DRAFT

ENVIRONMENTAL ASSESSMENT

DEACTIVATION OF THE SR-71 PROGRAM AT BEALE AIR FORCE BASE, CALIFORNIA

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS, STRATEGIC AIR COMMAND
OFFUTT AIR FORCE BASE, NEBRASKA

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Air Force
Environmental Planning Division
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1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 PURPOSE

The United States Air Force (USAF) Strategic Air Command (SAC) has proposed to deactivate the SR-71 program currently operating as part of the 9th Strategic Reconnaissance Wing's (9th SRW) Mission at Beale Air Force Base (AFB) near Sacramento, California. This mission change is anticipated to take place coincident with the beginning of fiscal year 1990. An Environmental Assessment (EA) will be prepared to determine the significance and extent of potential impacts that may occur as a result of the proposed action. This EA is prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as stipulated in regulations promulgated by the Council on Environmental Quality (CEQ) (40 CFR 1500-1508, November 1978), and Air Force Regulation (AFR) 19-2.

1.2 NEED FOR THE PROPOSED ACTION

The USAF SAC has determined that it cannot continue the SR-71 program in light of its high operating cost, required manpower needs, and necessary ground-based support functions and facilities. The reconnaissance mission will be accomplished through continued U2 flights and satellite technology.

1.3 LOCATION, HISTORY, AND MISSION OF BEALE AFB

1.3.1 Location

Beale AFB currently consists of 22,944 acres of government-owned land in Yuba County, approximately 40 miles north of the city of Sacramento and 13 miles east of Marysville, in north-central California (Figure 1-1). The foothills of the Sierra Nevada mountains border the eastern edge of the base, while the Yuba River to the north, the Bear River to the south, and Camp Far West Reservoir to the southeast are the nearest large water sources. Other neighboring cities are Yuba City, 16 miles west; Oroville, 40 miles north; and Grass Valley, 25 miles east.

1.3.2 History

Beale AFB, named for General Edward Fitzgerald Beale, opened in October of 1942 with more than 86,000 acres of land. During World War II, the camp was used as an infantry training center, a personnel replacement depot, and

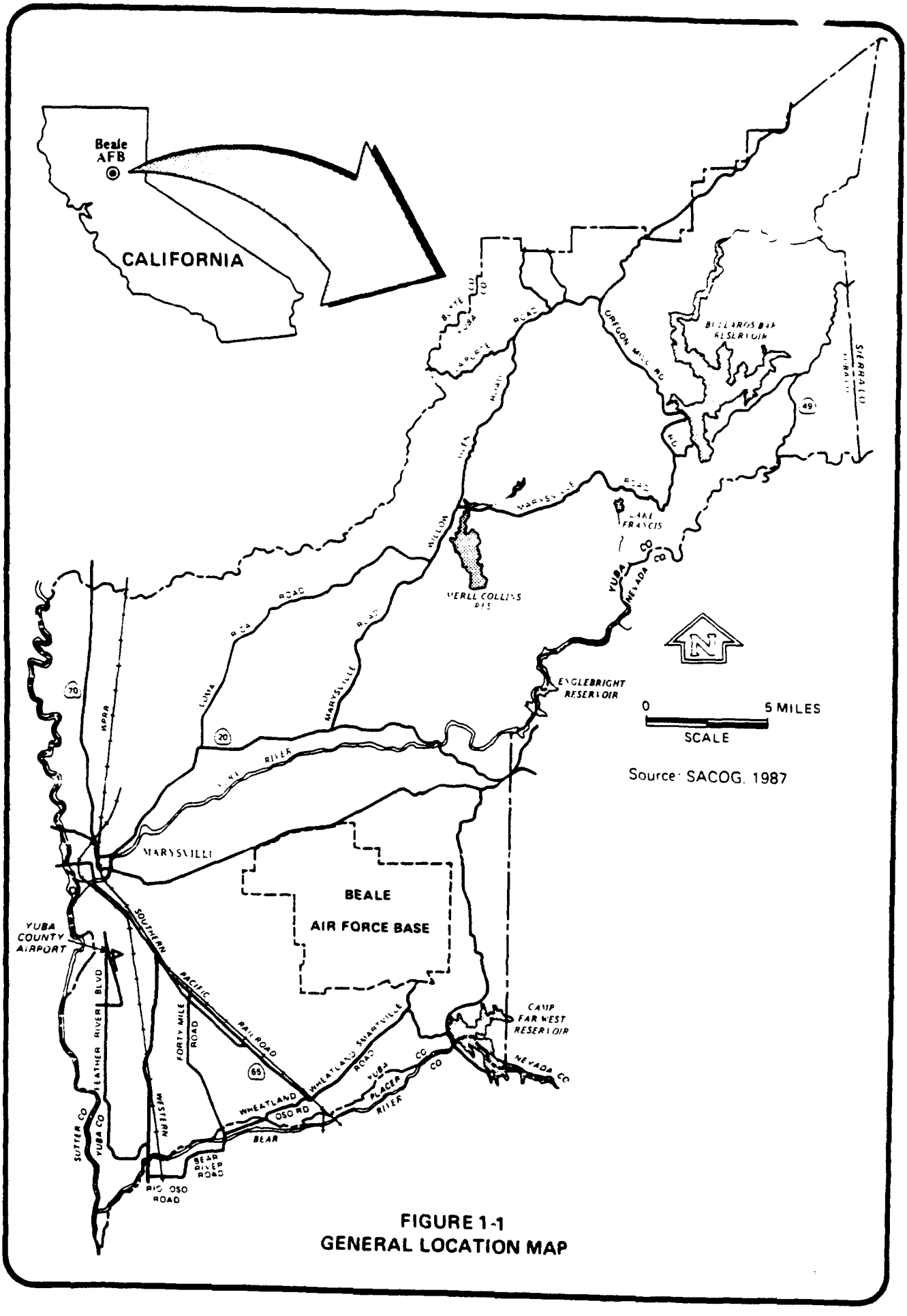


FIGURE 1-1
GENERAL LOCATION MAP

prisoner-of-war camp. During the war, the camp supported a military population of more than 60,000 personnel.

Camp Beale was declared surplus in 1947 and in early 1948, transfer was arranged to the United States Air Force. The base was used for bombardier-navigator training. In 1951, Headquarters USAF announced the reactivation of the Beale Bombing and Gunnery Range as a training site and officially changed the name to Beale Air Force Base.

During Beale's early years in the Air Force, the base underwent a number of jurisdictional changes, at times being a part of Air Training Command, Continental Air Command, Aviation Engineer Force, and finally the Strategic Air Command. Early in 1959, it was announced that the 14th Air Division would be assigned to Beale AFB. In July 1959, Beale received its first KC-135 jet strato tanker, with B-52 bombers arriving shortly afterwards. In September of 1959, it was announced that Beale was to be the support base for three Titan missile sites. By 1965, the Titan I missile program had been discontinued, and the squadron was inactivated. Coupled with the inactivation of the missile unit, however, was the beginning of a new era in the history of the base with the activation of the 4200th SRW, later redesignated as the 9th SRW.

1.3.3 Mission

The mission of the 9th SRW is to provide global aerial reconnaissance and air refueling support in accordance with provisions of the Emergency War Order in wartime. In peacetime, reconnaissance flights and reconnaissance air refueling support are conducted in response to the Peacetime Aerial Reconnaissance Program and contingency tasking from the National Command Authorities and the Joint Chiefs of Staff. At the same time, the wing supports the requirements of unified and specified commands. After raw intelligence data are collected by U-2, TR-1 and SR-71 aircraft, the 9th SRW processes, reports, and disseminates intelligence products to specified civilian and military users.

To accomplish this global commitment, the 9th SRW operates from Beale AFB, and several worldwide detachments employing Lockheed SR-71 and U-2 aircraft and the Boeing KC-135Q tanker aircraft. The KC-135Q provides exclusive air refueling for the SR-71, supports U-2 and TR-1 deployments and other strategic airlift requirements, and provides conventional air refueling

support for other Air Force aircraft. Northrop T-38A aircraft provide an integral part of the training of SR-71, U-2, and TR-1 pilots and KC-135Q copilots through specially tailored flying programs that meet the requirements of each pilot's specialty.

The major tenant organizations at Beale AFB are the 14th Air Division and the 7th Missile Warning Squadron. The 14th Air Division's mission is to ensure that units assigned to the division are capable of conducting worldwide strategic reconnaissance, and maintaining an airborne command post in continuous operation.

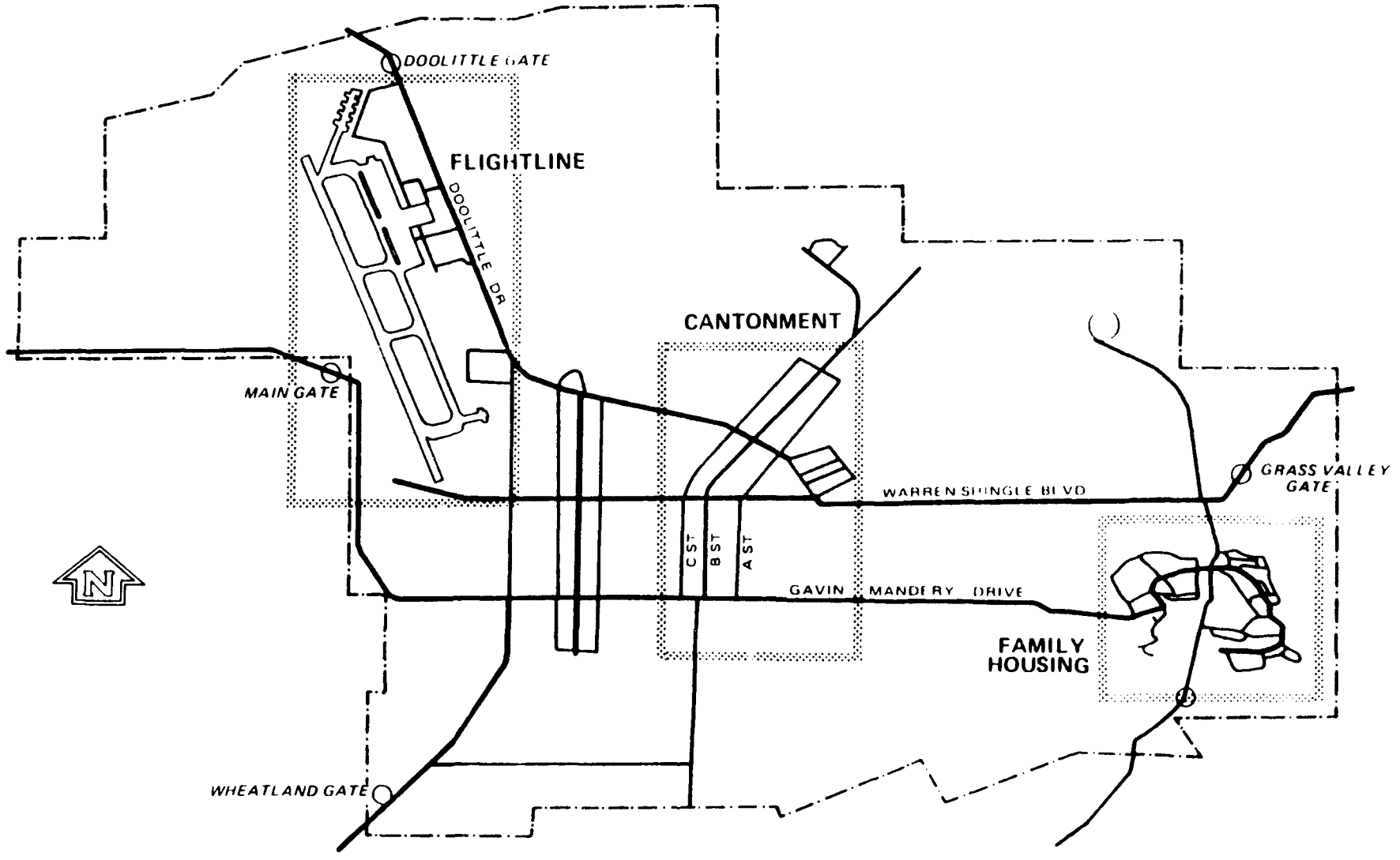
The primary and secondary mission of the 7th Missile Warning Squadron's PAVE PAWS system is to provide warning and attack assessment of a sea-launched and/or intercontinental ballistic missile attack aimed at the continental United States and Southern Canada. The tertiary mission is to provide surveillance, tracking, reporting, and space object identification for SPACE TRACK operations.

