beechcraft 1900	2,910	25		
Swearingen Metro	2,910	25		
Saab-Fairchild 340	2,910	25		
Embraer Brasilia	2,910	25		
General Aviation			18,640	44
COMSEP (composite single engine piston)	12,150	65		
Beech Baron 58P (twin engine piston)	4,460	24		
Cessna Conquest II (turboprop)	810	4		
Cessna Citation I (turbojet)	410	2		
McDonnell Douglas 500D (helicopter)	810	4		
Aircraft Maintenance			730	2
B-747-200	220	30		
B-767-200	220	30		
B-757-200	110	15		
B-727-200	180	25		
TOTAL			42,350	100

TABLE H-8d
SCENARIO: Airport with Mixed Use Alternative
MODELED YEAR: 2015

Type of Aircraft	Number of Operations	Percent of Category	Total for Category	
Air Passenger (Air Carrier)			19,700	33
B-737-200	0	0		
B-737-300	19,700	100		
Air Passenger (Commuter)			18,610	31
Beechcraft 1900	4,653	25		
Swearingen Metro	4,653	25		
Saab-Fairchild 340	4,653	25		
Embraer Brasilia	4,653	25		
General Aviation			20,260	34
COMSEP (composite single engine piston)	12,150	60		
Beech Baron 58P (twin engine piston)	4,860	24		
Cessna Conquest II (turboprop)	1,220	6		
Cessna Citation I (turbojet)	1,220	6		
McDonnell Douglas 500D (helicopter)	810	4		
Aircraft Maintenance			730	2
B-747-200	220	30		
B-767-200	220	30		
B-757-200	110	15		
B-727-200	180	25		
TOTAL			59,300	100

The day-night split for all aircraft operations are given in Table H-3. Stage lengths for air operations are given in Table H-4.

Engine runup operations were assumed to occur at the same location as in the Proposed Action as described in Section 4.4.4. The number of runup operations is given in Table H-5. 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 200 degrees. As in the Proposed Action, terminal activity would not significantly effect the noise environment and therefore is not included in the analysis.

General aviation operations would be divided into the same five types as in the Proposed Action. It was assumed that 33 percent of the single-engine general aviation operations would be touch-and-go (or closed loop) activities.

A standard 3-degree glide slope and the takeoff profiles provided by the FAA's Integrated Noise Model Database 3.9 were assumed for all aircraft.

Surface traffic data used in the modeling were developed from the project traffic study and are shown in Table H-7.

1.5 AIRCRAFT MAINTENANCE CENTER ALTERNATIVE

The Aircraft Maintenance Center Alternative for the reuse of Norton AFB would be centered around aircraft maintenance facilities with no commercial passenger service. As in the Proposed Action, the airfield would be converted to civilian use. Primary components of the aviation action include general aviation operations and maintenance operations. Aggregate mining activities would be included in this alternative.

The fleet mix and annual operations for each of the modeled years are contained in Table H-8 without the two air passenger categories. The DNL contours for the proposed flight operations and mining operations are presented in Section 4.4.4 of the main text. The proposed flight tracks modeled are the same as for the Proposed Action and are also presented in Section 4.4.4. The day-night split for all aircraft operations is given in Table H-3. Stage lengths for air operations are given in Table H-4.

Engine runup operations were assumed to occur at the same location as in the Proposed Action as described in Section 4.4.4. The number of runup operations is given in Table H-5. 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 200 degrees.

As with the Proposed Action, terminal activity was not included in the analysis because the activity would not significantly effect the noise environment.

General aviation operations would be divided into the same five types as in the Proposed Action.

It was assumed that 33 percent of the single-engine general aviation operations would be touch-and-go (or closed loop) activities.

A standard 3-degree glide slope and the takeoff profiles provided by the FAA's Integrated Noise Model Database 3.9 were assumed for all aircraft.

The number, type, and size of equipment to be used for mining operations were assumed based on information in the Final Environmental Impact Report, Pharris Preannexation Agreement (Dodson and Associates, 1991). The noise levels calculated based on equipment/processing facilities are presented in Table H-9.

This equipment was assumed to operate from 7 a.m. to 5 p.m. Noise levels for this equipment were taken from the Final Environmental Impact Report, Pharris Preannexation Agreement (Dodson and Associates, 1991).

Surface traffic data used in the modeling were developed from the project traffic study and are shown in Table H-7.

1.6 NON-AVIATION ALTERNATIVE

This alternative includes only non-aviation land uses. The airfield would be replaced with single-family residential use. Other land uses include office, industrial, commercial, and recreational lands. Surface traffic data used in the modeling were developed from the project traffic study and are presented in Table H-7.

1.7 NO-ACTION ALTERNATIVE

The No-Action Alternative would result in the Air Force retaining ownership of the property after closure. The property would not be put to further use. 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 identified for disposal. Surface traffic data used in the modeling were developed from the project traffic study and are presented in Table H-7.

Table H-9. Noise Levels for Aggregate Mining Equipment, Aircraft Maintenance Alternative

No.	Equipment Type	Sound Level at 100 ft
1	Primary Crusher	82
1	Intermediate Crusher*	85
1	Secondary Crusher	85
8	Vibrating Screens	84
1	Wash Plant (2 screens)	78
1	Caterpillar 988	72
2	Dump Trucks (operating continually)**	76

* Assumed to have the same noise level as the secondary crusher.

** Number of trucks based on number of daily trips described in Section 2.3.2 Aircraft Maintenance Center and the assumed hours of operation.

2.0 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 decibel is a dimensionless unit related to the logarithm of the ratio of the measured level to a reference level.

Because the logarithmic nature of the dB 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; while at higher frequencies, characterized as a screech or a whine, the ear is most sensitive. The A-weighted level was developed to measure and report sound levels in a way which would more closely approach how people 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 afterwards diminish to typical community levels. Both the Department of Defense and the FAA have specified the following three noise metrics to describe aviation noise.

Day-Night Average Sound Level (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 with noise from aircraft and surface traffic. The expression L_{dn} is often used in equations to designate day-night average sound level.

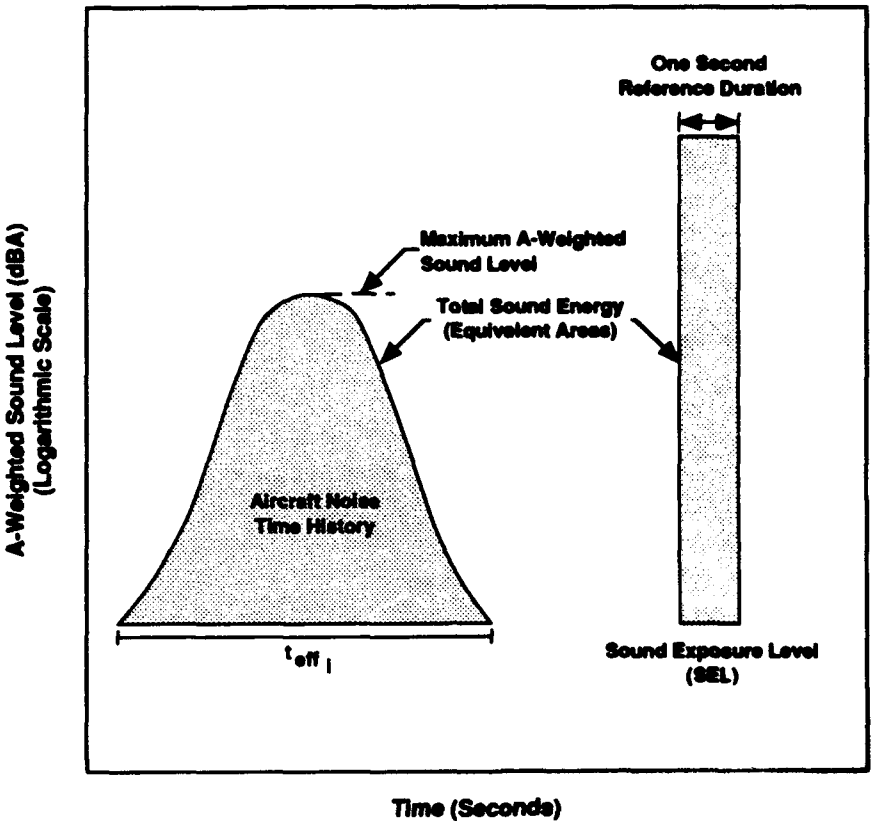
Maximum Sound Level is the highest instantaneous sound level observed during a single noise event no matter how long the sound may persist (Figure H-1).

Sound Exposure Level (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 H-1 illustrates the relationship between the maximum sound level and SEL.

3.0 NOISE MODELS

3.1 AIR TRAFFIC

The FAA-approved Noise Exposure Model (NOISEMAP), Version 6.0 (Moulton, 1990), was used to predict aircraft noise levels. The results generated from NOISEMAP are similar to the Integrated Noise Model version 3.9, developed by the FAA. 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,



Sound Exposure Level (SEL)

Figure H-1

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 roadway length to estimate traffic noise levels.

3.3 MINING OPERATION

Noise levels due to mining activity were estimated based on information in the Final Environmental Impact Report, Pharris Preannexation Agreement (Dodson and Associates, 1991). A spherical spreading model was used (i.e., a 6 dB decrease for each doubling of distance).

4.0 ASSESSMENT CRITERIA

Criteria for assessing the effects of noise include annoyance, speech interference, sleep disturbance, noise-induced hearing loss, possible nonauditory 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 is suspect when applied to small sample sizes as in the affected areas near Norton 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 or mental process with both acoustic and nonacoustic determinants (Fidell et al., 1988). 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. The level of annoyance may also be affected by many nonacoustic factors.

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 nonacoustic 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.

