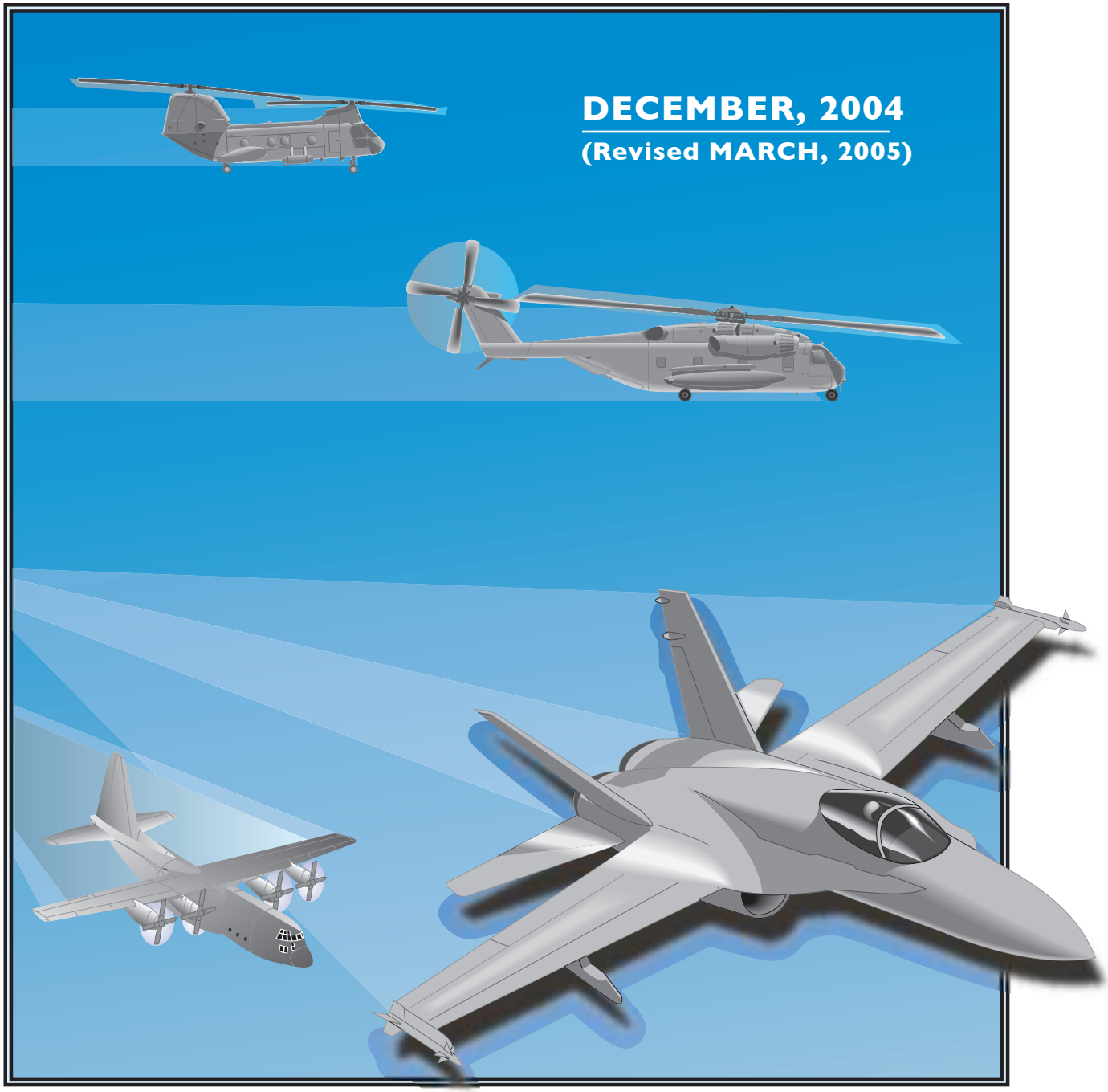
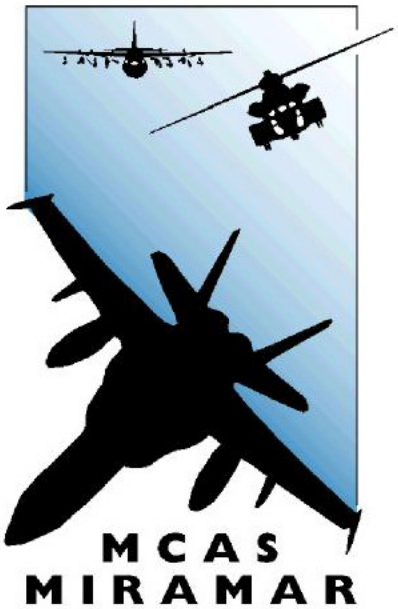
MARINE CORPS AIR STATION, MIRAMAR