1.4 EXISTING DEVELOPMENT AT BEALE AFB

Existing manpower today at Beale AFB includes approximately 562 officers; 3,226 enlisted; and, 476 civilians for a total of 4,264 personnel. Development at Beale AFB is basically confined to three functional areas. These areas include the Flightline Area, the Cantonment Area, and the Family Housing Area. Figure 1-2 presents these three areas in relationship to one another.

The Flightline Area, besides containing the mission-essential runway and associated taxiway and aprons, includes aircraft operation and maintenance facilities, mission support activities, supply activities, and ground vehicle maintenance and fueling activities. Additionally, Explosive Ordnance Demolition (EOD) and fire protection and training functions are carried out here, as are some administrative operations. The Flightline Area has a small compliment of community commercial and service facilities, as well as a small recreational facility.

The Cantonment Area supports many of the administrative functions and organizations operating in the Flightline Area. This area is also the central business district for the base, dominated by administrative,



Source: EDAW, 1988

FIGURE 1-2
FUNCTIONAL AREAS

community commercial, unaccompanied housing, and industrial uses. Social, maintenance, medical, and spiritual facilities are located here as are base engineering and environmental operations.

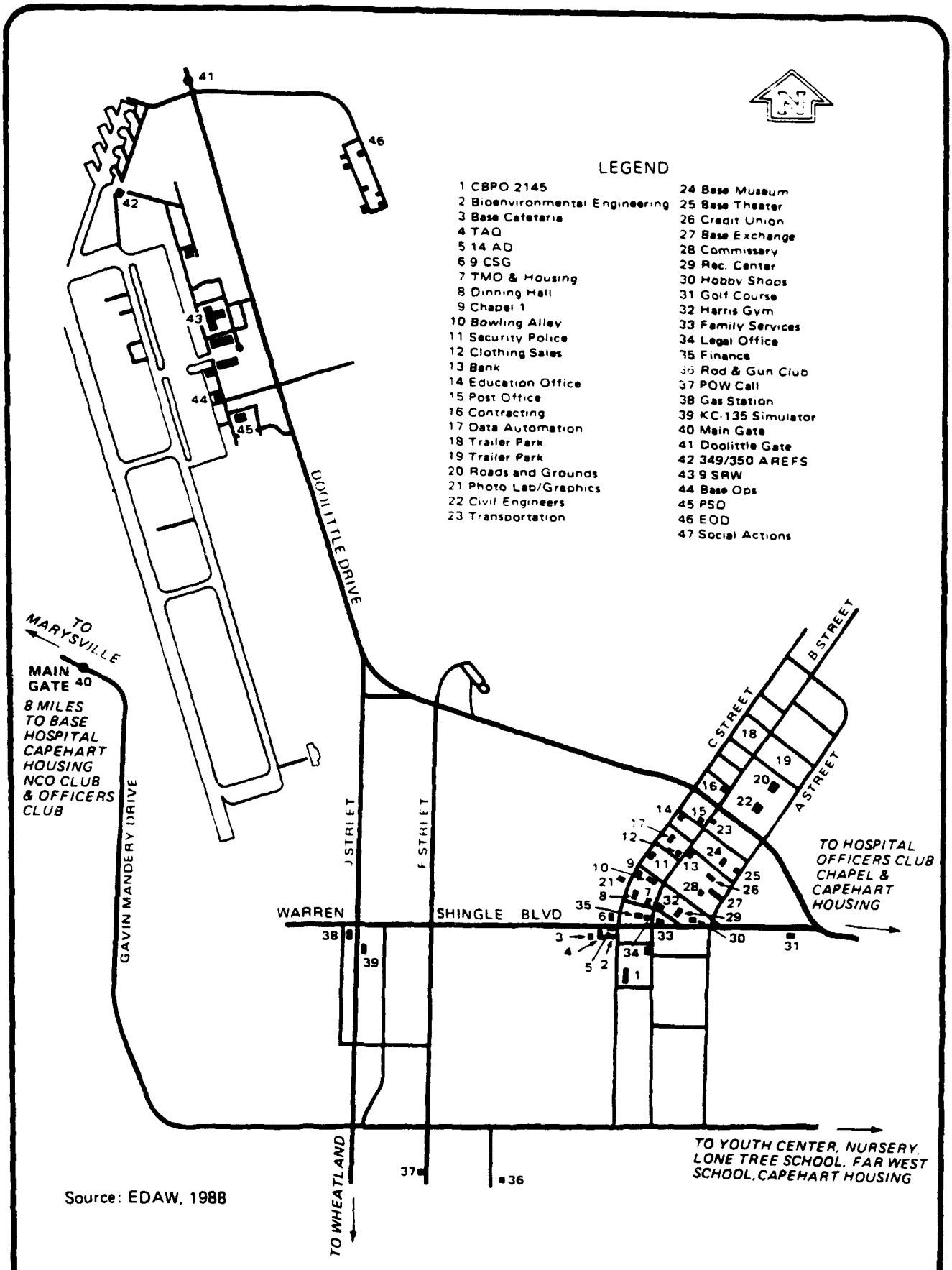
The Family Housing Area provides base housing for officers and enlisted personnel. A fire station and an administrative office are also present here. A number of other community service and commercial activities are located here as well as recreational facilities.

Figures 1-3 and 1-4 present locations of various facilities that are located in each of these three areas.

1.5 SCOPE

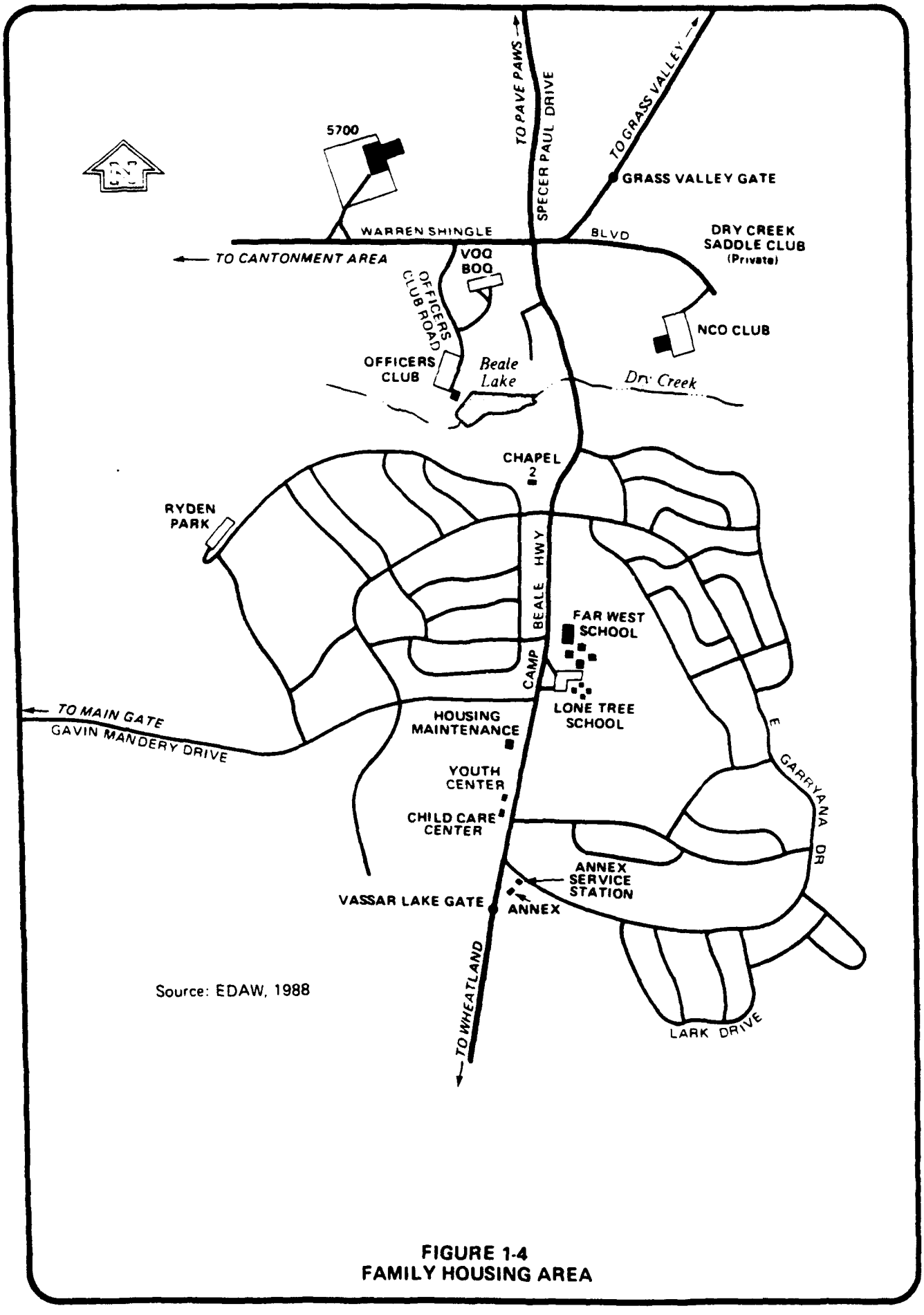
A separate Environmental Impact Statement (EIS) is currently being prepared to evaluate potential impacts associated with an unrelated proposed action at Beale AFB to relocate the 323rd Flying Training Wing -- the Specialized Undergraduate Navigation Training (SUNT) -- currently operating out of Mather AFB to Beale AFB. The relocation of the SUNT to Beale AFB was recommended by the Commission on Base Realignment and Closure (Commission) to take advantage of the decision to deactivate the SR-71 program at Beale AFB and improve multiservice training.

Major issues to be addressed in this EA were identified through discussions with USAF personnel who are familiar with the mission and operation requirements of the SR-71 program, and review of a previous EA prepared by the USAF dated September 1988 for a proposed, but unrelated, mission change for SR-71 and T-38 aircraft at Beale AFB. Based on these discussions and review, it was determined that the proposed action would have the potential to affect air quality, noise levels, and air safety from reduced flight operations, reduce potential sources of surface and/or groundwater contamination from a decrease in aircraft refueling activities, affect socioeconomic concerns resulting from a loss in USAF and civilian employment opportunities, affect solid waste and liquid waste disposal operations resulting from decreased demand for these services, and may have the potential to adversely affect biological resources in the Flightline Area where SR-71 aircraft operations and maintenance activities are conducted.



Source: EDAW, 1988

FIGURE 1-3
FLIGHTLINE AND CANTONMENT AREAS



Source: EDAW, 1988

FIGURE 1-4
FAMILY HOUSING AREA

An analysis of cumulative impacts resulting from the relocation of the SUNT to Beale AFB in conjunction with the deactivation of the SR-71 program will be addressed as part of the SUNT EIS and not included in this EA.

2.0 ALTERNATIVES CONSIDERED INCLUDING THE PROPOSED ACTION

2.1 PROPOSED ACTION

2.1.1 Summary of the SR-71 Program

The 9th SRW maintains and operates a small fleet of Lockheed SR-71 aircraft from Beale AFB for the principal purpose of acquiring worldwide high-altitude flight reconnaissance information and other data to support United States strategic and/or national defense objectives. The SR-71 program at Beale AFB has established and maintained Beale AFB as its main hub of operations since the SR-71 aircraft and support facilities became operational in the late 1960's and early 1970's. The SR-71 program is currently operated by a staff of approximately 67 officers, 519 enlisted personnel, and 38 civilians for a total of 624 personnel at Beale AFB.