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:

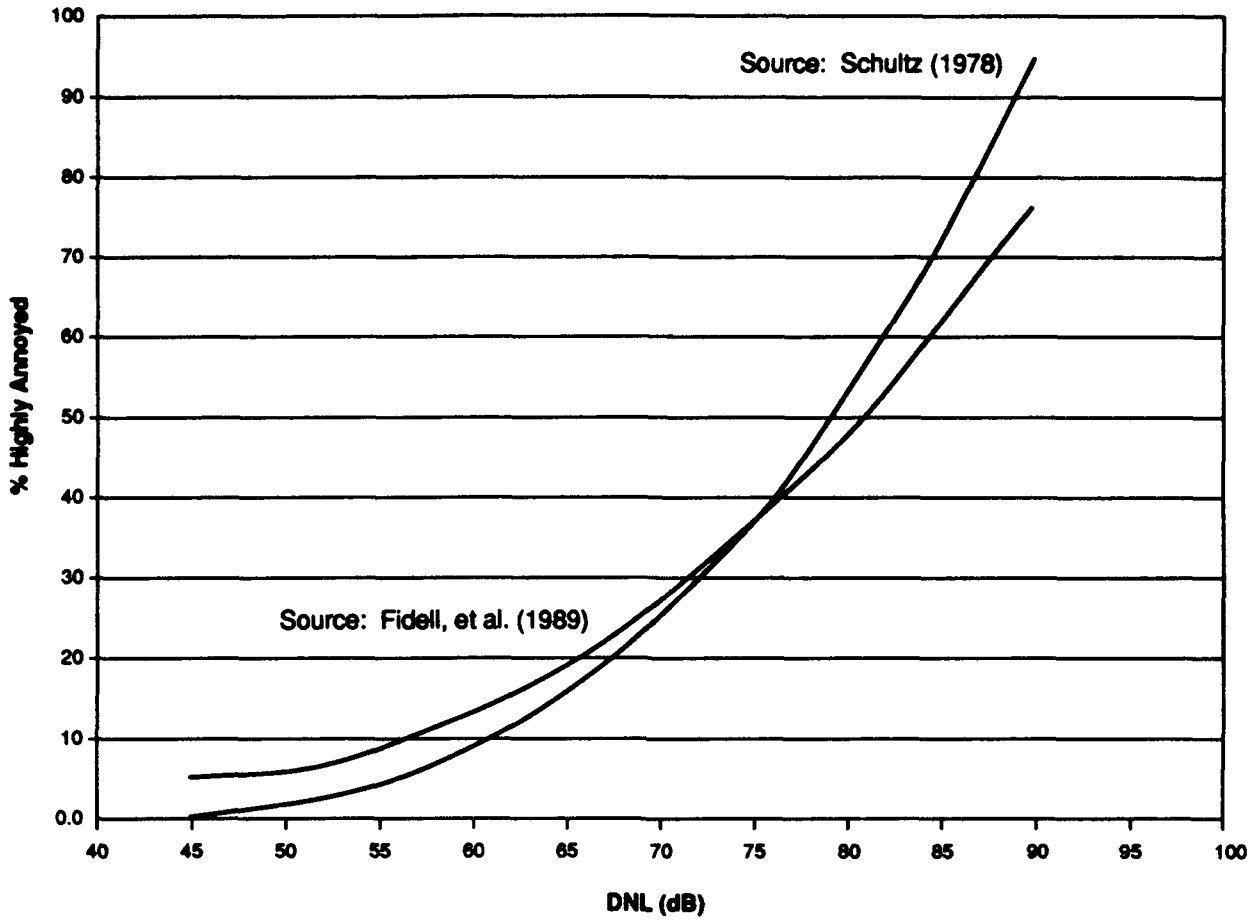
$$\%\ \textit{Highly Annoyed} = 0.8553\ DNL - 0.0401\ DNL^2 + 0.00047\ DNL^3$$

Note that this relationship should not be evaluated outside the range of DNL = 45 to 90 dB. Figure H-2 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 dB, while over 37 percent of the population would be predicted to be annoyed from DNL values greater than 75 dB. The relationship developed by Schultz was presented in the *Guidelines for Preparing Environmental Impact Statements on Noise* (National Academy of Sciences, 1977).

These results were recently reviewed (Fidell et al., 1989) and the original findings updated with results of more recent social surveys, bringing the number of data points used in defining the relationship to over 400. The findings of the new study differ only slightly from those of the original study.

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



Community Noise Annoyance Curves

Figure H-2

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 television, 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 so 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 ranges 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 included the study of steady state noise. As a result, reviews and summaries of noise effects on speech communications concentrate on continuous or at least long duration noises (Miller, 1974). However, noise intrusions are not always continuous or of long duration, but are frequently transient in nature. Transportation noise generates many such noise intrusions, consisting primarily of individual vehicle pass-bys, 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 is 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 when instantaneous flyover levels are as low as 60 dB (A-weighted). 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 noise level. Since a marked increase in pauses and masking occurs when levels exceed 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 et al., 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, masking of speech increases rapidly. However, it was also noted that pausing during flyovers and masking of speech for those teachers who continue to lecture during a flyover start at levels around 60 dB (Pearsons and Bennett, 1974).

Annoyance. Klatt, Stevens, and Williams (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 to 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, Taylor, and Birnie (1985) recently tried to relate various types of activity interference in the home, 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 level of 58 dB. This result is in agreement with the other results, considering that the speech levels in the school environment of the Cook study are higher than the levels typically used in the home. Also, in a classroom situation the teacher raises his or her voice 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 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 measured indoors. The same noises measured outdoors would be 15 to 25 dB higher than these indoor levels during summer (windows open) and winter months (windows closed), respectively. These estimates are taken from the U.S. Environmental Protection Agency reviews of available data (U.S. Environmental Protection Agency, 1974).

Levels of the aircraft noise measured inside dwellings and schools near the ends of runways at airports may exceed 60 dB inside (75 dB outside). During flyovers, speech intelligibility would be degraded. However, since the total duration is so short, no more than a few seconds during each flyover, only a few syllables may 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 as discussed below.

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., 1989) 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 nonacoustic 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., 1989).

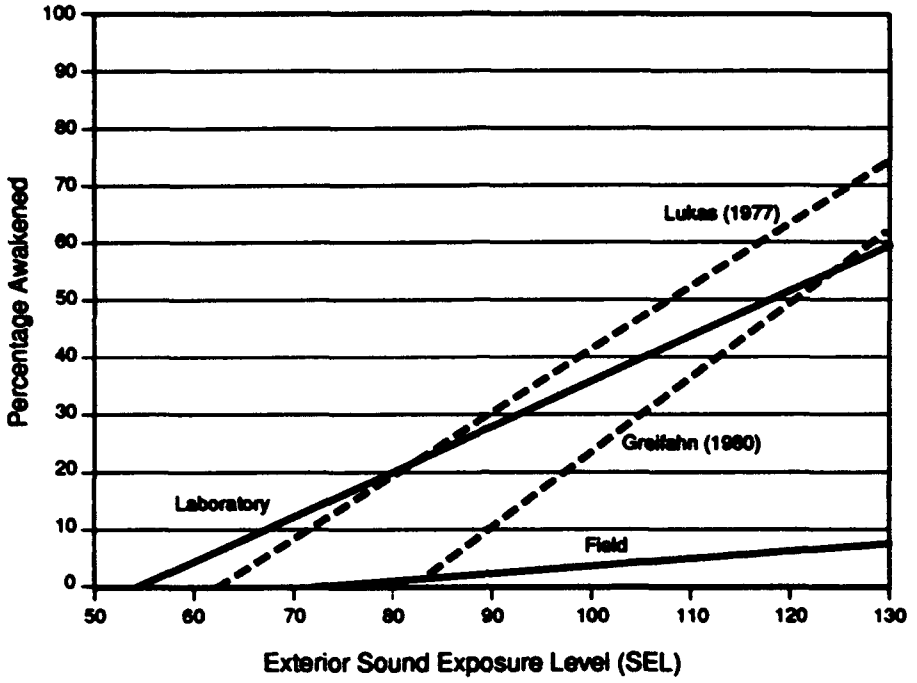
Noise must penetrate the home to disturb sleep. Interior noise levels are lower than exterior levels due to the attenuation of the sound energy by the structure. The amount of attenuation provided by the building is dependent on the type of construction and whether the windows are open or closed. The approximate national average attenuation factors are 15 dB (decibels) for open windows and 25 dB for closed windows (U.S. Environmental Protection Agency, 1974).

Incorporating these attenuation factors, the percent awakened relationships previously discussed under summer conditions are presented in Figure H-3. In conclusion, the scientific literature does not provide a consensus on sleep disturbance. There is no recognized criteria 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 individual's hearing in an 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. The 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 U.S. 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 United States and the United Kingdom have shown that the possibility for permanent hearing loss in communities near intense commercial takeoff and landing patterns is remote. An 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.



Source: Pearsons (1989)

Sleep Disruption (Awakening)

Figure H-3

4.5 NONAUDITORY HEALTH EFFECTS OF RESIDENTIAL AIRCRAFT NOISE

Based on summaries of previous research in the field (Thompson, 1981; Thompson and Fidell, 1989), predictions of nonauditory health effects of aircraft noise cannot be made. A valid predictive procedure requires: (1) evidence for causality between aircraft noise exposure and adverse nonauditory 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 nonauditory 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 two to four 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 International Airport, their findings cannot be replicated (Frerichs et al., 1980). In fact, noise exposure increased over the years while there was a decline in 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 nonauditory health effects. This observation holds for studies of occupational and traffic noise as well as aircraft noise exposure. In contrast to the early reports of two- to six-fold increases in hypertension due to high industrial noise (Thompson and Fidell, 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.

In the aggregate, studies indicate no association exists 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 millimeters of mercury [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 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 nonauditory 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 United States 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 suggests that a major source of loss was panic 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, number 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.

The recent focus on the effects on production runs counter to a trend in the literature toward 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 in the 1950s 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 television, 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:

(a) Accumulated case history experience of noise complaints and community actions near civil and military airports;

(b) 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 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 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 (American National Standards Institute, 1990). 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.

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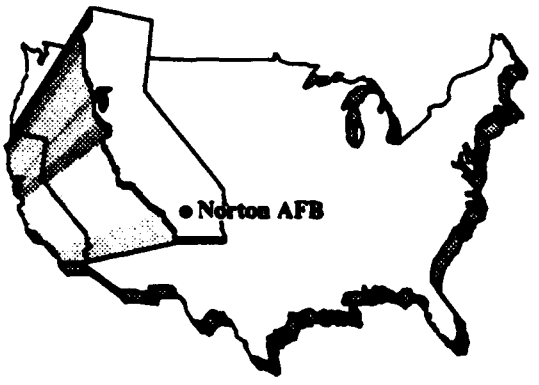

APPENDIX I

APPENDIX I

AIR QUALITY ANALYSIS METHODS

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AIR QUALITY ANALYSIS METHODS

CONSTRUCTION EMISSIONS

Construction activities would generate both combustive emissions from heavy equipment usage and fugitive dust emissions from ground disturbing activities. Fugitive dust would be generated during construction activities associated with aviation support, industrial, institutional, commercial, residential, and public/recreation land uses. These emissions would be greatest during site clearing and grading activities. Uncontrolled fugitive dust (particulate matter) emissions from ground-disturbing activities are emitted at a rate of 110 pounds per acre per day (U.S. Environmental Protection Agency, 1985). The particulate matter less than 10 microns (PM_{10}) fraction of fugitive dust emissions is assumed to be 50 percent, or 55 pounds per acre per working day.