AICUZ UPDATE

AIR INSTALLATIONS COMPATIBLE USE ZONES





ACKNOWLEDGEMENTS

Prepared for:
Marine Corps Air Station,
Miramar

Under the direction of:
Commander,
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Under Contract N68711-98-D-5702 with:
Southwest Division
Naval Facilities Engineering Command
San Diego, CA 92132-5190

DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
2 NAVY ANNEX
WASHINGTON, DC 20380-1775

IN REPLY REFER TO:
11011
LFL-3
14 JAN 2005

From: Commandant of the Marine Corps
To: Commander, Marine Corps Air Bases Western Area
Marine Corps Air Station Miramar, P.O. Box 452001, San Diego, CA 92145-2001

Subj: MARINE CORPS AIR STATION, MIRAMAR, CALIFORNIA AIR INSTALLATIONS COMPATIBLE USE ZONES (AICUZ) STUDY UDDATE

Ref: (a) AICUZ Update, MCAS Miramar, California, December 2004

1. The Air Installations Compatible Use Zones (AICUZ) Study Update for the Marine Corps Air Station, Miramar, as presented by the reference, is approved for implementation.

2. This study is a result of extensive analysis of all known methods to insure that development of surrounding lands will be compatible with the noise levels and accident potential zones associated with airfield operations and to protect the public's safety, health and welfare while minimizing the degradation of the operational capability of the military air installation. This analysis is consistent with the provisions of the Litigation Settlement Agreement.

3. It is envisioned that through wide public distribution of this document and a continuing dialogue between the Commanding Officer, Marine Corp Air Station Miramar and the local government officials these land use recommendations can be adopted.

PAUL C. HUBBELL
Deputy Assistant Deputy Commandant
Installations and Logistics (Facilities)

By direction

Copy to:
COMMARFORPAC HI
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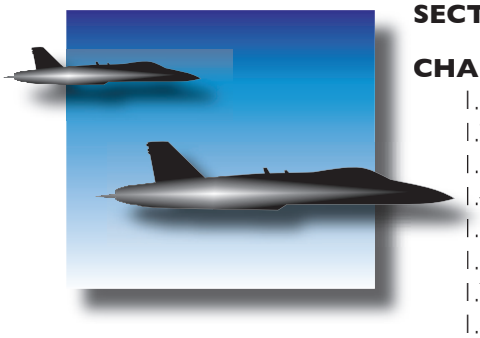

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Table 3 From the OPNAVINST 11010.36B "Suggested Land Use Compatibility in APZs"

ACRONYMS

A

AAD	Average Annual Day Operations
AEOZO	Airport Environs Overlay Zone Ordinance
AGL	Above Ground Level
AICUZ	Air Installations Compatible Use Zones
ALUC	Airport Land Use Commission
APOE	Aerial Port of Embarkation
APZ	Accident Potential Zone
ARP	Airport Reference Point
ARTCC	Air Route Traffic Control Center
ASA	AICUZ Study Area

B

BRAC	Base Realignment and Closure

C

CEQA	California Environmental Quality Act
CLUP	Comprehensive Land Use Plan
CLAMP	Committee for Land and Airspace Management Policy
CMC	Commandant of the Marine Corps
CNEL	Community Noise Equivalent Levels
CNO	Chief of Naval Operations
COMCABWEST	Commander, Marine Corps Air Base Western Area
CONUS	Continental United States
CPLO	Community Plans & Liaison Office

D

DOD	Department of Defense
DoN	Department of the Navy

E

EAF	Expeditionary Air Field
EIS	Environmental Impact Statement

F

FAA	Federal Aviation Administration
FACSFAC	Fleet Area Control Surveillance Facility
FAR	Federal Aviation Regulations
FLCP	Field Carrier Landing Practice
FRSs	Fleet Replacement Squadrons

G

GA	General Aviation
GCA	Ground Control Approach
GIS	Geographic Information System