The Flightline Area of Beale AFB serves as the principal location for the SR-71 operation and maintenance facilities. These facilities include hangers, personnel support facilities, a unique flight simulator facility, maintenance and repair facilities, and planning and operational facilities. In addition to these ground-based support facilities, the SR-71 program also includes the use of T-38 aircraft (tandem-seated, fighter-type aircraft) used by SR-71 flight crews for training exercises, and Boeing KC-135Q tanker aircraft that provide in-flight air refueling support.

Principal jet aircraft operating from Beale AFB and the average daily takeoff operations by type of aircraft are shown below (SACOG, 1987).

Aircraft Type	No. of Takeoffs	Percentage
T-38	68	39
U-2/TR-1	62	36
KC-135	27	16
Transients	10	6
SR-71	6	3
	173	100

As shown by the above numbers, 3 percent of daily flight operations are SR-71 aircraft. It should be noted that the number of T-38 and KC-135 takeoffs shown above do not necessarily represent direct support of the SR-71 program only. Data are not available that break down flight information for

aircraft takeoffs which directly support SR-71 flight operations. T-38 trainers and KC-135 tanker operations also support other USAF functions at Beale AFB in addition to the SR-71.

The SR-71 mission is maintained at a high level of preparedness. In order to accommodate this, numerous flight training patterns are used by SR-71 aircraft throughout the western United States. These flight patterns have been developed to provide adequate training areas for SR-71 crews and avoid populated or otherwise sensitive geographic areas. The unique flight characteristics of the aircraft (maximum altitudes above 80,000 feet and maximum airspeeds in excess of Mach 3) have been known to cause loud sonic booms on deceleration and/or decent. Ninety-five percent of the 217 noise complaints received by Beale AFB personnel in 1988 have been attributed to these sonic booms (Captain Ronquillo, Personal Communication, 1989).

As a result of air speeds in excess of Mach 3, the aircraft creates quite high skin-friction temperatures during flight. The aircraft actually expands several inches in flight as a result of these high-skin temperatures. This design consideration required the development of a unique jet fuel (JP-7) for use in the SR-71. JP-7 is typical jet fuel with special additives that elevate its flash point to avoid inopportune and unanticipated combustion during flight.

The ability for the aircraft to thermally expand in flight has caused it to leak fuel when at rest at ground-level ambient temperatures. Over the years, fuel leakage and runoff from SR-71 operations has been attributed to large part to the contamination of a small drainage that leads from the flightline area south of the existing runway, and an area in the vicinity of the SR-71 hangers adjacent to the runway. These locations have been identified as sites 1 and 5 respectively under the Base Installation Restoration Program (Aerovironment, 1987).

2.1.2 Deactivation of SR-71 Program

The SR-71 aircraft will be flown to USAF storage facilities in the Southwest at the completion of mission assignments. Other aircraft such as the T-38 and KC-135Q used to support the SR-71 will be reassigned for other training or refueling activities at Beale AFB or other USAF installations. Officers and enlisted military personnel will be reassigned to other USAF duties at Beale or other USAF installations. Civilian personnel associated

with the SR-71 will either be reassigned or dismissed.

It is anticipated that the JP-7 fuel facilities (storage tanks, pipelines, pumps, etc.) will be converted to accommodate the use of typical jet fuel for other Beale AFB operations. Other base facilities associated with the SR-71 program, such as hanger space, maintenance, storage, and operation buildings, will remain and become available for other base uses.

2.2 ALTERNATIVES

To be provided.

3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This section presents discussions of existing conditions for specific disciplines that, based upon discussion with Beale AFB personnel, may have the potential to be affected by implementation of the proposed action. These disciplines include air resources, water resources, biological resources, noise, socioeconomics, air safety, and solid and liquid wastes.

3.2 AIR RESOURCES

Beale AFB is located in southern Yuba County and occupies portions of the Sacramento Valley and Mountain Counties Air Basins for which the California Air Resources Board (CARB) reports ambient air quality data. The closest air monitoring stations reporting to the CARB are Auburn, Yuba City, Pleasant Grove, and North Highlands. These stations monitor ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and 10-micron particulate matter (PM_{10}). The Auburn monitor, located approximately 16 miles southeast of Beale AFB, collects O_3 data. The Yuba City monitoring station is located 13 miles west-northeast of the base and monitors O_3 and PM_{10}. The Pleasant Grove station is situated approximately 20 miles south of Beale AFB and collects O_3; and the North Highlands monitor is approximately 5 miles south of the Pleasant Grove station and samples SO_2, O_3, CO, and NO_2. Air quality background concentrations for 1985 through 1987 collected at these stations are presented in Table 3-1.

Maximum background air quality data from the above-mentioned table are compared to National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) in Table 3-2. This table shows that State and Federal 1-hour O_3 standards and State 24-hour PM_{10} standards were exceeded at least once within the 1985-87 data collection period.

The United States Environmental Protection Agency (EPA) has designated Yuba County an attainment area for all pollutants except O_3. An attainment area is a region or air basin in which monitored air quality levels are in compliance with the NAAQS. The background data listed in Tables 3-1 and 3-2

TABLE 3-1

Summary of Relevant Air Quality Data Surrounding Beale Air Force Base

1985-1987

		O_3 (ppm)		SO_2 (ppm)				CO (ppm)		NO_2 (ppm)		PM_{10} (ug/m^3)	
Station	Year	1 hour	Annual	1 Hour	3 Hour[1]	24 Hour	Annual	1 Hour	8 Hour	1 Hour	Annual	24 Hour	Annual
Auburn	1985	.14	.037									-	-
	1986	.17	.039									-	-
	1987	.18	.041									-	-
Yuba City	1985	.11	.030									78	36.2
	1986	.14	.030									98	32.7
	1987	.12	.035									86	34.9
Pleasant Grove	1985	.12	.030										
	1986	.14	.028										
	1987	.14	.030										
North Highlands Blackfoot	1985	.18	.024	.01	.009	.008	0	10	6.3	.09	.014	-	-
	1986	.16	.028	.01	.009	.007	0	10	6.3	.09	.014	-	-
	1987	.14	.027	-	-	-	-	9	7.3	.10[2]	.022[2]		

[1] Estimated as 90 percent of 1 hour measured concentration (EPA, 1977).

[2] North Highlands station ceased monitoring NO_2 in 1987. These measurements were taken from the Citrus Heights, Sunrise Boulevard Monitoring Station (approximately 25 miles south of Beale Air Force Base).

ppm = parts per million
ug/m^3 = micrograms per cubic meters

TABLE 3-2

Maximum Background Air Quality Concentrations
Surrounding Beale Air Force Base
1985-1987

Pollutant	Averaging Period	Maximum Background Concentration (ug/m^3)	CAAQS (ug/m^3)	NAAQS (ug/m^3)
O_3				
	1 hour	353	180	240
	Annual	80	-	-
NO_2				
	1 hour	188	470	-
	Annual	41	-	100
CO				
	1 hour	11	23,000	40,000
	8 hour	8	10,000	10,000
SO_2				
	1 hour	26	655	-
	3 hour	24	-	1,300
	24 hour	21	131	365
	Annual	0	-	80
PM_{10}				
	24 hour	98	50	150
	Annual	36.2	30	50

Source:

ug/m^3 = micrograms per cubic meters

show that the 24-hour PM_{10} CAAQS standard of 50 ug/m^3 was violated at the Yuba City station in Sutter County at least once during the 1985-87 sampling period.

CARB also reports the average daily air emissions for air basins and counties based on information provided to them by each Air Pollution Control District. This information for Yuba County for 1983 (the most current data available) is presented in Table 3-3. Sources of emissions are presented by category. In this inventory, aircraft operating from Beale AFB are categorized under Other Mobile Sources as Aircraft-Government. This category of sources contributed less than 6 percent of the total organic gases, 7 percent of the reactive organic gases, slightly more than 2 percent of the carbon monoxide, and less than 5 percent of the oxides of nitrogen emitted county-wide.

3.3 WATER RESOURCES

3.3.1 Regional Setting

Beale AFB is drained by three principal drainage systems. They flow in a general southwesterly direction and are identified from east to west as Dry Creek, Hutchinson Creek, and Reeds Creek. Hutchinson Creek and Reeds Creek are classified as intermittent, while Dry Creek is a perennial stream. In the spring, vernal pools (perched or standing water) can be observed on and around Beale AFB in low-lying areas. This condition is caused by the presence of near-surface clays and hardpans that are relatively impervious to the vertical movement of water (Aerovironment, 1987).

Groundwater movement in the region has historically been in a direction from the Sierra Nevada foothills eastward to the Feather and Sacramento Rivers. Until the early part of this century, the river system served as a groundwater discharge system. However, extensive farming and irrigation in the Sacramento Valley area rapidly lowered the water table and altered the direction of flow, thus changing the river from a discharge to a recharge system (Aerovironment, 1987).

TABLE 3-3
1983 BASE YEAR INVENTORY
AVERAGE DAILY AIR EMISSIONS
YUBA COUNTY

SOURCE CATEGORY	Total Organic Gases	Reactive Organic Gases	Carbon Monoxide	Oxides of Nitrogen	Oxides of Sulfer	Particulate Matter	Particulate Matter < 10 microns
	********** EMISSIONS (TONS/DAY) **********						
STATIONARY SOURCES							
Fuel Combustion							
Agricultural	-	-	-	-	-	-	-
Petroleum Refining	-	-	-	-	-	-	-
Other Manufacturing/ Industrial	1.2	0.9	1.3	0.5	-	0.1	0.1
Other Services and Commerce	-	-	-	0.1	-	-	-
Residential	0.2	0.1	1.2	0.2	-	0.2	0.1
Other	-	-	-	-	0.1	-	-
TOTAL FUEL COMBUSTION	**1.4**	**1.0**	**2.4**	**0.8**	**0.1**	**0.3**	**0.2**
Waste Burning							
Agricultural-Debris	1.1	0.4	8.9	-	-	1.0	1.0
Range Management	-	-	0.1	-	-	-	-
Forest Management	-	-	0.4	-	-	-	-
Incineration	-	-	-	-	-	-	-
Other	0.1	-	0.6	-	-	0.1	0.1
TOTAL WASTE BURNING	**1.2**	**0.4**	**10**	-	-	**1.1**	**1.1**
Solvent Use							
Dry Cleaning	0.1	0.1	-	-	-	-	-
Degreasing	0.1	0.1	-	-	-	-	-
Architectural Coating	0.3	0.3	-	-	-	-	-
Other Surface Coating	0.2	0.2	-	-	-	-	-
Asphalt Paving	0.3	0.3	-	-	-	-	-
Consumer Products	0.4	0.4	-	-	-	-	-
Industrial Solvent Use	0.1	0.1	-	-	-	-	-
TOTAL SOLVENT USE	**1.5**	**1.5**	-	-	-	-	-

TABLE 3-3 (*continued*)
1983 BASE YEAR INVENTORY
AVERAGE DAILY AIR EMISSIONS
YUBA COUNTY

SOURCE CATEGORY	Total Organic Gases	Reactive Organic Gases	Carbon Monoxide	Oxides of Nitrogen	Oxides of Sulfer	Particulate Matter	Particulate Matter < 10 microns
	********** EMISSIONS (TONS/DAY) **********						
Petroleum Process, Storage & Transfer							
Petroleum Refining	-	-	-	-	-	0.1	-
Petroleum Marketing	0.4	0.4	-	-	-	-	-
Other	0.1	0.1	-	-	-	-	-
TOTAL PETROLEUM PROCESS, STORAGE & TRANSFER	**0.5**	**0.5**	-	-	-	**0.1**	-
Industrial Processes							
Food and Agriculture	-	-	-	-	-	0.2	0.1
Mineral Processes	-	-	-	-	-	0.3	0.1
Wood and Paper	-	-	-	-	-	0.1	-
TOTAL INDUSTRIAL PROCESSES	-	-	-	-	-	**0.6**	**0.2**
Misc Processes							
Pesticide Application	1.1	1.1	-	-	-	-	-
Farming Operations	-	-	-	-	-	4.7	2.8
Construction and Demolition	-	-	-	-	-	1.3	0.8
Entrained Road Dust - Paved	-	-	-	-	-	8.2	3.2
Entrained Road Dust - Unpaved	-	-	-	-	-	3.1	1.4
Unplanned Fires	0.1	0.1	0.8	-	-	0.1	0.1
TOTAL MISC PROCESSES	**1.2**	**1.2**	**0.8**	-	-	**17**	**8.3**
TOTAL STATIONARY SOURCES	**5.8**	**4.6**	**13**	**0.8**	**0.1**	**20**	**9.8**