Construction for the Proposed Action would disturb a total of approximately 624 acres over the first 10-year period of reuse. Approximately 209 and 415 acres would be disturbed during the periods from 1995-2000 and 2000-2005, respectively. Assuming that the amount of disturbed area is spread evenly throughout these periods, an average of 41.8 and 83.0 acres per year, respectively, would be disturbed during these time periods. The analysis of fugitive dust emissions from construction activities assumes that on the average there are 230 working days per year (accounting for weekends, weather, and holidays), and that half of these days (115) would be used for site preparation. Additionally, 4 acre-days of disturbance are assumed per acre, which represents the area and duration of disturbing activities for each acre. Thus, for the Proposed Action years 1995-2000, the amount of PM_{10} emissions are calculated as follows:

Average daily disturbed acreage:

$$\frac{41.8 \text{ acres disturbed}}{\text{year}} \times \frac{4 \text{ acre-days of disturbance}}{\text{acre}} \times \frac{1 \text{ year}}{115 \text{ days}} = 1.45 \text{ acres}$$

Average daily PM_{10} emissions:

$$1.45 \text{ acres} \times \frac{55 \text{ pounds } PM_{10}}{\text{acre-day}} = \frac{80 \text{ pounds } PM_{10}}{\text{day}}$$

Therefore, the amount of PM_{10} emitted would be 80 pounds per day (0.04 ton per day) for 1995-2000. Similarly, 159 pounds per day (0.08 ton per day) would be emitted in 2000-2005. These emissions would produce

elevated short-term PM_{10} concentrations, would be temporary, and would fall off rapidly with distance from the source. Similar calculations for fugitive dust emissions were performed for construction activities related to other alternatives.

Due to a lack of specific information on the level of construction that would occur during redevelopment, construction combustive emissions were estimated by the per-capita approach described in the Other Reuse Emissions section of this Appendix. Since it was not feasible to separate construction emissions from the non-road mobile source category identified in the South Coast Air Basin (SCAB) emission inventory, construction combustive emissions are included in the overall other reuse per-capita emission factors derived for each reuse alternative.

AIRCRAFT OPERATIONS EMISSIONS

Emissions for the following aircraft activities were calculated from fleet mix and operational information inherent to each project scenario: touch and go, airplane queuing, takeoff and landings, and engine run-ups. All aircraft emissions were calculated with the Emissions and Dispersion Modeling System (EDMS) model (Segal, 1991), which contains a built-in data base of U.S. Environmental Protection Agency (U.S. EPA) AP-42 emission factors for various types of aircraft. EDMS was then used to calculate downwind pollutant concentrations that would occur from aircraft operations associated with each alternative.

OTHER REUSE EMISSIONS

Other reuse emission increases/decreases over preclosure or closure baselines were calculated considering the emissions associated with the change in SCAB population over what would have occurred under preclosure or closure conditions. The emission increases/decreases associated with the change of population within the SCAB are added to the increase/decrease associated with aircraft operations and to the increase in fugitive dust emissions associated with construction activities (as described in the sections above) to determine the total increase/decrease that would occur in the SCAB compared to preclosure and closure conditions. The following is a presentation of the methods used to calculate the "other reuse emissions."

To calculate the "other reuse emissions" (i.e., all emissions with the exception of construction fugitive dust and aircraft emissions), a per-capita approach was used. Other reuse emissions include emissions from point, area, non-road mobile, and on-road mobile sources associated with both direct and indirect population changes that would be affected in the SCAB as a result of the reuse action. Data used in the calculations include population data and SCAB emissions of reactive organic gases (ROG), nitrogen oxides (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), and PM_{10}

for the baseline year (1987), and projections for future years (1994, 1997, 2000, and 2010). All data were obtained from the South Coast Air Quality Management District's (SCAQMD) *Final 1991 Air Quality Management Plan* (AQMP) (SCAQMD, 1991). Data used to calculate emission increases for future reuse alternative conditions in the year 2005 were interpolated from these data. The 1987 base year inventory data for the SCAB are presented in Table I-1. Projections for future years are presented in Tables I-2 through I-6 for the pollutants ROG, NO_x, CO, SO_x, and PM_{10}, respectively.

Table I-1. 1987 Base Year Emissions for the South Coast Air Basin - Average Annual Day (tons/day)

Source Category	ROG	NO_x	CO	SO_x	PM_{10}
Stationary Sources					
Fuel combustion	16.80	266.77	77.74	23.22	14.10
Waste burning	1.05	1.64	3.07	0.46	1.25
Solvent use	463.83	0.26	0.01	0.00	1.49
Petroleum process, storage, and transfer	106.63	9.11	6.38	19.34	2.95
Industrial processes	41.09	11.68	6.76	7.60	44.46
Miscellaneous processes	57.52	0.73	5.53	0.08	941.78
Subtotal	686.92	290.19	99.49	50.70	1,006.03
Mobile Sources					
On-road vehicles	604.55	664.16	4,363.25	31.61	53.24
Other mobile	83.88	253.73	525.06	52.02	16.26
Subtotal	688.43	917.89	4,888.31	83.63	69.50
Total	1,375.35	1,208.08	4,987.80	134.33	1,075.53

Source: SCAQMD, 1991.

The emission inventory projections in Tables I-2 through I-6 reflect only: (1) reductions in emissions as a result of controls expected after implementation of SCAQMD and California Air Resources Board (CARB) rules adopted prior to June 30, 1990; and (2) increases in emissions associated with demographic growth factors for various emission source categories expected between the base year and the future forecast years. Additional control measures have been proposed by the SCAQMD in order to comply with the mandates of the California Clean Air Act (CCAA), which require the SCAQMD to apply all feasible measures to attain the state standards as expeditiously as possible (see the "Mandates of the California and Federal Clean Air Acts" section of this appendix). These proposed control measures

Table I-2. South Coast Air Basin Average Annual Day ROG Emission Projections (tons/day)

Source Category	1994	1997	2000	2010
Stationary Sources				
Fuel combustion	18	18	18	21
Waste burning	1	1	1	1
Solvent use	392	391	396	419
Petroleum process, storage, and transfer	88	89	90	93
Industrial processes	41	42	42	42
Miscellaneous processes	64	66	68	83
Subtotal	604	607	615	659
Mobile Sources				
On-road vehicles	367	318	293	296
Other mobile	91	94	98	110
Subtotal	458	412	391	406
Total	1,062	1,019	1,006	1,065

Source: SCAQMD, 1991.

Table I-3. South Coast Air Basin Average Annual Day NO_x Emission Projections (tons/day)

Source Category	1994	1997	2000	2010
Stationary Sources				
Fuel combustion	219	180	172	183
Waste burning	2	2	2	2
Solvent use	0	0	0	0
Petroleum process, storage, and transfer	7	7	7	7
Industrial processes	10	10	10	10
Miscellaneous processes	1	1	1	1
Subtotal	239	200	192	203
Mobile Sources				
On-road vehicles	479	448	450	494
Other mobile	260	268	276	300
Subtotal	739	716	726	794
Total	978	916	918	997

Source: SCAQMD, 1991.

Table I-4. South Coast Air Basin Average Annual Day CO Emission Projections (tons/day)

Source Category	1994	1997	2000	2010
Stationary Sources				
Fuel combustion	92	97	101	107
Waste burning	4	4	4	6
Solvent use	0	0	0	0
Petroleum process, storage, and transfer	7	7	7	7
Industrial processes	7	7	7	7
Miscellaneous processes	6	6	7	8
Subtotal	116	121	126	135
Mobile Sources				
On-road vehicles	3,120	2,682	2,337	1,831
Other mobile	606	638	655	752
Subtotal	3,726	3,320	2,992	2,583
Total	3,842	3,441	3,118	2,718

Source: SCAQMD, 1991.

Table I-5. South Coast Air Basin Average Annual Day SO_x Emission Projections (tons/day)

Source Category	1994	1997	2000	2010
Stationary Sources				
Fuel combustion	14	16	17	14
Waste burning	0	0	0	0
Solvent use	0	0	0	0
Petroleum process, storage, and transfer	20	20	20	20
Industrial processes	7	6	7	6
Miscellaneous processes	0	0	0	0
Subtotal	41	42	44	40
Mobile Sources				
On-road vehicles	28	25	26	29
Other mobile	55	57	57	61
Subtotal	83	82	83	90
Total	124	124	127	130

Source: SCAQMD, 1991.

Table I-6. South Coast Air Basin Average Annual Day PM_{10} Emission Projections (tons/day)

Source Category	1994	1997	2000	2010
Stationary Sources				
Fuel combustion	16	17	17	20
Waste burning	1	1	1	2
Solvent use	2	2	2	2
Petroleum process, storage, and transfer	3	3	3	3
Industrial processes	47	47	47	48
Miscellaneous processes	1,130	1,210	1,291	1,424
Subtotal	1,199	1,280	1,361	1,499
Mobile Sources				
On-road vehicles	47	47	49	56
Other mobile	15	16	17	18
Subtotal	62	63	66	74
Total	1,261	1,343	1,427	1,573

Source: SCAQMD, 1991.

contained in the *Final 1991* AQMP are categorized into three tiers, depending upon their readiness for implementation as follows:

> Tier I - Full implementation of known technological applications and effective management practices. Adoption and implementation within the next few years.
>
> Tier II - Significant advancement of today's technological applications and vigorous regulatory intervention required. Adoption and implementation within the next 10 to 15 years.
>
> Tier III - Development of new technology required. Development, adoption, and implementation within the next 20 years.

Emission projections for future years which account for the Tier I, II, and III control measures are contained in Table I-7. Since the SCAQMD emission inventory projections in Tables I-2 through I-6 do not account for any emissions associated with Norton AFB (i.e., the assumption was made by the SCAQMD that all Norton AFB emissions would be eliminated at the time of base closure), the emission projections in Table I-7 were further adjusted to include the emissions from 14 C-141 aircraft that would be transferred from Norton AFB to March AFB at the time of closure and, therefore, remain in the SCAB. The emissions associated with these 14 aircraft are as

Table I-7. SCAB Emission Projections After Accounting for Tier I, II, and III Emission Reductions (tons/day)

Year	ROG	NO_x	CO	SO_x	PM_{10}
1987[a]	1,375	1,208	4,988	134	1,076
1988[b]	1,298	1,165	4,702	130	1,065
1990[b]	1,145	1,079	4,132	123	1,046
1994[c]	839	906	2,992	109	1,008
1995[b]	802	854	2,859	105	999
1996[b]	765	801	2,726	102	989
1997[c]	729	749	2,593	98	980
1999[b]	545	660	2,360	91	961
2000[c]	454	616	2,244	87	951
2002[b]	399	568	2,058	80	932
2005[b]	316	495	1,781	69	904
2008[b]	234	422	1,503	58	875
2010[d]	179	374	1,318	51	856

Notes: (a) Source: Table 3-1 of Final 1991 AQMP. (SCAQMD, 1991).
(b) Values interpolated.
(c) Values calculated based on percent reduction from Table 6-1 of Final 1991 AQMP (SCAQMD, 1991).
(d) Source: Table 4-1 of Final 1991 AQMP. (SCAQMD, 1991).

follows: ROG = 0.12 tons/day, NO_x = 0.06 tons/day, CO = 0.17 tons/day, SO_x = 0.006 tons/day, and PM_{10} = 0.007 tons/day.