I

IFR	Instrument Flight Rules

L

LHD	Helicopter Landing Deck

M

MACG	Marine Air Control Group
MAG	Marine Air Group
MALS	Marine Aviation Logistics Squadron
MAW	Marine Aircraft Wing
MCAS	Marine Corps Air Station
MCB	Marine Corps Base
MFD	Miramar Flight Division
MFH	Military Family Housing
MSL	Mean Sea Level
MTR	Military Training Route
MWHS	Marine Wing Headquarters Squadron
MWSG	Marine Wing Support Group
MWSS	Marine Wing Support Squadron

N

NALF	Naval Auxiliary Landing Field
NAS	Naval Air Station
NASNI	Naval Air Station North Island
NCFUA	North City Future Urbanizing Area
NEPA	National Environmental Policy Act
NOLF	Navy Outlying Landing Field

O

OPNAVINST	Chief of Naval Operations Instruction

S

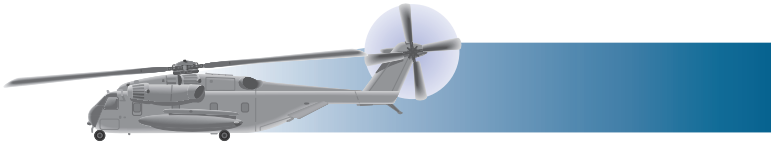
SANDAG	San Diego Association of Governments
SDCRAA	San Diego County Regional Airport Authority
SELs	Sound Exposure Levels
SIDs	Standard Instrument Departures
SR	State Route

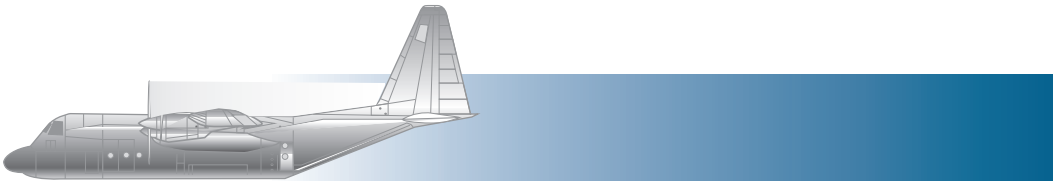
T

TACTS	Tactical Aircrew Combat Training System
T & G	Touch and Go
TCA	Terminal Control Area
TRACON	Terminal Radar Approach Control

V

VFR	Visual Flight Rules





MARINE CORPS AIR STATION, MIRAMAR

CHAPTER 1 - INTRODUCTION

AIR INSTALLATIONS COMPATIBLE USE ZONES

CHAPTER 1 • INTRODUCTION

This column is used to provide a "quick review" of the contents of the document. Major findings, issues, recommendations and discussions are included in this column and serve as an "Executive Summary" for the report.

The Air Installations Compatible Use Zones **(AICUZ)** Study for Marine Corps Air Station **(MCAS)** Miramar has been prepared subsequent to the migration of Marine Corps aviation units to Miramar. This document supersedes the previously adopted Naval Air Station **(NAS)** Miramar land use compatibility AICUZ guidelines published in 1992. The Final Environmental Impact Statement **(EIS)** of February 1996 addressed the impacts of co-location for both fixed and rotary-wing aircraft, but was not adopted for land use planning purposes. In 1997, a lawsuit was filed in United States District Court, challenging the adequacy of the EIS. The settlement agreement resolving that dispute required preparation of this AICUZ update. The MCAS Miramar AICUZ update also serves as the basis of the command's recommendation to the revised MCAS Miramar Comprehensive Land Use Plan **(CLUP)**. The revision of all CLUP's for military and civilian airports in the San Diego Region has been directed under legislative mandate through the San Diego County Regional Airport Authority **(SDCRAA)** to be completed by June 2005.

1.1 AICUZ PURPOSE

The AICUZ follows the directives set forth in OPNAVINST 11010.36B, dated 19 December 2002.

The Department of Defense AICUZ Program was initiated to protect the public's health, safety and welfare and to prevent encroachment from degrading the operational capability of military air installations in meeting national security objectives. The AICUZ program was devised to promote sustainability strategies in working with local, regional, state and federal government organizations for land use planning purposes, particularly in proximity to air installations, flight corridors and military operating areas. The MCAS Miramar AICUZ study provides the requisite analysis of noise levels, accident potential and obstruction clearance criteria associated with military airfield operations according to Department of the Navy policy and directives (OPNAVINST 11010.36B, 19 Dec 2002).

1.2 GOALS AND OBJECTIVES

The primary goal is to protect health, safety and welfare by encouraging compatible land use planning in neighboring communities affected by Miramar operations.