TABLE 3-3 (concluded)
1983 BASE YEAR INVENTORY
AVERAGE DAILY AIR EMISSIONS
YUBA COUNTY

SOURCE CATEGORY	Total Organic Gases	Reactive Organic Gases	Carbon Monoxide	Oxides of Nitrogen	Oxides of Sulfer	Particulate Matter	Particulate Matter < 10 microns
	********** EMISSIONS (TONS/DAY) **********						
MOBILE SOURCES							
On Road Vehicles							
Light Duty Passenger	2.4	2.2	15	1.5	0.1	0.2	0.1
Light and Medium Duty Trucks	1.3	1.2	8.2	0.9	-	0.1	-
Heavy Duty Gas Trucks	0.3	0.3	3.8	0.3	-	-	-
Heavy Duty Diesel Trucks	0.1	0.1	0.4	1.0	0.1	0.1	0.1
Motorcycles	0.1	0.1	0.1	-	-	-	-
TOTAL ON ROAD VEHICLES	**4.2**	**3.9**	**28**	**3.7**	**0.2**	**0.4**	**0.2**
Other Mobile							
Off Road Vehicles	0.4	0.4	1.5	-	-	-	-
Trains	0.3	0.3	0.3	1.0	0.1	0.1	0.1
Aircraft - Government	0.7	0.7	1.1	0.3	-	-	-
Aircraft - Other	-	-	1.1	-	-	-	-
Mobile Equipment	0.3	0.3	3.2	0.9	0.1	0.1	0.1
Utility Equipment	0.2	0.2	0.9	-	-	-	-
TOTAL OTHER MOBILE	**1.9**	**1.9**	**8.1**	**2.2**	**0.2**	**0.2**	**0.2**
TOTAL MOBILE SOURCES	**6.1**	**5.8**	**36**	**5.9**	**0.4**	**0.6**	**0.4**
TOTAL YUBA COUNTY	**12**	**10**	**49**	**6.7**	**0.5**	**20**	**10**

NOTE: A "-" INDICATES THAT EMISSION ESTIMATES ROUNDED OFF TO LESS THAN 0.1 TON PER DAY.

SOURCE: CARB, 1986

3.3.2 Groundwater Conditions at Beale AFB

Groundwater generally flows in a westerly/southwesterly direction across the base. The most obvious groundwater characteristic in the area is intense drawdown southwest of the base boundary caused by irrigation pumping. Between 1945 and 1974, the water table fell about 60 feet, then stabilized in the mid-1970s. However, between 1977 and 1980, the water table declined sharply once more, in response to drought and increased irrigation for rice production (Aerovironment, 1987). Since 1980, the water level has risen markedly as a result of increased precipitation and lower rice production. Nevertheless, the overall drawdown has been sufficient to alter the direction of local flow in the area of the base well-field from west to nearly south.

It is assumed that groundwater tapped for base use is basically unconfined except where local clay/silt lenses cap the aquifer to produce semiconfined conditions. Fresh water occurs at a depth of between 300 and 500 feet below the surface under most of the base. There are no known historical problems of man-made contamination of local groundwater supplies (Aerovironment 1987).

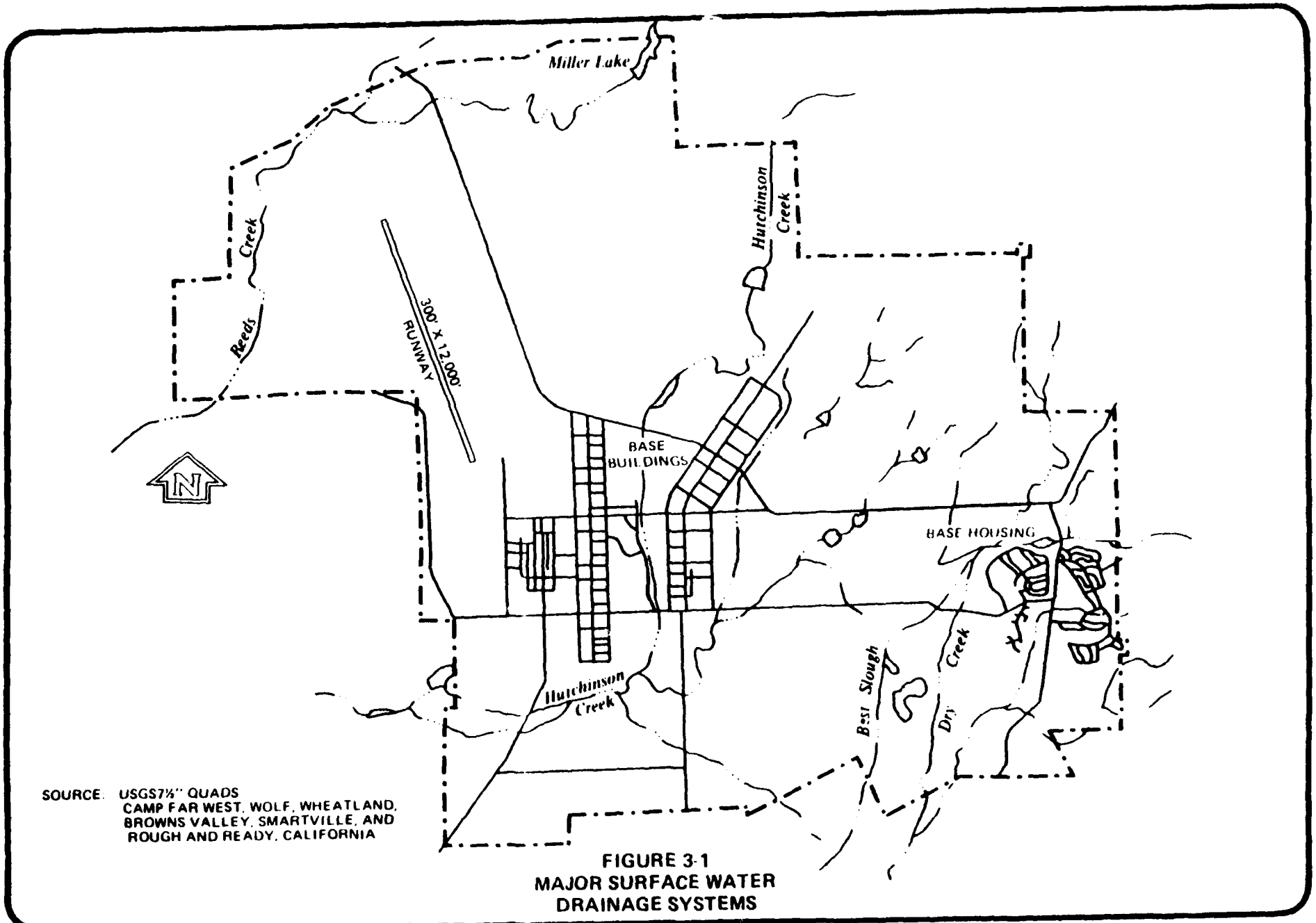
3.3.3 Surface Water Across Beale AFB

Runoff from the base is collected and converged offsite by three principal drainage systems. These drainage systems are Dry Creek, Hutchinson Creek, and Reeds Creek. With the exception of Dry Creek, these streams are primarily intermittent (Figure 3-1).

Dry Creek originates to the east of the base and flows to the southwest as Best Slough and Dry Creek. Parks Lake and Vassar Lake are part of this surface drainage system. Dry Creek eventually discharges into the Bear River.

Hutchinson Creek, which is the largest surface water system on the base, flows mainly south on base, then flows west/southwest, and eventually joins Reeds Creek. Upper and lower Blackwelder Lakes, Bedsprings Lake, Prisky Lake, and Shingle Lake are part of the Hutchinson Creek drainage system.

Reeds Creek flows mainly west through the base from Miller Lake and



SOURCE: USGS7½" QUADS
CAMP FAR WEST, WOLF, WHEATLAND,
BROWNS VALLEY, SMARTVILLE, AND
ROUGH AND READY, CALIFORNIA

FIGURE 3-1
MAJOR SURFACE WATER
DRAINAGE SYSTEMS

generally parallels the northern base boundary. Reads Creek and Hutchinson Creek joins before they drain into Plumas Lake southwest of the base.

Because of impervious soil conditions, lack of topographic relief and infrequent but sometimes heavy precipitation, the streams in the western portion of the base exhibit wide floodplain areas.

Both the Flightline and the Cantonment Areas drainage is collected by Hutchinson Creek and its tributaries. Surface runoff from the Family Housing Area is collected by unnamed tributaries to Dry Creek.

3.4 BIOLOGICAL RESOURCES

The existing biota were evaluated by a combination of literature reviews, contacts with biological experts, and discussions with base personnel. Extensive interviews were conducted to identify sensitive species known to occur on the base. In addition, Mr. Robert Holland of California Department of Fish and Game (CDFG) was contacted to determine if there were any records of State-listed plants occurring on at Beale AFB. Mr. Jim Jokerst, a biologist at Jones & Stokes, who conducted a springtime botany and wildlife survey for a proposed railroad line across the base, was also contacted in order to determine the presence of any sensitive species. The National Wetlands Inventory maps of Beale AFB were examined to determine if any wetlands had been previously identified.

3.4.1 Sensitive Species and Habitats on Beale AFB

Beale AFB contains extensive open space and a variety of native habitats. The latter include various ponds, freshwater marshes, oak woodlands, riprian woodlands, streams, and vernal pools. Vernal pools are quite extensive west of the existing runway and contain plants included in the California Native Plant Society (CNPS) rare plant inventory. A base-wide wetland inventory was conducted in 1985 by U.S. Department of Agriculture, Soil Conservation Service (USDA SCS). During this survey, all wetlands (including vernal pools) were classified and mapped. In addition, the potential occurrence of any CNPS-listed plants were evaluated. Although several CNPS-listed plants are present in vernal pools on the base, no plants

listed as threatened or endangered by the State or Federal government are known or expected to occur in other wetland or upland habitats on Beale AFB.

Similarly, no wildlife species listed as threatened or endangered by the State or Federal government are expected to occur on Beale AFB. However, the ponds on the base provide a seasonal habitat for migrating waterfowl, and the open grasslands provide a seasonal habitat for raptors.

Several federally listed bird species could occur at Beale AFB as vagrants on rare occasions for brief periods of time, including the Aleutian Canada goose, peregrine falcon, and bald eagle. It has been speculated that the endangered valley elderberry longhorn beetle could occur on the base; however, there are few elderberry trees present to provide suitable habitat.

3.4.2 Flightline Area

This area consists of gently rolling annual grasslands dominated by a variety of native and introduced grasses including wild oats (Avena sp.), barley (Hordeum sp.), and lolium (Lolium sp.). Several spring flowering herbs were also observed, including brodeia, wild hyacinth, and vetch. No shrubs or trees were present. The grassland appeared ungrazed and relatively undisturbed.

Several vernal pools (8 or 9) occur in the northern portion of this area, ranging in size from 20 by 20 feet to 150 by 50 feet. The pools were readily recognized due to the absence of grasses in the center and the predominance of coyote thistle (Eryngium vaseyi) in the pools. Compared to the pools located in the extensive grasslands west of the runway, the pools near this site are substantially smaller and of poorer quality.