The SCAB emissions contained in Table I-7 were divided by the SCAB population for the year of interest to derive basinwide per-capita emission factors that are assumed to be applicable to reuse-related changes in population. (Population data for the basin are contained in Table I-8. The per-capita factors are provided in Table I-9.) These per-capita factors were then multiplied by the change in SCAB population associated with each reuse alternative to generate the change in SCAB emissions that would be associated with other reuse emissions. The population in-migration estimates for the Norton AFB reuse alternatives are presented in Table I-10. These estimates represent new population over the base closure levels which would be attracted to the SCAB as a result of the reuse actions. Each alternative would have differing amounts of in-migrant population depending upon the activities associated with the alternative, as shown in Table I-10.

The other reuse emissions of ROG, NO_x, CO, SO_x, and PM_{10} for each reuse alternative are presented in Table I-11. Emissions from other categories,

Table I-8. Population Information for the South Coast Air Basin

Year	Population [a]	Population [b]
1987	12,007,585	NA
1995	NA	13,415,320
2000	14,295,154	NA
2005	NA	15,002,092
2010	15,709,029	NA

Notes:
(a) Values from Appendix III-B (Future Baseline Emissions for the South Coast Air Basin: Average Annual Day) (SCAQMD, 1991).
(b) Assumes straight-line increase in population for years between projection years.
NA = Not applicable.

Table I-9. Per-Capita Emission Factors for the South Coast Air Basin (tons/day-person)

Year	ROG	NO_x	CO	SO_x	PM_{10}
1995	0.00006680	0.00007109	0.00023808	0.00000876	0.00008318
2000	0.00003174	0.00004310	0.00015695	0.00000609	0.00006654
2005	0.00002109	0.00003300	0.00011870	0.00000460	0.00006023
2010	0.00001139	0.00002381	0.00008390	0.00000325	0.00005449

Table I-10. Population In-Migration[a] Associated with Reuse Alternatives (Closure Baseline)

Alternative	2000	2005	2010
Proposed Action	7,220	19,002	27,309
Airport with Mixed Use	8,956	18,043	22,789
Aircraft Maintenance Center	8,571	16,248	18,169
Non-Aviation	7,532	14,531	19,267

Note: (a) Population numbers represent the number of reuse-related in-migrants to the SCAB compared to the number of people who would be associated with the base under closure conditions.

Table I-11. In-Migrant Population Emissions (Other Reuse Emissions) Associated with Reuse Alternatives - Closure Baseline[a] (tons/day)

Alternative	Year	ROG	NO_x	CO	SO_x	PM_{10}
Proposed Action	2000	0.229	0.311	1.133	0.044	0.480
	2005	0.401	0.627	2.256	0.087	1.145
	2010	0.311	0.650	2.291	0.089	1.488
Airport with Mixed Use	2000	0.284	0.386	1.406	0.055	0.596
	2005	0.381	0.595	2.142	0.083	1.087
	2010	0.260	0.543	1.912	0.074	1.242
Aircraft Maintenance Center	2000	0.272	0.369	1.345	0.052	0.570
	2005	0.343	0.536	1.929	0.075	0.979
	2010	0.207	0.433	1.524	0.059	0.990
Non-Aviation	2000	0.239	0.325	1.182	0.046	0.501
	2005	0.306	0.479	1.725	0.067	0.875
	2010	0.220	0.459	1.617	0.063	1.050

Note: (a) Emissions in this table represent increases which would occur in the SCAB as the result of population in-migration associated with the reuse alternatives. Population in-migration is determined by comparing to the SCAB population which would have occurred under base closure conditions.

which must be added to the other reuse emissions in order to determine the total emission increases/decreases in the SCAB associated with each alternative include, the change in aircraft operation emissions, construction dust emissions, and, in the case of the Aircraft Maintenance Center Alternative, mining operation emissions. These other emission source totals are contained in Table I-12.

The mining operation emissions were calculated based on emission rates and production rates from a similar operation at the Pharris Aggregate Plant, as contained in the Pharris Preannexation Agreement EIR (Tom Dodson and Associates, 1991). It was assumed that 15 percent of the land in the aggregate mining area proposed for the Aircraft Maintenance Center Alternative would be used for facilities and that 1 acre of land could produce 0.169 million ton of aggregate. Based on these assumptions, and a production rate of 1 million tons per year, the Aircraft Maintenance Center Alternative could produce aggregate with pollutant emission levels as shown in Table I-12 for over 20 years.

Total emission increases in the SCAB from all activities associated with the various reuse alternatives are summarized in Tables I-13 through I-17 for the

Table I-12. Aircraft Operation, Aggregate Mining, and Fugitive Dust Emissions which Apply to Reuse Alternatives (tons/day)

Alternative	Year	ROG	NO_x	CO	SO_x	PM_{10}
Aircraft Operations [a]						
Preclosure	1990	0.431	0.249	0.642	0.025	0.027
Proposed Action	2000	0.057	0.176	0.873	0.016	0.005
	2005	0.079	0.349	1.057	0.031	0.008
	2010	0.084	0.402	1.137	0.036	0.007
Airport with Mixed Use	2000	0.061	0.192	0.886	0.017	0.006
	2005	0.067	0.308	1.001	0.027	0.008
	2010	0.072	0.390	1.101	0.035	0.006
Aircraft Maintenance Center	2000	0.023	0.041	0.717	0.003	0.002
	2005	0.027	0.053	0.781	0.004	0.003
	2010	0.029	0.057	0.808	0.004	0.003
Mining Operations [b]						
Aircraft Maintenance Center	2000	0.003	0.038	0.012	0.004	0.046
	2005	0.003	0.038	0.012	0.004	0.046
	2010	0.003	0.038	0.012	0.004	0.046
Fugitive Dust [c]						
Proposed Action	2000	NA	NA	NA	NA	0.040
	2005	NA	NA	NA	NA	0.079
	2010	NA	NA	NA	NA	0.018
Airport with Mixed Use	2000	NA	NA	NA	NA	0.050
	2005	NA	NA	NA	NA	0.051
	2010	NA	NA	NA	NA	0.012
Aircraft Maintenance Center	2000	NA	NA	NA	NA	0.054
	2005	NA	NA	NA	NA	0.053
	2010	NA	NA	NA	NA	0.021
Non-Aviation	2000	NA	NA	NA	NA	0.091
	2005	NA	NA	NA	NA	0.096
	2010	NA	NA	NA	NA	0.056

Notes: (a) Aircraft operation emissions are predicted by the EDMS model (Segal, 1991) based on estimated frequency of flight operations for each type of aircraft associated with the particular reuse alternative.

(b) Mining operation emissions are based on production rate information contained in the "Environmental Impact Report Pharris Preannexation Agreement" (Tom Dodson and Associates, 1991).

(c) Fugitive dust emissions are calculated based on the amount of surface area disturbed.

Table I-13. Norton AFB - Reuse-Related Emission Increases in the SCAB for Reactive Organic Compounds Compared to Closure Baseline (tons/day)

	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
Source	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	0.057	0.079	0.084	0.061	0.067	0.072	0.023	0.027	0.029	NA	NA	NA
Construction Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mining Operations	NA	NA	NA	NA	NA	NA	0.003	0.003	0.003	NA	NA	NA
Other Reuse Emissions	0.229	0.401	0.311	0.284	0.381	0.260	0.272	0.343	0.207	0.239	0.306	0.220
Total	0.286	0.480	0.395	0.345	0.448	0.331	0.298	0.373	0.239	0.239	0.306	0.220

Table I-14. Norton AFB - Reuse-Related Emission Increases in the SCAB for Oxides of Nitrogen Compared to Closure Baseline (tons/day)

	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
Source	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	0.176	0.349	0.402	0.192	0.308	0.390	0.041	0.053	0.057	NA	NA	NA
Construction Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mining Operations	NA	NA	NA	NA	NA	NA	0.038	0.038	0.038	NA	NA	NA
Other Reuse Emissions	0.311	0.627	0.650	0.386	0.595	0.543	0.369	0.536	0.433	0.325	0.479	0.459
Total	0.487	0.976	1.052	0.578	0.903	0.933	0.448	0.627	0.527	0.325	0.479	0.459

Table I-15. Norton AFB - Reuse-Related Emission Increases in the SCAB for Carbon Monoxide Compared to Closure Baseline (tons/day)

	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
Source	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	0.873	1.057	1.137	0.886	1.001	1.101	0.717	0.781	0.808	NA	NA	NA
Construction Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mining Operations	NA	NA	NA	NA	NA	NA	0.012	0.012	0.012	NA	NA	NA
Other Reuse Emissions	1.133	2.256	2.291	1.406	2.142	1.912	1.345	1.929	1.524	1.182	1.725	1.617
Total	2.006	3.313	3.428	2.292	3.143	3.013	2.074	2.722	2.344	1.182	1.725	1.617

Table I-16. Norton AFB - Reuse-Related Emission Increases in the SCAB for Sulfur Dioxide Compared to Closure Baseline (tons/day)

	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
Source	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	0.016	0.031	0.036	0.017	0.027	0.035	0.003	0.004	0.004	NA	NA	NA
Construction Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mining Operations	NA	NA	NA	NA	NA	NA	0.004	0.004	0.004	NA	NA	NA
Other Reuse Emissions	0.044	0.087	0.089	0.055	0.083	0.074	0.052	0.075	0.059	0.046	0.067	0.063
Total	0.060	0.118	0.124	0.072	0.110	0.108	0.059	0.083	0.067	0.046	0.067	0.063

Table I-17. Norton AFB - Reuse-Related Emission Increases in the SCAB for Particulate Matter Compared to Closure Baseline (tons/day)

	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
Source	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	0.005	0.008	0.007	0.006	0.008	0.006	0.002	0.003	0.003	NA	NA	NA
Construction Dust	0.040	0.079	0.018	0.050	0.051	0.012	0.054	0.053	0.021	0.091	0.096	0.056
Mining Operations	NA	NA	NA	NA	NA	NA	0.046	0.046	0.046	NA	NA	NA
Other Reuse Emissions	0.480	1.145	1.488	0.596	1.087	1.242	0.570	0.979	0.990	0.501	0.875	1.050
Total	0.525	1.232	1.512	0.652	1.145	1.260	0.673	1.080	1.060	0.592	0.972	1.106

pollutants ROG, NO_x, CO, SO_x, and PM_{10}, respectively. The emissions in these tables are the increases in the SCAB which would be expected over the base closure conditions. A similar process as described above was performed in order to determine the emission increases/decreases that would be expected in relation to preclosure conditions. The population in- and out-migration counts that would occur in relation to preclosure conditions are contained in Table I-18. The other reuse emission increases/ decreases in the SCAB associated with the reuse alternatives are provided in Table I-19, and the total emission increases/decreases from all reuse-related activities are summarized in Tables I-20 through I-24. These emission increases/decreases compared to what would have occurred under preclosure conditions are used to estimate the potential interference with state and federal efforts to achieve and/or maintain attainment of the ambient air quality standards.