The above pools may contain CNPS-listed species that could only be detected during a spring botanical survey. No listed or otherwise sensitive plant or wildlife species is expected to occur in this area.

3.4.3 Cantonment Area

Generally, land in this area has been previously graded or otherwise disturbed. Introduced grassland or turf vegetation is predominant. No

vernal pools are present, nor are any sensitive plant or wildlife species present. One potentially sensitive habitat is a small grove of cottonwoods within 200 feet of Hutchinson Creek.

3.4.4 Family Housing Areas

This area consists of rolling hills dominated by annual grassland. There are several drainages that traverse the site. However, no riparian vegetation is present except for five or six small and degraded willow trees. No vernal pools are present, nor are any sensitive wildlife species likely to occur at the site.

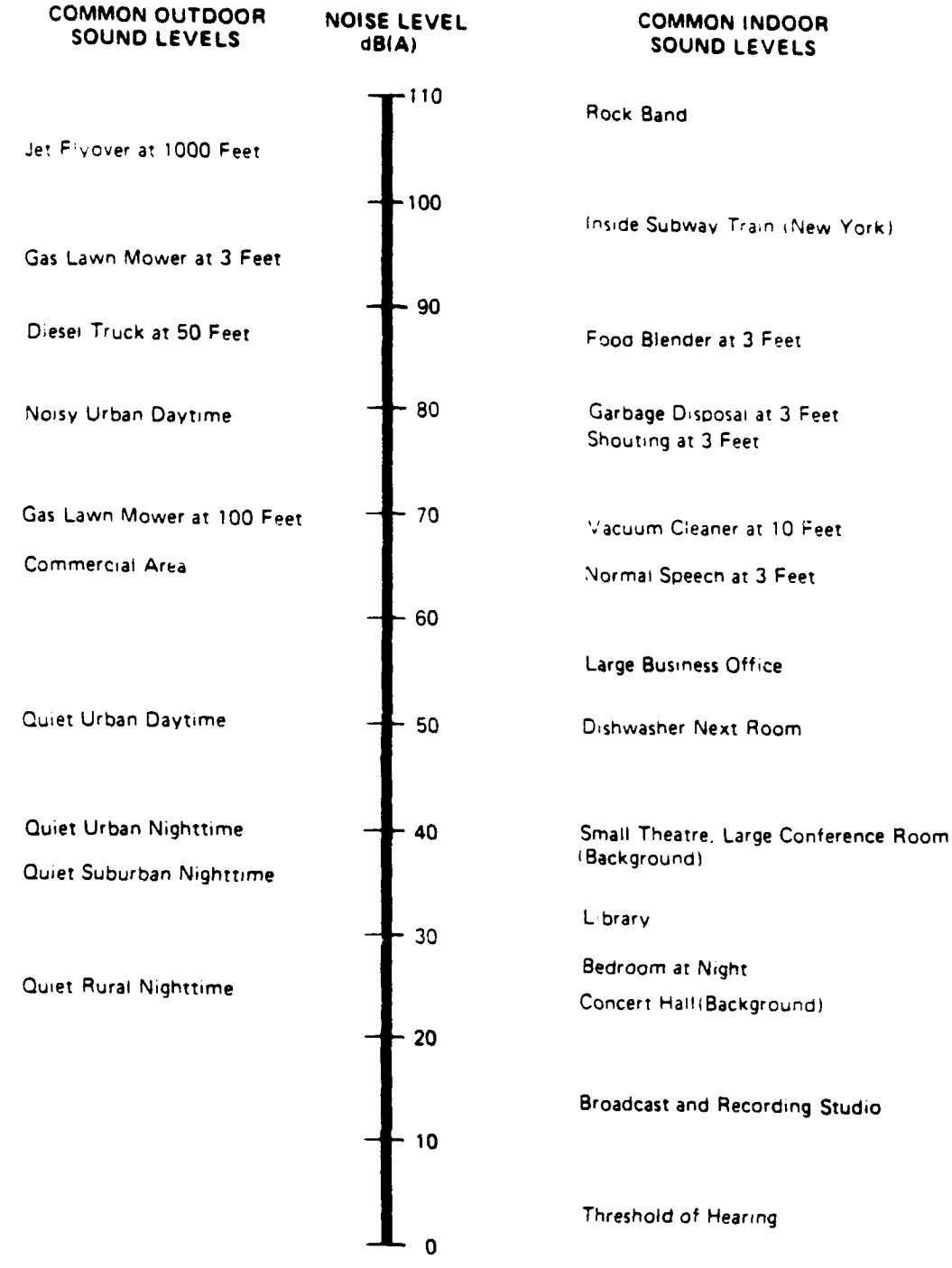
3.5 NOISE

3.5.1 Introduction

Noise is one of the byproducts of our society and is produced by a number of sources. The major characteristics of noise are: intensity measured in decibels (dB), frequency measured in cycles per second (Hz), and duration measured in time (hours, minutes, or seconds). Human reaction to noise is affected by all three of these factors. In the case of aircraft, engines generate vibrations in the air that are transmitted to the human ear and interpreted by the brain as noise. Generally, the most troublesome noise occurs at a high-pitched frequency, perceived as loud, and that occurs over long periods of time. Some typical sources of noise and the levels produced are shown in Figure 3-2. Measurement of noise levels are explained in Appendix A.

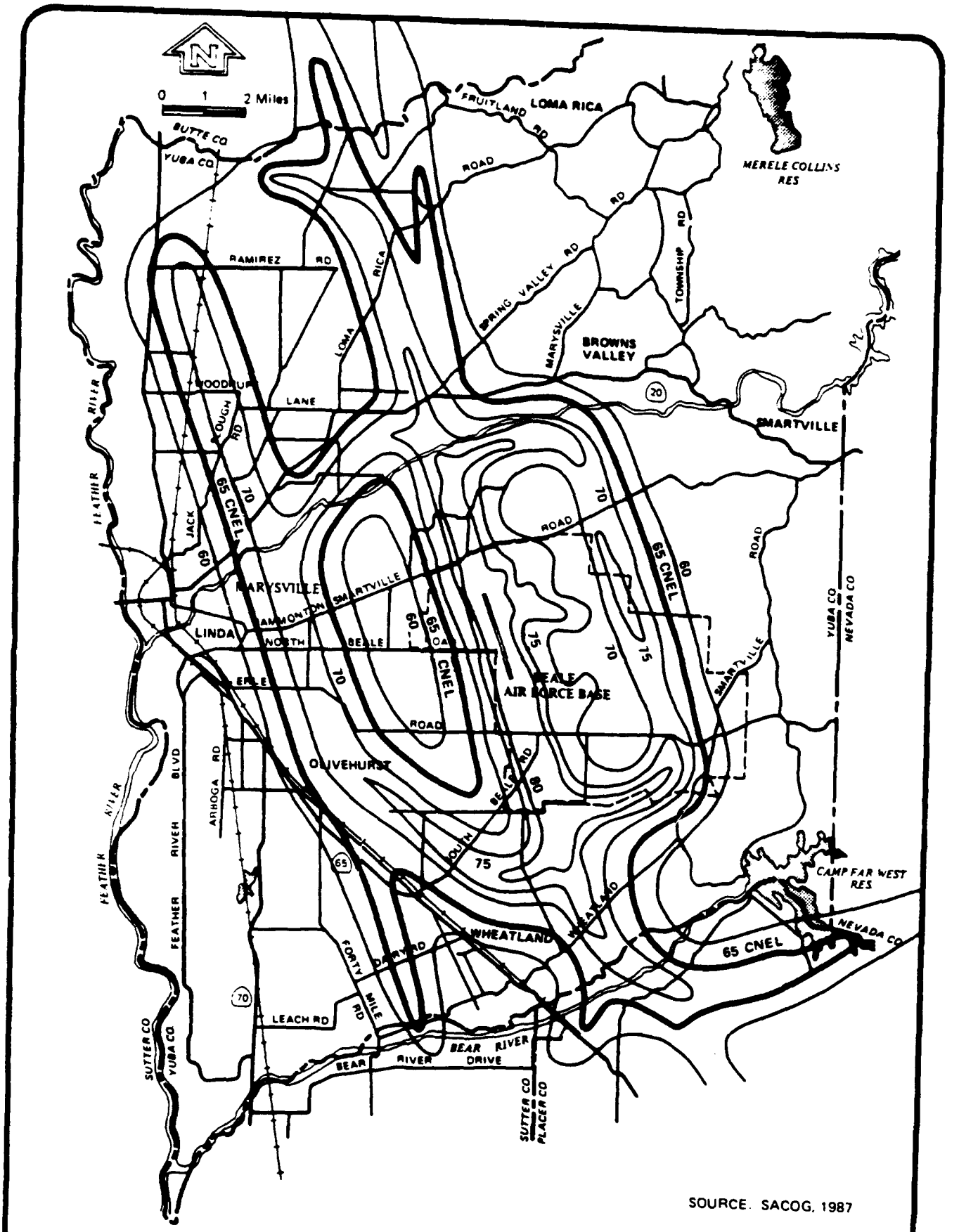
3.5.2 Existing Noise Conditions

Noise contours (lines connecting points of equal aircraft noise) for Beale AFB are based on average busy day existing and planned future levels of activity and the assumption that future military aircraft will not be noisier than existing military aircraft. Additionally, these are peacetime levels of activities. Figure 3-3 presents CNEL noise contours at Beale as reported by Sacramento Area Council of Governments (SACOG) in 1987. Based on studies of noise, the State of California has established noise standards in the California Administrative Code, Title 21,



SOURCE: BOLT BERANEK AND NEWMAN, INC., SEMINAR NOTES: NOISE CONTROL PLAN DEVELOPMENT PRESENTED BY U.S. DEPARTMENT OF TRANSPORTATION, FAA, 1979.

FIGURE 3-2
COMMON A-WEIGHTED ENVIRONMENTAL SOUND LEVELS



SOURCE: SACOG, 1987

FIGURE 3-3
NOISE CONTOURS

Subchapter 6. These standards designate the Community Noise Equivalent Level (CNEL) as the noise rating method to be used in California. The criteria established by the code for airports with four-engine turbo-jet or turbo-fan aircraft and 25,000 or more annual operations is 65 dB (CNEL) after January 1, 1986. Beginning with areas within the 65 dB (CNEL) contour, the State has deemed some types of land use incompatible with airfield noise. Land use incompatibility is summarized by Figure 3-4.