Table I-18. Population In-/Out-Migration[a] Associated with Reuse Alternatives (Preclosure Baseline)

Alternative	2000	2005	2010
Proposed Action	-10,991	791	9,098
Airport with Mixed Use	-9,255	-168	4,578
Aircraft Maintenance Center	-9,640	-1,963	-42
Non-Aviation	-10,679	-3,680	1,056

Note: (a) Population numbers represent the number of reuse-related in- or out-migrants to the SCAB compared to the number of people who would have been associated with the base under levels of activity similar to preclosure conditions.

MANDATES OF THE CALIFORNIA AND FEDERAL CLEAN AIR ACTS

The CCAA requires that areas in nonattainment of the state ozone (O_3), nitrogen dioxide (NO_2), CO, or sulfur dioxide (SO_2) standards adopt a plan that will lead to the attainment of these standards by the earliest practical date. Since the SCAB is in nonattainment of the state O_3, NO_2, and CO standards, the SCAQMD is required to reduce emissions of ROG, NO_x, and CO by 5 percent annually from the 1987 basin inventory until the standard is attained, or, failing this, implement all feasible emission control measures possible. (The SCAB is also in nonattainment of the state PM_{10} standards. However, PM_{10} is not specifically addressed in the CCAA.)

The mandates of the Federal Clean Air Act Amendments (CAAA) also apply to the SCAQMD, and require areas in nonattainment of the federal standards to reduce basinwide emissions by 15 percent over a 6-year period (ending in November 15, 1996), and by 3 percent per year thereafter. Since the

Table I-19. In-/Out-Migrant Population Emissions (Other Reuse Emissions) Associated with Reuse Alternatives - Preclosure Baseline[a] (tons/day)

Alternative	Year	ROG	NO_x	CO	SO_x	PM_{10}
Proposed Action	2000	-0.349	-0.474	-1.725	-0.067	-0.731
	2005	0.017	0.026	0.094	0.004	0.048
	2010	0.104	0.217	0.763	0.030	0.496
Airport with Mixed Use	2000	-0.294	-0.399	-1.453	-0.056	-0.616
	2005	-0.004	-0.006	-0.020	-0.001	-0.010
	2010	0.052	0.109	0.384	0.015	0.249
Aircraft Maintenance Center	2000	-0.306	-0.415	-1.513	-0.059	-0.641
	2005	-0.041	-0.065	-0.233	-0.009	-0.118
	2010	0.000	-0.001	-0.004	0.000	-0.002
Non-Aviation	2000	-0.339	-0.460	-1.676	-0.065	-0.711
	2005	-0.078	-0.121	-0.437	-0.017	-0.222
	2010	0.012	0.025	0.089	0.003	0.058

Note: (a) Emissions in this table represent increases or decreases which would occur in the SCAB as the result of population in- or out-migration associated with the reuse alternatives. Population migration in or out of the basin is determined by comparing to the SCAB population which would have occurred under activity levels similar to preclosure conditions.

requirements of the CCAA are more stringent than the requirements of the CAAA, the regulatory focus in California has shifted towards compliance with the CCAA. Ozone emission reductions in the form of ROG and NO_x control measures are included in the SCAQMD's 1991 AQMP. Control measures for CO, PM_{10}, and SO_x (as a precursor to particulate formation) are also included. However, the AQMP does not meet the annual 5 percent emission reduction requirements of the CCAA. Instead, the AQMP identifies all feasible emission control measures to reduce basinwide O_3, NO_2, and CO levels. Once approved by the CARB, the AQMP control measures will be included in the California State Implementation Plan (SIP).

COMPARISON OF AQMP MILESTONES WITH FEDERAL MILESTONES

The primary purpose of the AQPMP is to reduce ROG, NO_x, CO, and PM_{10} emissions to reach attainment of the state standards within the SCAB. Since the state standards are at least as stringent or more stringent than the federal standards, attainment of the state standards will also result in attainment of the federal standards. The reuse proponents would implement all SIP emission reduction measures and future levels of ROG, NO_x, CO, and

Table I-20. Norton AFB - Reuse-Related Emission Increases in the SCAB for Reactive Organic Compounds Compared to Preclosure Baseline (tons/day)

	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
Source	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	-0.374	-0.352	-0.348	-0.370	-0.364	-0.360	-0.408	-0.404	-0.402	-0.431	-0.431	-0.431
Construction Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mining Operations	NA	NA	NA	NA	NA	NA	0.003	0.003	0.003	NA	NA	NA
Other Reuse Emissions	-0.349	0.017	0.104	-0.294	-0.004	0.052	-0.306	-0.041	0.000	-0.339	-0.078	0.012
Total	-0.723	-0.335	-0.244	-0.664	-0.368	-0.307	-0.711	-0.442	-0.399	-0.770	-0.509	-0.419

Table I-21. Norton AFB - Reuse-Related Emission Increases in the SCAB for Oxides of Nitrogen Compared to Preclosure Baseline (tons/day)

	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
Source	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	-0.073	0.100	0.153	-0.057	0.059	0.141	-0.208	-0.196	-0.193	-0.249	-0.249	-0.249
Construction Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mining Operations	NA	NA	NA	NA	NA	NA	0.038	0.038	0.038	NA	NA	NA
Other Reuse Emissions	-0.474	0.026	0.217	-0.399	-0.006	0.109	-0.415	-0.065	-0.001	-0.460	-0.121	0.025
Total	-0.547	0.126	0.370	-0.456	0.053	0.250	-0.585	-0.223	-0.155	-0.709	-0.370	-0.224

Table I-22. Norton AFB - Reuse-Related Emission Increases in the SCAB for Carbon Monoxide Compared to Preclosure Baseline (tons/day)

	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
Source	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	0.231	0.415	0.494	0.244	0.359	0.459	0.075	0.139	0.166	-0.642	-0.642	-0.642
Construction Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mining Operations	NA	NA	NA	NA	NA	NA	0.012	0.012	0.012	NA	NA	NA
Other Reuse Emissions	-1.725	0.094	0.763	-1.453	-0.020	0.384	-1.513	-0.233	-0.004	-1.676	-0.437	0.089
Total	-1.494	0.509	1.258	-1.209	0.339	0.843	-1.426	-0.082	0.174	-2.318	-1.079	-0.553

Table I-23. Norton AFB - Reuse-Related Emission Increases in the SCAB for Sulfur Dioxide Compared to Preclosure Baseline (tons/day)

	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
Source	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	-0.009	0.006	0.011	-0.008	0.002	0.010	-0.022	-0.021	-0.021	-0.025	-0.025	-0.025
Construction Dust	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mining Operations	NA	NA	NA	NA	NA	NA	0.004	0.004	0.004	NA	NA	NA
Other Reuse Emissions	-0.067	0.004	0.030	-0.056	-0.001	0.015	-0.059	-0.009	0.000	-0.065	-0.017	0.003
Total	-0.076	0.010	0.040	-0.064	0.001	0.024	-0.077	-0.026	-0.017	-0.090	-0.042	-0.022

Table I-24. Norton AFB - Reuse-Related Emission Increases in the SCAB for Particulate Matter Compared to Preclosure Baseline (tons/day)

Source	Proposed Action			Airport with Mixed Use			Aircraft Maintenance Center			Non-Aviation		
	2000	2005	2010	2000	2005	2010	2000	2005	2010	2000	2005	2010
Aircraft Operations	-0.022	-0.019	-0.021	-0.021	-0.019	-0.021	-0.025	-0.024	-0.024	-0.027	-0.027	-0.027
Construction Dust	0.040	0.079	0.018	0.050	0.051	0.012	0.054	0.053	0.021	0.091	0.096	0.056
Mining Operations	NA	NA	NA	NA	NA	NA	0.046	0.046	0.046	NA	NA	NA
Other Reuse Emissions	-0.731	0.048	0.496	-0.616	-0.010	0.249	-0.641	-0.118	-0.002	-0.711	-0.222	0.058
Total	-0.713	0.108	0.493	-0.587	0.022	0.241	-0.566	-0.043	0.041	-0.647	-0.152	0.086

Table I-25. Comparison of AQMP Emission Reductions with Milestone Emission Reductions Required by the Federal Clean Air Act Amendments of 1990 (tons/day)

	Ozone				
	ROG	NO_x	NO_2	CO	PM_{10}
AQMP Projections [a]					
1990 SCAB Emission Projection	1,145	1,079	1,079	4,132	1,046
1996 SCAB Emission Projection	765	801	801	2,726	989
1999 SCAB Emission Projection	545	660	660	2,360	961
2002 SCAB Emission Projection	399	568	568	2,058	932
2005 SCAB Emission Projection	316	495	495	1,781	904
2008 SCAB Emission Projection	234	422	422	1,503	875
Reduction Required by CAA at [b]					
Milestone Year 1 (1996)	172	162	162	620	157
Milestone Year 2 (1999)	275	259	259	992	251
Milestone Year 3 (2002)	378	356	--[c]	--[c]	345
Milestone Year 4 (2005)	481	453	--[c]	--[c]	439
Milestone Year 5 (2008)	584	550	--[c]	--[c]	--[d]
Actual SCAB Emission Reductions at [e]					
Milestone Year 1 (1996)	380	277	277	1,406	57
Milestone Year 2 (1999)	600	418	418	1,772	85
Milestone Year 3 (2002)	746	511	--[c]	--[c]	114
Milestone Year 4 (2005)	829	584	--[c]	--[c]	142
Milestone Year 5 (2008)	911	656	--[c]	--[c]	--[d]

Notes: (a) Projections are from Table I-7.
(b) A 15-percent reduction is required in the period from 1990-1996. A 9-percent reduction is required in each 3-year period thereafter.
(c) Attainment projected in year 2000 (SCAQMD, 1991).
(d) Attainment projected in year 2006 (SCAQMD, 1991).
(e) Values are equal to the difference between the milestone year and the year 1990 emissions.

PM_{10} emissions would be reduced, or increased only slightly, from current (preclosure) levels. Since the AQMP is designed to attain the more stringent state standards, milestone emission reductions required by the federal CAAA will be exceeded for all pollutants with the exception of PM_{10} (see Table I-25). The reuse alternatives will not delay attainment of federal standards or interim milestones for O_3, NO_2, or CO. Attainment of the federal PM_{10} standards is projected to occur in the year 2006 (SCAQMD, 1991). The small PM_{10} emission increases associated with the reuse alternatives would cause some delay in the schedule for attainment unless the emissions are successfully mitigated and offset.

SIP CONTROL MEASURES APPLICABLE TO THE REUSE ALTERNATIVES

The AQMP identifies numerous emission control strategies that target both stationary (point and area) sources and mobile sources. Upon approval, these control measure will be included in the SIP. Although the types and number of emission sources that will be developed in relation to the various reuse alternatives are not known, the following are some of the stationary source categories that could be present and would be affected by specific control measures (SCAQMD, 1991).

- Wood flatstock coatings
- Paper, fabric, and film coatings
- Architectural coatings
- Metal cleaning and degreasing
- Dry cleaners - perchloroethylene solvents
- Electronic components manufacturing
- Petroleum bulk terminals
- Residential and commercial water/space heater
- Swimming pool water heating
- Rubber products manufacturing
- Woodworking operations
- Small boilers and process heaters
- Metal melting furnaces
- Curing and drying ovens
- Glass melting furnaces
- Cement kilns
- Gasoline transfer/dispensing operations
- Commercial charbroiling facilities
- Deep fat frying operations

The AQMP also identifies the following mobile, transportation, land use, and energy conservation control measures that would be implemented to reduce emissions:

- Zero-emission urban buses
- Low-emission new fleet vehicles

- Inspection and maintenance program enhancements
- Control of emissions from jet aircraft
- Alternative work schedules and locations
- Employer rideshare and transit incentives
- Traffic flow improvements
- Auto use restrictions
- Parking management
- Goods movement management
- Rail consolidation to reduce grade crossings
- Freeway and highway capacity enhancements
- Increased thermal integrity of homes and buildings
- Increased efficiency of space conditioning equipment
- Energy conservation practices
- Waste recycling

In contrast to the above specificity of the measures that will be included in the SIP, the land uses that would be a part of the proposed reuse alternatives are defined only in very general terms. These land uses include the following:

- Airport with aviation support
- Industrial
- Institutional (medical and educational)
- Commercial
- Residential
- Recreational

Specific businesses (i.e., specific emission source types) within these general land uses are not defined for the proposed reuse alternatives. Therefore, it is not possible to determine at this time which specific SIP control measures would apply; however, many could potentially apply, depending on the specific land uses (i.e., business types) associated with the eventual reuse alternative. Whatever land uses are eventually selected for the reuse of Norton AFB, the new emission sources would need to comply with all applicable control measures contained in the SIP at that time.

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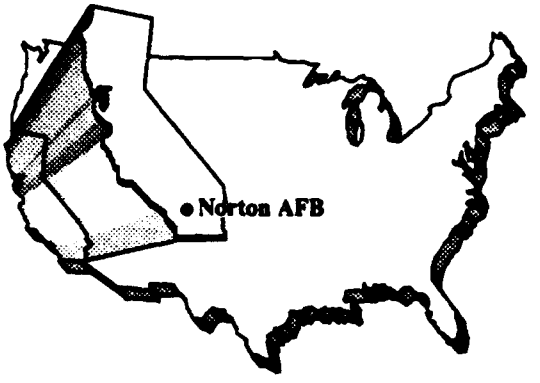

APPENDIX J

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THREATENED, ENDANGERED, AND OTHER SPECIES OF CONCERN OCCURRING ON OR NEAR NORTON AIR FORCE BASE

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THREATENED, ENDANGERED, AND OTHER SPECIES OF CONCERN OCCURRING ON OR NEAR NORTON AIR FORCE BASE

Based on known habitat requirements and distribution, a number of federally and state-listed threatened, endangered, and candidate species may occur at Norton Air Force Base (AFB). Table J-1 (also appearing in the main body of this document as Table 3.4-9) summarizes information on listed and candidate species, and additional information for many of these species is presented below.

Least Bell's Vireo. The least Bell's vireo (*Vireo bellii pusillus*) has been listed as endangered by the federal government and the state of California. In summer, the vireo resides in lowland riparian woodlands. Numbers have declined due to brood parasitism and habitat decline. The bird is known to occur near Norton AFB (U.S. Air Force, 1990f), but due to lack of habitat, it is unlikely to occur on base except incidentally.

Swainson's Hawk. Swainson's hawk (*Buteo swainsonii*) has been listed as threatened by the state of California. Its favored habitat includes plains, ranges, and low hills. Six individuals were observed on base during spring field surveys by the U.S. Fish and Wildlife Service (USFWS) (1990).

Los Angeles Little Pocket Mouse. The Los Angeles little pocket mouse (*Perognathus longimembris brevinasus*) is a federal Category 2 candidate species and a California Species of Special Concern. The pocket mouse inhabits open ground with fine sandy substrate and is expected to occur at Norton AFB.

Stephen's Kangaroo Rat. Stephen's kangaroo rat (*Dipodomys stephensi*) has been listed as endangered by the federal government and threatened by the state of California. Norton AFB is located at the northern extent of the kangaroo rat's range. Trapped animals have been recorded by the California Natural Diversity Data Base (CNDDB) approximately 4 miles south of the base. Stephen's kangaroo rat may occur at the southeast edge of the base along the Santa Ana Wash.

San Diego Horned Lizard. The San Diego horned lizard (*Phrynosoma coronatum blainvillii*) is a Category 2 candidate for federal listing. Appropriate habitat for the lizard includes sandy washes with scattered low shrubs for cover. The San Diego horned lizard may occur in the Santa Ana Wash at the southeastern edge of the base.

Orange-Throated Whiptail. The orange-throated whiptail (*Cnemidophorus hyperythrus*), a Category 2 candidate for federal listing, has been recorded 5 miles south of Norton AFB by the CNDDB (California Department of Fish and Game [CDFG], 1990). The lizard inhabits washes and other sandy areas with rocks and patches of brush and may occur along the southern boundary of the base.

Santa Ana River Woolly-star. Santa Ana River woolly-star (*Eriastrum densifolium* spp. *sanctorum*), listed as endangered by the federal government and the state of California, only occurs on an 8-mile stretch of the Santa Ana River floodplain from Norton AFB to the mouth of the river canyon. A population of this species has been observed within the base boundary from the golf course clubhouse to the eastern base boundary (USFWS, 1990).

Slender-Horned Spineflower. The slender-horned spineflower (*Dodecahema leptoceras*) is a prostrate annual that occurs on sandy river terraces and in washes. It is listed as endangered by the federal government and the state of California. Two populations of the species have been observed in association with the Santa Ana River woolly-star in the Santa Ana Wash near the base. The slender-horned spineflower may occur along the southeast edge of the base.

Table J-1. Threatened, Endangered, and Candidate Species Potentially Occurring in the Vicinity of Norton AFB
(Page 1 of 3)

Name	Status[a] Federal	State	CNPS	Habitat and Distribution
Insects				
Greenest tiger beetle (*Cinindela tranquebarica viridissima*)	C1	-	-	Occurs in fine sandy substrate near riparian habitats. Historically ranged along the Santa Ana River from Orange County to the base of the San Bernardino Mountains. May occur in the Santa Ana Wash on Norton AFB (USFWS, 1990).
Reptiles				
San Diego horned lizard (*Phrynosoma coronatum blainvillei*)	C2	CSC	-	Occurs in sandy washes with scattered low shrubs for cover (Stebbins, 1985). Has been extirpated from most lowland areas in southern California. May occur at Norton AFB.
Orange-throated whiptail (*Cnemidophorus hyperythrus*)	C2	CSC	-	Inhabits washes and other sandy areas with rocks and patches of brush. Has been sighted 5 miles south of Norton AFB (CDFG, 1991). May occur on base.
Southwestern pond turtle (*Clemmys marmorata pallida*)	C1	CSC	-	Occurs in a variety of aquatic habitats with both permanent and intermittent water. Historically found throughout southern California. Only scattered populations remain. May occur in the golf course ponds at Norton AFB (USFWS, 1990).
Birds				
Swainson's hawk (*Butso swainsonii*)	-	T	-	Habitat includes plains, range, and open hills. Has been observed on Norton AFB (USFWS, 1990).
Burrowing owl (*Athene cunicularia*)	-	CSC	-	Inhabits open grassland, prairies, farmland, and airfields. Occurs as a year-round resident on base.

Table J-1. Threatened, Endangered, and Candidate Species Potentially Occurring in the Vicinity of Norton AFB
(Page 2 of 3)

Name	Status[a]			Habitat and Distribution
	Federal	State	CNPS	
Least Bell's vireo (*Vireo bellii pusillus*)	E	E	-	In summer, the vireos reside in lowland riparian woodlands. Known to occur near Norton AFB (U.S. Air Force, 1990). Unlikely to occur on base except incidentally due to lack of habitat.
Loggerhead shrike (*Lanius ludovicianus*)	C2	-	-	Forages over open or brushy areas. Observed on Norton AFB.
Mammals				
Stephen's kangaroo rat (*Dipodomys stephensi*)	E	T	-	Norton AFB is located at the northern extent of the kangaroo rat's range. Have been observed within 5 miles south of the base. May occur at Norton AFB (CDFG, 1991).
Los Angeles little pocket mouse (*Perognathus longimembris brevinasus*)	C2	CSC	-	Habitat includes open ground with fine sandy substrate. Historically occurred in the San Fernando-Burbank-Los Angeles areas. Known to occur at Norton AFB (USFWS, 1990).
San Bernardino Merriam's kangaroo rat (*Dipodomys merriami parvus*)	C2	-	-	Inhabits open ground with fine sandy soils. Collected in alluvial scrub and olive tree habitats on the base (USFWS, 1990).
Plants				
Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*)	E	E	1B	Occurs in alluvial fan sage scrub. Restricted to an 8-mile stretch of the Santa Ana River floodplain from Norton AFB to the mouth of the river canyon. Observed at Norton by biologists in Spring, 1991.

Table J-1. Threatened, Endangered, and Candidate Species Potentially Occurring in the Vicinity of Norton AFB
(Page 3 of 3)

Name	Status[a] Federal	State	CNPS	Habitat and Distribution
Slender-horned spineflower (*Dodecahema leptoceras*)	E	E	1B	Occurs on sandy river terraces and in washes. Has been observed in association with the Santa Ana River woolly-star in the Santa Ana Wash. May occur on Norton AFB within 2 miles on the base boundary (CDFG, 1991).

Notes: (a) Federal Status (determined by USFWS)
- E *Endangered; in danger of* extinction throughout all or a significant portion of its range.
- 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.