3.6 SOCIOECONOMICS

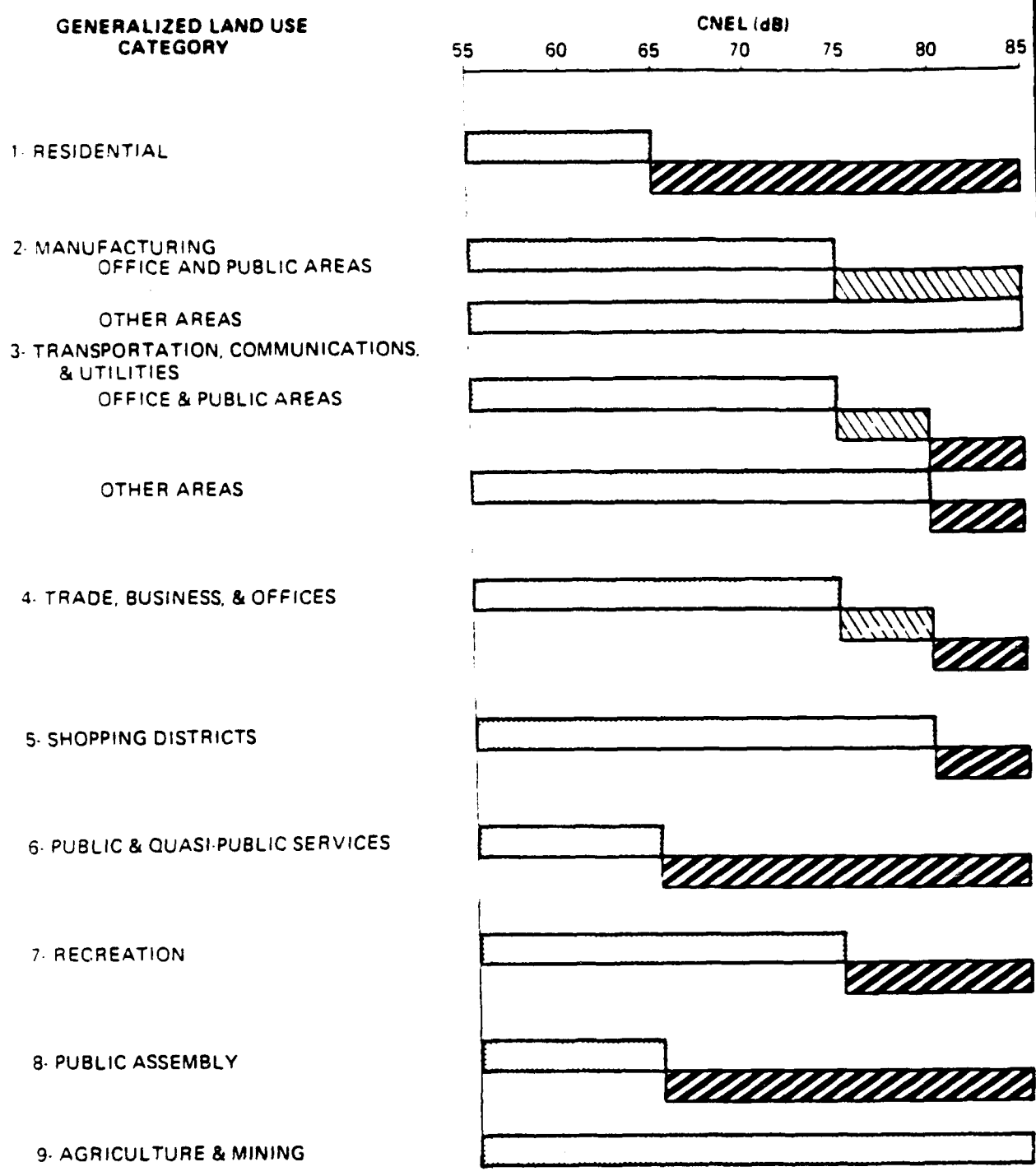
The description of socioeconomic factors is couched in a geographical context comprising primarily Yuba County, but also taking account of the surrounding region, as appropriate. Many of the military and civilian personnel of Beale AFB reside off base in Yuba as well as the neighboring counties of Sutter, Butte, Nevada, and Placer. A few reside as far away as Sacramento and its suburbs. The buying power of the personnel employed at Beale AFB is a major factor in the region's economic health.

3.6.1 Demographics

Yuba County's total population was estimated at 57,300 as of January 1, 1989 by the California Department of Finance's Population Research Unit (Cal DOF, 1989). Most (43,600 persons) live in unincorporated areas, while the incorporated cities--Marysville and Wheatland--had estimated populations of 11,850 and 1,890, respectively. In 1950, the county had 24,420 residents; this grew to 44,952 by 1975 and to 53,300 by 1985, reflecting a modest growth trend of between 1.7 percent and 2 percent per year over the last decades.

Most of Beale AFB personnel not residing in Yuba County live in neighboring Sutter County, in Yuba City, and its suburbs. Sutter County's population as of January 1, 1989 was estimated at 62,500; 24,600 were living in Yuba City, 4,100 in Lice Oak, and the remaining 43,600 in unincorporated parts of the county (Cal DOF, 1989). Thus, the combined population of the two-county area amounts to about 120,000, of which the urban residents number 42,500 or 35 percent.

The Yuba and Sutter County population is projected to grow less rapidly



SOURCE: Developed from Information SACOG, 1987

FIGURE 3-4
STATE OF CALIFORNIA
LAND USE COMPATIBILITY FOR AIRCRAFT NOISE

than the state as a whole over the next several years. From a base of 115,400 at July 1, 1987, the population is expected to rise to 129,000 by mid-1995, an average increase of 1.4 percent per year.

3.6.2 Economic Characteristics

Beale AFB lies in the Yuba City Metropolitan Statistical Area (MSA), which is composed of Yuba and Sutter Counties. The combined population of the two counties in 1989 was 119,800, as estimated by the California Department of Finance in 1989. The resident civilian labor force for Yuba City MSA was 44,700 in 1987, of which 39,450 were employed in the MSA and elsewhere, while 5,250 (11.7 percent) were unemployed (Cal EDD, 1988). The average annual wage and salary employment provided by Yuba City MSA-based employers totaled 34,500 in 1987, indicating that several thousand working residents of the region were employed away from the MSA. The structure of employment in the Yuba City MSA reflects a diversified economy resting on a strong base of agriculture, manufacturing, commerce, and government. Table 3-4 provides the composition of wage and salary employment for the Yuba City MSA in 1987.

The California Employment Development Department projects modest growth of employment in the Yuba City MSA. Between 1987 and 1989, Cal EDD estimated that total wage and salary employment in the region would increase by about 850 jobs, or about 2.5 percent. The retail trade sector was expected to experience the largest increase of any sector during the period--about 250 jobs. Next strongest are services (+200 jobs) and government (+150) jobs, of which the latter would be due entirely to growth of State and local government employment (Cal EDD, 1988).

Yuba and Sutter Counties were projected to have relatively slow population growth rates compared to Placer and Nevada Counties. Besides these two latter counties, the other central foothill counties and those around Sacramento are all projected to grow more rapidly than Yuba and Sutter in the near future (CCSCE, 1988), implying greater employment opportunities. Similar projections hold for the growth of personal income in the area. Over the longer term, however, the area could support stronger growth because of

TABLE 3-4
Annual Average Wage and Salary Employment
Yuba City Metropolitan Statistical Area, 1987
(Yuba and Sutter Counties, CA)

Economic Sector	Number of Jobs
Total employment	34,500
Total agriculture, forestry, and fishing	5,200
Agriculture production	4,725
Agricultural services, forestry and fishing	475
Total nonagricultural	29,300
Construction and mining	1,850
Manufacturing	3,200
Food & kindred products	1,100
Lumber & wood products	1,225
Other manufacturing	875
Transportation and public utilities	1,275
Wholesale trade	1,325
Retail trade	6,300
Finance, insurance, and real estate	1,425
Services	5,925
Government	8,025
Federal	1,475
State	850
Local & education	5,700

Source: California Employment Development Department, 1988.

Note: Employment is reported by place of work. Details may not add to totals because they have been rounded.

its ample supplies of water and developable land, compared to its neighbors to the south, which are already experiencing pressure on public services and housing costs.

Personal income levels in the Yuba City MSA have been lower, on a per capita basis, than the statewide averages. In 1987, the per capita income for the MSA was $12,158 (total personal income for the region aggregated to $1,408 million) compared to the statewide average of $17,841. The statewide average breaks down into a metropolitan portion average of $18,044 per capita, and a nonmetropolitan area average of $13,299 per capita. On this latter basis, the Yuba City MSA's per capita income is close to the statewide nonmetropolitan area average (BEA, 1989).

The Beale AFB Annual Report FY 1988 Economic Resource Impact Statement (ERIS) indicates that the base had a total of 4,642 personnel directly connected with host and tenant activities in FY 1988, of whom 4,142 were military and 500 were civilians. An additional 748 civilian and contractor personnel were employed in the Base Exchange, private on-base business, and contractor assignments. Personnel living on base totaled 6,232 persons (2,601 military and 3,631 dependents). Off-base personnel numbered 1,541 military and 1,512 dependents, plus the 1,248 civilians noted above, for a total of 4,301 persons (Beale AFB 9th SRW/ACC, 1988).

The ERIS estimates that the total military and civilian payrolls in FY 1988 were $104.62 million, of which about $58.6 million was spent off base in a 50-mile radius "Economic Impact Region." In addition, nonpayroll expenditures amounted to over $40 million ($25.1 million for construction activities, plus $15.4 million for services and supplies procurement). These latter nonpayroll expenditures were mainly to local vendors, with approximately $31.1 million being spent in the Economic Impact Region (EIR). The cumulative impact of the spending within the 50-mile radius EIR, considering multiplier effects on the regional economy, was estimated at $258.7 million, with secondary job creation due to the infusion of new income generating an additional 1,732 jobs in the region (Beale AFB 9th SRW/ACC, 1988).

The Housing Assistance Office (9th CSG/DEEV) of Beale AFB prepared a "Civilian/Military Locator Report" during November/December 1988. The report counted 4,183 military personnel and dependents, of which 1,411 were living off base within the 50-mile EIR. An additional 494 civilian employees of host and tenant operations were accounted for, living within a 50-mile radius (including 56 on base). The vast majority of the off-base military personnel (and their dependents) live close to the base: 1,177 (83 percent of the 1,411 living in the 50-mile radius EIR) live in Marysville, Yuba City, Penn Valley, and Wheatland (and their suburbs), with the next largest contingent (about 125) living in Sacramento and its suburbs. Similarly, among the civilian employees residing off base (449), most (319 or 73 percent) live in nearby Marysville, Yuba City, Penn Valley, and Wheatland.

From these data, it is evident that the bulk of economic stimulus from consumption spending by Beale AFB personnel and civilian employees accrues to Yuba and Sutter Counties. Secondary effects radiate to the larger central California region through operation of employment and income multiplier effects.

3.7 Air Safety

3.7.1 Base Facilities

The base has one active concrete runway, which is 12,000 feet long and 300 feet wide. There are asphalt overruns of 1,000 feet on the south and 2,250 feet on the north. The runway is capable of handling any aircraft in the Air Force inventory.

The Air Force maintains 3,000 foot by 3,000 foot clear zones at each end of the runway, a 1,000-foot safety zone on each side of the runway center line, a 200-foot safety zone from the center of each taxiway, and a 125-foot minimum safety zone from outside the aprons. Hazardous cargo pads are located at the base, with a 1,250-foot safety distance required between hazardous cargos and inhabited structures.

Navigational aids include high-intensity runway lights, high-intensity approach lighting, Visual Approach Slope Indicator (VASI) lights, Solid-State

Instrument Landing System (SSILS), FAA's Area Surveillance Radar (ASR) station, Marysville's VHF Omni-Range and Tactical Navigation Station (VORTAC), and UHF transmitters and receivers.