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 CDFG "Species of Special Concern."

California Native Plant Society (CNPS) Status
- 1B *Rare, threatened, or endangered* in California and elsewhere.
- 3 Plants about which more information is needed -- a review list.

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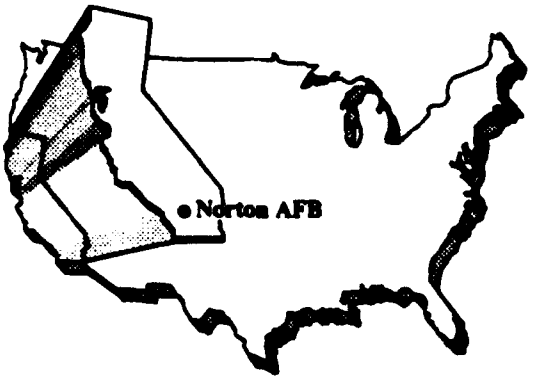

APPENDIX K

APPENDIX K

ENVIRONMENTAL PERMITS AT NORTON AIR FORCE BASE

Table K-1. Environmental Permits Held by Norton AFB as of December 1992
Page 1 of 8

Permit No.	Permitted Facility/Equipment	Original Date Issued	Issuing Agency	Date of Expiration
D58284	AART - Negative Air Machine Hepaire B57524	June 26, 1992	SCAQMD	*
D58283	AART - Negative Air Machine Mech 2 2991	June 26, 1992	SCAQMD	*
D58971	AGE - A/C Unit - MA3D 0167	July 20, 1992	SCAQMD	*November 1993
D58973	AGE - A/C Unit - MA3D 0408	July 20, 1992	SCAQMD	*November 1993
D58972	AGE - A/C Unit - MA3D 0409	July 20, 1992	SCAQMD	*November 1993
D58970	AGE - A/C Unit - MA3D 0412	July 20, 1992	SCAQMD	*November 1993
D58974	AGE - A/C Unit - MA3D 0444	July 20, 1992	SCAQMD	*November 1993
D58975	AGE - A/C Unit - MA3D 0445	July 20, 1992	SCAQMD	*November 1993
D58977	AGE - A/C Unit - MA3D 0449	July 20, 1992	SCAQMD	*November 1993
D59506	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59499	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59502	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59481	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59513	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59521	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59498	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59487	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59486	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59484	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59483	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59471	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59469	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59470	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59468	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59518	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59477	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59478	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59480	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993

Table K-1. Environmental Permits Held by Norton AFB as of December 1992
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Permit No.	Permitted Facility/Equipment	Original Date Issued	Issuing Agency	Date of Expiration
D59482	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59476	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59474	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59519	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59520	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59510	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59504	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59514	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59517	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D59467	AGE - Electrical Generator	July 29, 1992	SCAQMD	November 1993
D61135	AGE - Hydraulic Test Stand	August 26, 1992	SCAQMD	*November 1993
D61136	AGE - Hydraulic Test Stand	August 26, 1992	SCAQMD	*November 1993
D49561	Air Compressor	March 10, 1992	SCAQMD	*November 1993
D49562	Air Compressor	March 10, 1992	SCAQMD	*November 1993
D60506	Bldg. 100 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D61235	Bldg. 100 - UST 550 gal, D	August 27, 1992	SCAQMD	June 1993
D60474	Bldg. 186 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D61242	Bldg. 187 - AGST 500 gal, D	August 27, 1992	SCAQMD	
D64726	Bldg. 228 - Westinghouse 258	November 4, 1992	SCAQMD	
D64725	Bldg. 228 - Westinghouse 262	November 4, 1992	SCAQMD	
D61239	Bldg. 2333 - UST 10,000 gal, JP-4	August 27, 1992	SCAQMD	
R10238B	Bldg. 249 - AAVS Boiler	March 8, 1976	SCAQMD	
R10239B	Bldg. 249 - AAVS Boiler	March 8, 1976	SCAQMD	
D61240	Bldg. 249 - UST 30,000 gal, D	August 27, 1992	SCAQMD	
D60471	Bldg. 289 - ICE, G	August 20, 1992	SCAQMD	*June 1993
D58289	Bldg. 302 - Hobby Shop RRR Unit	June 25, 1992	SCAQMD	*
D60484	Bldg. 324 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D60868	Bldg. 330 - Trans Spray Booth	August 24, 1992	SCAQMD	*

Table K-1. Environmental Permits Held by Norton AFB as of December 1992
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Permit No.	Permitted Facility/Equipment	Original Date Issued	Issuing Agency	Date of Expiration
D58290	Bldg. 330 - Transp RRR Unit	June 25, 1992	SCAQMD	*
E3410	Bldg. 330 - Transp Spray Booth	January 1980	SCAQMD	
M25557	Bldg. 330 - Transp Spray Booth	August 1982	SCAQMD	
D61237	Bldg. 407 - AGST 285 gal, D	August 27, 1992	SCAQMD	
D60550	Bldg. 409 - ICE, D	August 20, 1992	SCAQMD	*
D60872	Bldg. 409 - Pavement Stripper	August 24, 1992	SCAQMD	*
R102408	Bldg. 464 - IM Incinerator	July 1986	SCAQMD	
M43369	Bldg. 464 - IM Incinerator	April 1985	SCAQMD	
D60477	Bldg. 471 - ICE, G	August 20, 1992	SCAQMD	*June 1993
D60487	Bldg. 477 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D60486	Bldg. 477B - ICE, D	August 20, 1992	SCAQMD	*June 1993
D60510	Bldg. 499 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D64722	Bldg. 545 - Perfection 53	November 4, 1992	SCAQMD	
D64730	Bldg. 548 - Carrier 497	November 4, 1992	SCAQMD	
D65575	Bldg. 548 - Perfection 43	November 17, 1992	SCAQMD	June 1993
D64721	Bldg. 548 - Perfection 45	November 4, 1992	SCAQMD	
D64711	Bldg. 548 - Perfection 50	November 4, 1992	SCAQMD	
D64717	Bldg. 548 - Perfection 52	November 4, 1992	SCAQMD	
D64718	Bldg. 548 - Perfection 54	November 4, 1992	SCAQMD	
D64720	Bldg. 548 - Perfection 57	November 4, 1992	SCAQMD	
D64719	Bldg. 548 - Perfection 61	November 4, 1992	SCAQMD	
D64715	Bldg. 548 - Perfection 63	November 4, 1992	SCAQMD	
D64723	Bldg. 548 - Perfection 65	November 4, 1992	SCAQMD	
D64716	Bldg. 548 - Perfection 69	November 4, 1992	SCAQMD	
D64712	Bldg. 548 - Perfection 74	November 4, 1992	SCAQMD	
D64714	Bldg. 548 - Perfection 76	November 4, 1992	SCAQMD	
D64713	Bldg. 548 - Perfection 79	November 4, 1992	SCAQMD	
D64724	Bldg. 548 - Perfection 81	November 4, 1992	SCAQMD	

Table K-1. Environmental Permits Held by Norton AFB as of December 1992
Page 4 of 8

Permit No.	Permitted Facility/Equipment	Original Date Issued	Issuing Agency	Date of Expiration
D60509	Bldg. 56 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D64936	Bldg. 58 - Boiler	November 9, 1992	SCAQMD	
E4716	Bldg. 650 - UST 25,000 gal	September 1981	SCAQMD	
M81551	Bldg. 650 - UST - Fill Sta	May 1984	SCAQMD	
D60525	Bldg. 666 - ICE, D	August 20, 1992	SCAQMD	*
D60545	Bldg. 666 - ICE, D	August 20, 1992	SCAQMD	*
D60547	Bldg. 666 - ICE, D	August 20, 1992	SCAQMD	June 1993
D60553	Bldg. 680 - ICE, D	August 20, 1992	SCAQMD	*June 1993
R10230B	Bldg. 716 - Main Boilers	July 1986	SCAQMD	
R10231B	Bldg. 716 - Main Boilers	July 1986	SCAQMD	
R10232B	Bldg. 716 - Main Boilers	July 1986	SCAQMD	
R10233B	Bldg. 716 - Main Boilers	March 8, 1976	SCAQMD	
R10233B	Bldg. 716 - Main Boilers (For Oil Calcs Only)	March 8, 1976	SCAQMD	
D61238	Bldg. 726 - AGST 2,500 gal, JP-4	August 27, 1992	SCAQMD	
E4717	Bldg. 726 - Test Cell	September 1981	SCAQMD	
D60514	Bldg. 747 - ICE, D	August 20, 1992	SCAQMD	*June 1993
R10225B	Bldg. 749 - Fleet Service Incinerator	July 1986	SCAQMD	
M37659	Bldg. 763 - CC Spray Booth #1	April 1984	SCAQMD	
E3409	Bldg. 763 - CC Spray Booth #3	January 1980	SCAQMD	
D60864	Bldg. 763 - Corr Cont	August 24, 1992	SCAQMD	*
D64627	Bldg. 763 - Welding Shop Nitric Acid Bath	November 3, 1992	SCAQMD	
E3213	Bldg. 763 - Welding Shop Vapor Degreaser	October 1979	SCAQMD	
D60485	Bldg. 794 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D61243	Bldg. 795 - UST 750 gal, D	August 27, 1992	SCAQMD	
M59950	Bldg. 803 - Vapor Incinerator	January 12, 1988	SCAQMD	
M40418	Bldg. 803 - UST - Tank Farm	October 1984	SCAQMD	
M59949	Bldg. 804/9 - Vapor Incinerator	January 12, 1988	SCAQMD	
M40419	Bldg. 804/9 UST - Tank Farm	October 1984	SCAQMD	