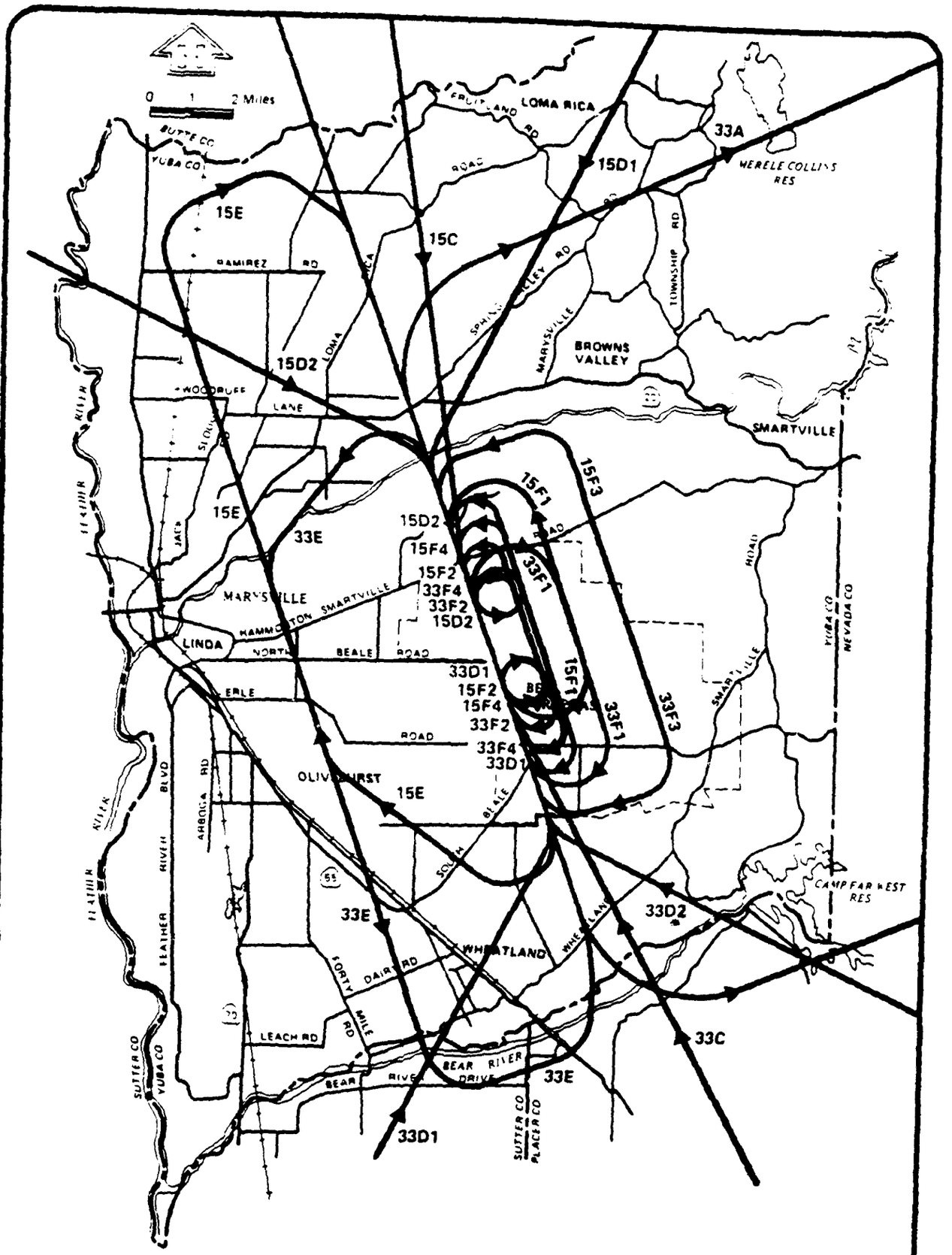
3.7.2 Flying Operations

Flying operations at Beale include three types of reconnaissance aircraft, aerial refueling aircraft, and four types of training aircraft. On average, there are 173 takeoffs per day from Beale. From 1978 to 1985, annual aircraft operations have averaged 103,544. Flight patterns used are presented in Figure 3-5 and explained in Table 3-5. SR-71 aircraft average six takeoffs each day and represent an average of three percent of all takeoffs at Beale. Additionally, a portion of T-38 and KC-135 operations are in direct support of the SR-71 program. The total average daily takeoffs of T-38 is 68 or 39 percent of all takeoffs. For KC-135 there is a daily average of 27 takeoffs or 16 percent of all takeoffs.

Traffic patterns for Beale AFB are established according to Air Force directives, with safety and noise abatement considerations foremost. Prevailing winds are from the south about 90 percent of the time; thus, the majority of takeoffs are toward the south. The majority of the flying activity takes place east of the airfield and is regulated to a southeasterly flow. This means that most takeoffs are toward sparsely populated rural areas in Yuba and Placer counties. The northern patterns also fly over sparsely populated areas.

Flying operations are coordinated with the Federal Aviation Administration (FAA), and flight paths are integrated to minimize conflict with civilian aircraft operations at Sacramento Metropolitan Airport, Yuba County Airport, Sutter County Airport, Lincoln Airport, and with military operations at McClellan Air Force Base.

Use of airspace around Beale AFB is controlled by the Federal Aviation Administration (FAA). In the Sacramento area, responsibility for control of terminal airspace lies with five local air traffic control (ATC) towers located at Metropolitan and Executive Airports, and at McClellan AFB,



SOURCE: SACOG, 1987

FIGURE 3-5
BEALE AFB FLIGHT PATTERNS

TABLE 3-5
Key to the Flight Patterns as Shown in Figure 3-17

Track	AGL Altitude (feet)*	Aircraft	Percent
15a Sarra 1 SID	Climb out on	all assigned	7
33a Sarra 1 SID	departure		1
15c Tacan	1,600 @ 5 miles	all assigned	2
33c Tacan	descending to RWY		1
15d1 Overhead	2,100	T-38, SR-71, U-2	1
15d2 Overhead			10
33d1 Overhead	2,100	T-38, SR-71, U-2	1
33d2 Overhead		KC-135	
15e Radar	3,000 downwind	all assigned	9
33e Radar	2,000 baseleg		1
15f1 Closed Traffic	2,100	T-38, SR-71, U-2	27
33f1 Closed Traffic		KC-135	
15f3 SFO	3,100, 1,600	U-2	20
33f3 SFO	1,300, 1,100		2
15f3 Conventional	1,600	KC-135	12
33f3 Conventional			1
15f4 Extended Closed	1,600	U-2	1
33f4 Extended Closed			1
			99**

*AGL (above ground level) altitudes are measured above the established elevation of the runway. The runway elevation for Beale AFB is 113 feet above mean sea level (MSL).

**Because percentages are rounded off, the total percentage does not equal 100.

Source: SACOG, 1987

Mather AFB, and Beale AFB. Responsibility for transitional area airspace lies with the Terminal Radar Approach Control Facility (TRACON) located in Sacramento. The Air Route Traffic Control (ARTCC), located in Fremont, is responsible for enroute airspace.

Aircraft arriving at or departing from Beale AFB generally follow Standard Terminal Arrival Routes (STARs), Standard Instrument Departures (SIDs), and low-altitude airways. STARs provide for a transition between the enroute phase of a flight and the beginning of the instrument approach, while SIDs provide for the transition between departure and the enroute phase.

Aircraft not using STARs and SIDs use identified low-altitude airways. The local low-altitude airway structure is identified by reference to the Sacramento VHF Omni-Range and Tactical Navigational (VORTAC) facility located in east Yolo County.

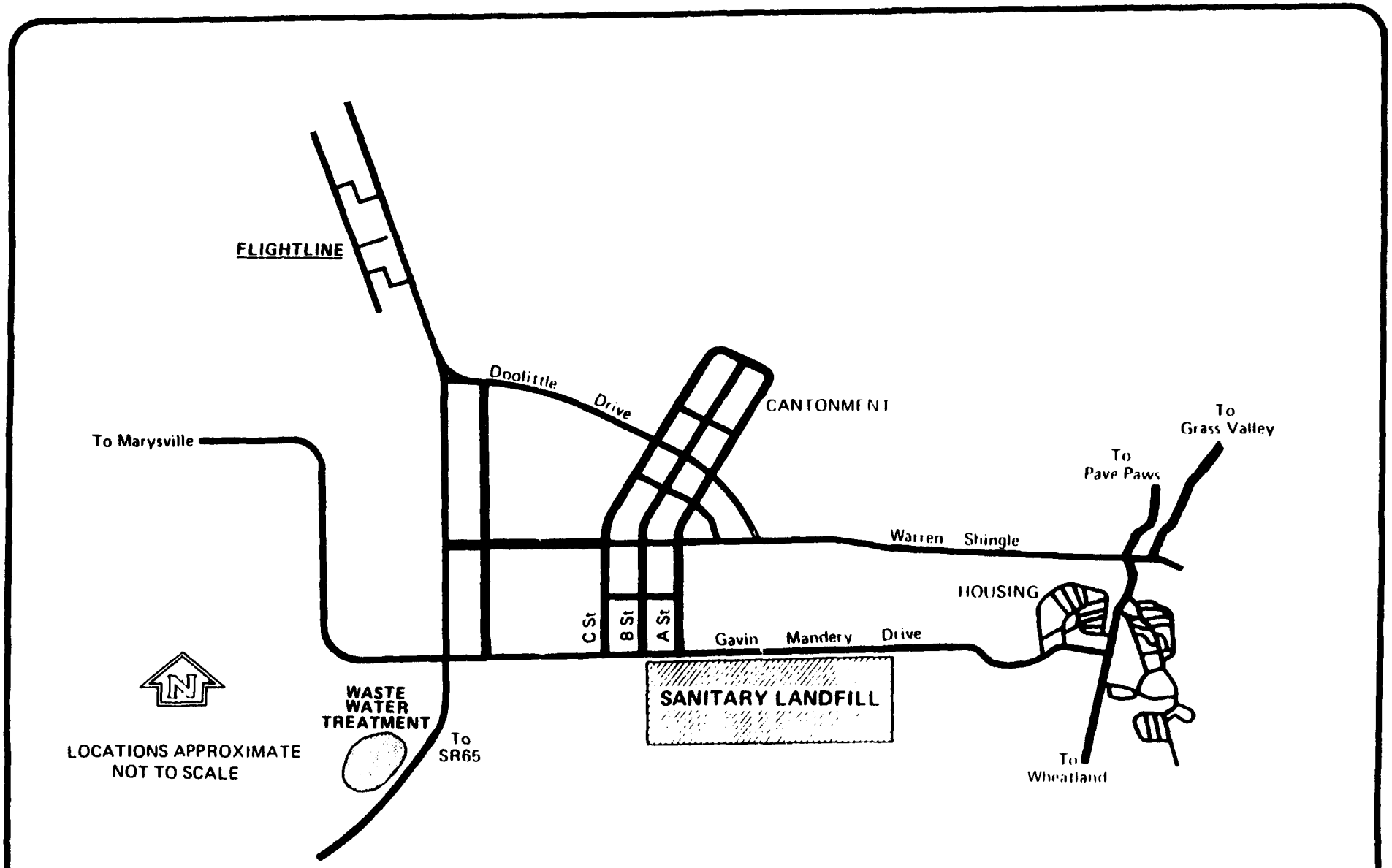
3.8 Waste Disposal

3.8.1 Solid Waste Disposal

Solid waste from base operations and households is disposed in a sanitary landfill located on the southern portion of the facility, between the Cantonment Area and the family Housing Area. Vehicles enter the landfill from Gavin Mandry Road. Figure 3-6 presents the location of waste disposal facilities on Beale AFB.

This landfill, occupying about 40 acres, has been in use since 1981, and is permitted by the State as a Class III (nonhazardous) landfill. Waste deposited there is primarily general refuse. Operations here consist of trench method disposal. Water run-on and run-off controls are present. Management practices include no chemical disposal and covering the waste daily (Aerovironment, 1987).

This landfill was investigated under the Installation Restoration Program in 1985 through 1987. It was found to cause no environmental contamination.



SOURCE: Aerovironment, 1987

FIGURE 3-6
WASTE DISPOSAL FACILITIES LOCATIONS

3.8.2 Wastewater and Sewage Disposal

The entire base, except the Flightline Area, is served by a gravity flow sanitary sewer system. Lift Station No. 5/9 is the main lift station serving the Flightline Area. All sanitary sewer flow is delivered to the Beale AFB Sewage Treatment Plant (STP), where it receives primary and secondary treatment with aeration. The STP has a sustained capacity of 5 million gallons per day and presently peaks at an average flow of 1.45 million gallons per day. During periods of heavy rain, storm water infiltrates the sanitary sewer system and at times causes an overflow condition if operators do not meter flow into the plant by backfilling the sanitary lines (PAT, 1989).

During summer months, the aerated secondary effluent is used to water the golf course; otherwise it is discharged to Hutchinson Creek. The California Regional Water Quality Control Board (CRWQCB) issued a National Pollution Discharge Elimination System (NPDES) permit to Beale AFB to discharge their treated wastewater. A cease-and-desist order has been issued by the CRWQCB requiring Beale AFB to bring its wastewater discharge into compliance with the requirement of their permit (O'Haire, 1989).

4.0 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION

4.1 INTRODUCTION

This section provides an evaluation of potential environmental consequences that would occur as a result of implementation of the proposed action. Cumulative impacts from this proposed action and an unrelated proposed action to relocate the SUNT at Beale AFB from nearby Mather AFB will be addressed in a separate EIS being prepared to assess potential impacts related to the SUNT move.

4.2 CONSEQUENCES TO THE PHYSICAL AND HUMAN ENVIRONMENTS

4.2.1 Air Resources

Regional and local air quality will not be adversely impacted by implementation of the proposed action. Deactivation of the SR-71 program will eliminate a small percentage of existing aircraft activity at the base, and air emissions associated with SR-71 program flight activities will not occur. This would result in a small, but beneficial impact to local and regional air quality.

4.2.2 Water Resources

Deactivation of the SR-71 program at Beale AFB will not impact groundwater or surface water resources at Beale AFB. Accidental fuel spillage and subsequent contamination of adjacent drainage areas south of the existing runway that has previously occurred through normal SR-71 operations will not continue to occur. Implementation of the proposed action should result in an overall improvement to local water resources on this portion of the base.

4.2.3 Biological Resources

Terrestrial and aquatic resources at Beale AFB will not be impacted as a result of the proposed action. Existing grassland and riparian habitat along drainages south of the existing runway that have been previously affected by contaminated surface runoff from the runway area as a result of SR-71

operations will not continue. This will result in an overall improvement to the quality of these habitats in this portion of the base.

4.2.4 Noise

No adverse impacts will occur as a result of the proposed action. Deactivation of SR-71 aircraft at Beale AFB will result in a small, unquantified reduction in noise levels generated from normal base operations. However, reductions in overall noise as a result of deactivating the SR-71 program are not expected to significantly reduce the aerial coverage affected by noise levels greater than 65 L_{dn} as shown on Figure 3-3.

Beale AFB received approximately 217 noise complaints during 1988; 95% of which were directly attributed to SR-71 operations (Captain Ronquillo, Personal Communications, 1989). These complaints originated from different areas across the western portion of the United States in the vicinity where SR-71 flight training patterns have been established. These complaints were usually the result of sonic booms generated by the SR-71 during flight training exercises. The deactivation of the SR-71 program would eliminate the major contributor of noise complaints received by Beale AFB and sonic booms over the western United States as a result of cessation of SR-71 flight training exercises.

4.2.5 Socioeconomics

Implementation of the proposed action will result in the elimination of approximately 619 positions at Beale AFB currently occupied by a combination of officer, enlisted and civilian personnel. Officer and enlisted personnel will be transferred to other USAF installations or to other functions currently operating out of Beale AFB. It is anticipated that up to 38 civilian jobs may be lost as result of the proposed action. This loss in civilian job opportunities represents an insignificant adverse impact to the local and regional economic base.

It should be noted that relocation of the SUNT to Beale AFB from nearby Mather AFB as a result of the Commission's recommendations for base realignment and closure is expected to create approximately 1677 new employ-

ment oppportunities at Beale AFB, 171 of which are expected to be held by civilian personnel. This is anticipated to more than offset the loss of civilian employment opportunities associated with the deactivation of SR-71 program.

4.2.6 Air Safety

The deactivation of the SR-71 program at Beale AFB will reduce air traffic at and in the vicinity of the base by more than three percent. Reductions in air traffic will enhance overall air safety since opportunity for aircraft accidents will be reduced. Therefore, the deactivation of the SR-71 program will help to improve air safety in and around Beale AFB.

4.2.7 Waste Disposal

A reduction in solid and liquid waste will result from the proposed action since waste currently generated by operation and maintenance of the SR-71 program and associated support activities will no longer be generated. Therefore, deactivation of the SR-71 program will have an overall positive impact on waste disposal.

4.3 MITIGATION MEASURES

No mitigation measures are required for the proposed action. The loss of military and civilian employment opportunities will be more than offset by an unrelated proposed action to relocate the SUNT to Beale AFB. This cumulative impact is being addressed in a separate EIS document specific to the SUNT relocation.

4.4 ADVERSE EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED ACTION IS IMPLEMENTED

The only unavoidable adverse impact that cannot be avoided as a result of implementation of the proposed project would be the loss of approximately 619 military and civilian positions. Military personnel will be either transferred to other USAF installations or assigned to other functions at Beale AFB. The loss of about 38 civilian employment opportunities is

expected to be insignificant with respect to the local and regional economic base. In addition, an unrelated proposed action to relocate the SUNT to Beale AFB will create about 171 new civilian jobs at Beale AFB and should more than offset the loss of civilian employment opportunities related to the deactivation of the SR-71 program.

4.5 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

No irreversible and irretrievable commitment of land uses or natural resources is expected to occur as a result of the deactivation of the SR-71 program.

4.6 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

Implementation of the proposed action is not expected to result in any long-term adverse impacts on the productivity of the environment. Existing SR-71 facilities that will no longer be needed under the current program (hangers, maintenance and operating facilities, pipelines, fuel tanks) will become available for other compatible uses.

5.0 SUMMARY OF FINDINGS

The proposed action is not expected to have significant adverse impacts on the environment, nor is it anticipated to be environmentally controversial. Therefore, a detailed environmental impact statement is not considered necessary, and a Finding Of No Significant Impact (FONSI) should be issued.

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7.0 LIST OF PREPARERS AND ORGANIZATIONS AND PERSONS CONTACTED

7.1 PREPARERS

To be provided.

7.2 ORGANIZATIONS AND PERSONS CONTACTED

The following organizations and persons were contacted during the preparation of this Environmental Assessment:

Beale Air Force Base
Robert Woodson, Beale AFB Engineering Group
John Thomson, Beale AFB Engineering Group
Tracy Kissler, Beale AFB Engineering Group
Captain Tony Ronquillo, Public Affairs Office
Colonel Orcutt, SR-71 Operations

Yuba County
Rick Allman, Yuba County Planning Office
Bernie Engle, Yuba County APCD

California Department of Fish and Game
Robert Hubbard

Jones & Stokes
Jim Jokerst

APPENDIX A

NOISE MEASUREMENT INFORMATION

APPENDIX A

Definitions of Noise Measurements

Typically, noise measurements are expressed as dB, A-weighted sound levels, day-night average sound levels (L_{dn}), or community noise equivalent levels (CNEL). The measurement scale used in community noise level evaluations is the A-weighted sound level, commonly called the A-level or dB(A). It is measured in decibels to provide a scale with the range and characteristics most consistent with that of human hearing ability and annoyance potential.

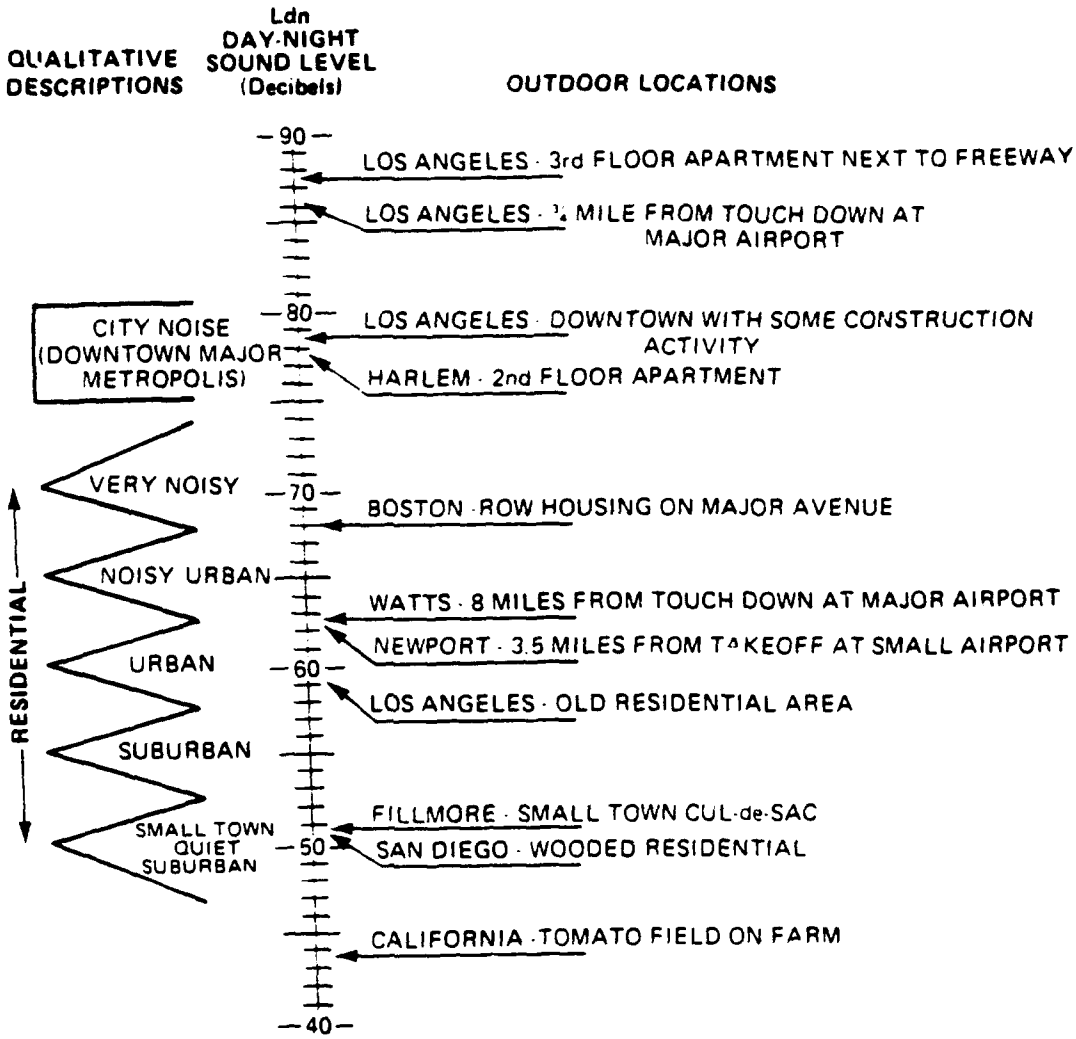
To establish the A-weighted sound level, the acoustic signal is detected by microphone and then filtered, heavily weighting those portions of noise that are loudest when experienced by people. This weighting of sound energy corresponds approximately to the relative annoyance of human senses to noise experienced at various frequencies.

The A-weighted sound level of traffic noise and other long-term noise-producing activities within and around the community varies considerably with time. Measurements of this varying level are accomplished by obtaining the values of noise for a specified period of time. This yields the A-level values of noise that are useful in assessing the potential annoyance of the disturbance.

It is recognized that a given level of noise may be more or less tolerable depending on the intensity, duration, and time-of-day of the exposure experienced by an individual. The State Department of Aeronautics and the California Commission on Housing and Community Development have adopted the Community Noise Equivalent Level (CNEL) to account for peoples' sensitivity to noise exposure. This measure considers the energy equivalent sound levels for the evening hours (1900 hours to 2200 hours) and increases the noise measured during this period by 5 dB. An increase for the late evening and morning noise levels (2200 hours to 0700 hours) of 10 dB is applied. The daytime noise levels are combined with these weighted levels and are averaged to obtain a CNEL value.

The maximum exterior noise exposure of noise-sensitive land uses should not exceed an average day-night sound level L_{dn} of 65 dB. The L_{dn} is

calculated by weighting noise between 2200 hours and 0700 hours by 10 dB, as with the CNEL. However, the noise level during the evening hours (1900 to 2200) is not weighted as it is in the CNEL. For practical purposes, the two measures agree to within 1 dB and are frequently used interchangeably. Figure A-1 presents some examples of L_{dn} levels in common human environments.



SOURCE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY INFORMATION ON LEVELS OF ENVIRONMENTAL SOUND REQUISITE TO PROTECT PUBLIC HEALTH AND WELFARE WITH THE ADEQUATE MARGIN OF SAFETY MARCH 1974, p 14.

FIGURE A-1
EXAMPLES OF DAY-NIGHT AVERAGE SOUND LEVELS, Ldn