Table K-1. Environmental Permits Held by Norton AFB as of December 1992
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Permit No.	Permitted Facility/Equipment	Original Date Issued	Issuing Agency	Date of Expiration
D67436	Bldg. 805 - UST/Vapor Absorber	December 28, 1992	SCAQMD	*
D459	Bldg. 809 - Bulk Loading Facility	June 1988	SCAQMD	
D60513	Bldg. 809 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D60488	Bldg. 811 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D66729	Bldg. 818 - Boiler	December 10, 1992	SCAQMD	
D61244	Bldg. 818 - UST 2,000 gal, D	August 27, 1992	SCAQMD	
D60480	Bldg. 830 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D61236	Bldg. 830 - UST 285 gal, D	August 27, 1992	SCAQMD	?
D60498	Bldg. 844 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D60502	Bldg. 863 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D64937	Bldg. 918 - Boiler	November 9, 1992	SCAQMD	
M62912	Bldg. 947 - AMARC Missile Purge Flare Syst	May 1988	SCAQMD	
D64938	Bldg. 951 - Boiler	November 9, 1992	SCAQMD	
D65576	Bldg. 952 - Boiler	November 17, 1992	SCAQMD	
D65577	Bldg. 953 - Boiler	November 17, 1992	SCAQMD	
908660	BX Gas - UST 5-10,000 gal. & 28 Nozzles		SCAQMD	
D60870	BX Gas Sta, 5 UST @ 10K, Vap Rec, G	August 24, 1992	SCAQMD	*
M37658	CE - Pavement Striper	May 1984	SCAQMD	
D58287	CE - RRR Unit	June 25, 1992	SCAQMD	*
D58288	CE - RRR Unit	June 25, 1992	SCAQMD	*
M37656	CE - Spray Equipment	May 1984	SCAQMD	*
M37657	CE - Spray Gun	May 1984	SCAQMD	
D60520	EAID #17 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D60556	EAID #20 - ICE, D	August 20, 1992	SCAQMD	*
D60559	EAID #21 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D60523	EAID #E-1 - ICE, D	August 20, 1992	SCAQMD	*June 1993
D60562	EAID #E-16 - ICE, D	August 20, 1992	SCAQMD	*
D60522	EAID #E-2 - ICE, D	August 20, 1992	SCAQMD	*

Table K-1. Environmental Permits Held by Norton AFB as of December 1992

Permit No.	Permitted Facility/Equipment	Original Date Issued	Issuing Agency	Date of Expiration
D60521	EAID #E-3 - ICE, D	August 20, 1992	SCAQMD	•
M43422	Fuel w/nozzel (Tank)	July 1, 1985	SCAQMD	
R10242B	JP-4 Bulk Storage 2.31 Mil Gal Tanks	December 7, 1981	SCAQMD	
R11861B	JP-4 Bulk Storage 2.31 Mil Gal Tanks	December 7, 1981	SCAQMD	
R10244B	UST - Eight 50K JP-4	July 22, 1986	SCAQMD	
R10245B	UST - Eight 50K JP-4	July 22, 1986	SCAQMD	
R10243B	UST - Six 50K JP-4	July 22, 1986	SCAQMD	
920821001	Abandoned UST, Bldg. S-6		DEHS	September 30, 1992
920821002	UST, Bldg. 100		DEHS	September 30, 1992
920831003	Abandoned UST, Bldg. 227		DEHS	September 30, 1992
920831004	Abandoned UST, Bldg. 223		DEHS	September 30, 1992
920831005	UST, Bldg. 249		DEHS	September 30, 1992
920831006	UST, Bldg. 333		DEHS	September 30, 1992
920831007	Abandoned UST, Bldg. 427		DEHS	September 30, 1992
920831008	Abandoned UST, Bldg. 463		DEHS	September 30, 1992
920831009	UST, Bldg. 620		DEHS	September 30, 1992
920831010	UST, Bldg. 650		DEHS	September 30, 1992
9208210011	UST, Bldg. 675		DEHS	September 30, 1992
9208210012	UST, Bldg. 680		DEHS	September 30, 1992
9208210013	Abandoned UST, Bldg. 695		DEHS	September 30, 1992
9208210014	Abandoned UST, Bldg. 697		DEHS	September 30, 1992
9208210015	UST, Bldg. 716		DEHS	September 30, 1992
9208210016	UST, Bldg. 726		DEHS	September 30, 1992
9208210017	Abandoned UST, Bldg. 736		DEHS	September 30, 1992
9208210018	UST, Bldg. 757		DEHS	September 30, 1992
9208210019	Abandoned UST, Bldg. 794		DEHS	September 30, 1992
9208210020	UST, Bldg. 795		DEHS	September 30, 1992
9208210021	UST, Bldg. 803		DEHS	September 30, 1992

Table K-1. Environmental Permits Held by Norton AFB as of December 1992
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Permit No.	Permitted Facility/Equipment	Original Date Issued	Issuing Agency	Date of Expiration
9208210022	UST, Bldg. 804		DEHS	September 30, 1992
9208210023	UST, Bldg. 805		DEHS	September 30, 1992
9208210024	UST, Bldg. 809		DEHS	September 30, 1992
9208210025	Abandoned UST, Bldg. 811		DEHS	September 30, 1992
9208210026	UST, Bldg. 818		DEHS	September 30, 1992
9208210027	UST, Bldg. 819		DEHS	September 30, 1992
9208210028	UST, Bldg. 820		DEHS	September 30, 1992
9208210029	UST, Bldg. 825		DEHS	September 30, 1992
9208210030	Abandoned UST, Bldg. 844		DEHS	September 30, 1992
9208210031	Abandoned UST, Bldg. 863		DEHS	September 30, 1992
9208210032	Abandoned UST, Bldg. 950		DEHS	September 30, 1992
9208210033	Abandoned UST, Bldg. 934		DEHS	September 30, 1992
9208210034	Abandoned UST, Bldg. 2326		DEHS	September 30, 1992
9208210035	Abandoned UST, Bldg. 3101		DEHS	September 30, 1992
8904050139	Hazardous Waste Generator Permit		DEHS	September 30, 1992
8904050140	Hazardous Materials Handler Permit		DEHS	September 30, 1992
Order No. 79-190	Waste discharge requirements	December 7, 1979	RWQCB - Santa Ana Region	Closure
Order No. 90-36 NPDES CA 0002062	Runway Apron Storm Water Runoff	April 13, 1990	RWQCB - Santa Ana Region	April 13, 1995
Order No. 90-48	Industrial Waste Treatment Plant Waste Discharge Requirements	April 13, 1990	RWQCB - Santa Ana Region	Closure
1-130-B	Industrial Wastewater Discharge to San Bernardino Municipal Sewer System	January 1, 1991	City of San Bernardino	January 1, 1994

Table K-1. Environmental Permits Held by Norton AFB as of December 1992

Permit No.	Permitted Facility/Equipment	Original Date Issued	Issuing Agency	Date of Expiration
4-91080603	Extremely Hazardous Waste Disposal Permit	August 6, 1991	California State Department of Health Services	August 6, 1993

• Renewal pending ongoing negotiation with SCAQMD

DEHS: San Bernardino County Department of Environmental Health Services
NPDES: National Pollution Discharge Elimination System
RWQCB: Regional Water Quality Control Board (State of California)
SCAQMD: South Coast Air Quality Management District
UST: underground storage tank
VOC: volatile organic compound

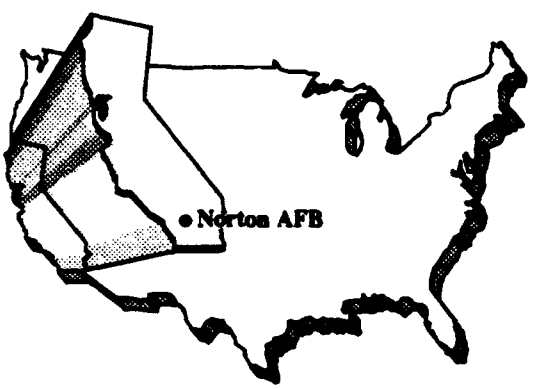
Table K-2. Environmental Permits Held by Lockheed Commercial Aircraft Center as of January 1993

Permit No.	Permitted Facility/Equipment	Original Date Granted	Issuing Agency	Date of Expiration
D34340	Abrasive Blasting Cabinet, Bldg. 763	February 16, 1991	SCAQMD	February 16, 1993
D34345	Abrasive Blasting Cabinet, Bldg. 747	February 2, 1991	SCAQMD	February 2, 1993
M97889	Mobile Fueling Truck, Bldg. 763	November 5, 1991	SCAQMD	
D42304	Oil/Water Separator, Bldg. 763	February 16, 1991	SCAQMD	February 16, 1993
D42305	Oil/Water Separator, Bldg. 763	February 16, 1991	SCAQMD	February 16, 1993
D34343	Spray Booth, Aerosol Cleaner, Bldg. 747	February 16, 1991	SCAQMD	February 16, 1993
D34344	Spray Booth, Adhesives, Bldg. 747	February 16, 1991	SCAQMD	February 16, 1993
D34342	Spray Booth, Adhesives, Bldg. 763	February 16, 1991	SCAQMD	February 16, 1993
D34341	Two Penetrant Dye Booths, Bldg. 747	February 16, 1991	SCAQMD	Second booth on hold February 16, 1993
236316 (A/N)	Baron Blakeslee, Vapor Spray Type Degreaser, Bldg. 747	December 18, 1990	SCAQMD	December 28, 1993 Repair status in capital budget FY 93 Extension Filed
D34346	Diesel Storage Tank, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34347	Diesel Storage Tank, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34348	Diesel Storage Tank, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34355	Diesel Storage Tank, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34356	Diesel Storage Tank, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34357	Diesel Storage Tank, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34470	Diesel Engine, Caterpillar, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34471	Diesel Engine, Caterpillar, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34472	Diesel Engine, Caterpillar, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34473	Diesel Engine, Caterpillar, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34474	Diesel Engine, Cummins, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D34475	Diesel Engine, Caterpillar, Pump House	February 16, 1991	SCAQMD	February 16, 1993
D60656	Ultraviolet oxidation system Bay 4, Bldg. 763, Wastewater System	August 21, 1992	SCAQMD	August 21, 1993
235974 (A/N)	Ultraviolet oxidation system for Bay 4, Bldg. 763, Air System	January 28, 1991	SCAQMD	January 28, 1993 Extension filed on January 25, 1993

Table K-2. Environmental Permits Held by Lockheed Commercial Aircraft Center as of January 1993

Permit No.	Permitted Facility/Equipment	Original Date Granted	Issuing Agency	Date of Expiration
9012170021	Hazardous Waste Generator	August 31, 1991	DEHS	August 31, 1992
9012170020	Hazardous Material Handler	August 31, 1991	DEHS	August 31, 1992
CAD983629429	Hazardous Waste Generators' State I.D. No.	1991	State Board of Equalization	
HAHQ36-036564	Hazardous Waste Generators' State Tax I.D. No.	1991	State Board of Equalization	
1-12[illegible]	Pretreatment Discharge Permit for Sanitary Discharge from UVOX, Bldg. 763	July 23, 1991	City of San Bernardino Municipal Water Dept.	July 23, 1994
3-089-A	Oil-Water Separator - Pump House (Northeast section)	July 23, 1991	City of San Bernardino Municipal Water Dept.	July 23, 1994
3-090-A	Oil-Water Separator - Bay 3 (south section)	July 23, 1991	City of San Bernardino Municipal Water Dept.	July 23, 1994

AN: Application number.
DEHS: San Bernardino County Department of Environmental Health Services.
SCAQMD: South Coast Air Quality Management District.



APPENDIX L

APPENDIX L

NORTON AFB IRP BIBLIOGRAPHY

APPENDIX L

NORTON AFB IRP BIBLIOGRAPHY

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