The purpose of the AICUZ program is to achieve compatibility between air installations and neighboring communities by:

1. Protecting the health, safety, and welfare of civilians and military personnel by encouraging land use which is compatible with aircraft operations;

2. Protecting Navy and Marine Corps installation investment by safeguarding the installation's operational capabilities;

3. Reducing noise impacts caused by aircraft operations while meeting operational, training, and flight safety requirements, both on and in the vicinity of air installations; and

4. Informing the public about the AICUZ program and seeking cooperative efforts to minimize noise and aircraft accident potential impact by promoting compatible development in the vicinity of military air installations.

1.3 STATION LOCATION

MCAS Miramar is located 13 miles north of downtown San Diego and four miles east of the Pacific Ocean (see Figure 1-1). State Route 52 **(SR-52)** and Interstate 805 **(I-805)** form the air station's southern and western boundaries. The air station is also transected by the Interstate 15 **(I-15)** freeway. MCAS Miramar encompasses over 23,000 acres and is generally divided into two areas: the area west of I-15 supports the industrial and aviation complex with ancillary support of commercial, administrative and housing requirements; the area east of I-15 includes training areas, rifle/pistol ranges and ordnance storage in addition to proposed military family housing site alternatives.

Figure 1-1: Regional Location

1.4 MARINE CORPS MISSION

The mission of MCAS Miramar is:

"to maintain and operate facilities and provide services and material to support the operation of aviation activities and units of the operating forces of the Marine Corps, Navy and other activities as designated by the Commandant of the Marine Corps (CMC) in coordination with the Chief of Naval Operations (CNO)".

The air station comes under the direct control of the Commander, Marine Corps Air Bases Western Area (COMCABWEST).

The air station comes under the direct control of the Commander, Marine Corps Air Bases Western Area (**COMCABWEST**).

1.5 MAJOR TENANTS

The primary tenant of MCAS Miramar is the 3d Marine Aircraft Wing (3d MAW) and consists of the following units:

- Marine Air Group (**MAG**) 11;
- Marine Wing Support Group (**MWSG**) 37;
- Marine Wing Support Squadron (**MWSS**) 373 and 374;
- Marine Wing Headquarters Squadron (**MWHS**) 3;
- Marine Aviation Logistics Squadron (**MALS**) 11;
- Marine Aircraft Control Group (**MACG**) 38;
- Marine Air Group (**MAG**) 16; and
- Marine Aviation Logistics Squadron (**MALS**) 16

In addition, COMCABWEST provides personnel and support aircraft through the Miramar Flight Division **(MFD)**. The MFD supports the Joint Operational Support Airlift Center and is the single manager for scheduling all Department of Defense's **(DOD)** continental United States **(CONUS)** Operational Support Airlift **(OSA)** requirements.

1.6 MIRAMAR HISTORY

The first military use of the base was in 1917 when the United States Army acquired the property and constructed Camp Kearny.

Miramar was originally part of a large Spanish land grant that was later annexed by the United States in 1846. When Edward Scripps arrived in 1890, he established a ranch on 2,000 acres and is credited with naming the mesa *"Miramar"*, which loosely translated from Spanish means *"an area from which there is a view of the sea from every vantage point."* The property was later acquired by the Jessop family, which established a local settlement in the area.

In 1917, the United States Army acquired the property and constructed Camp Kearny. With Camp Kearny's closure in the 1920s, the property was transferred to the Department of the Navy **(DoN)**, which subsequently built facilities for dirigible aircraft. With the advent of World War II, runways were built to accommodate evolving fighter and cargo aircraft. After the war ended, the station was re-designated as a Marine Corps Air Station until the move to El Toro in 1947. In the interim, the facilities were re-classified as a Naval Auxiliary Air Station. The installation developed a more prominent role for the DoN in 1952 when it was again identified for conversion as a full-fledged Naval Air Station.

The current station was originally built and operated by the Marine Corps at the start of World War II and was known as Marine Corps Air Depot, Miramar. The station was designated as a Marine Corps Air Station in 1946, until the Marine Corps left in 1947 and moved to El Toro.

Miramar has long been recognized as a premier Master Jet Base due to its proximity to the vast air, sea and land training range complex in the Southwest region. Miramar was identified for realignment during the 1993 Base Realignment and Closure round that subsequently recommended formal closure of El Toro and Tustin. The realignment of Miramar was completed with the relocation of personnel, support requirements and airframes from MCAS EL Toro and Tustin to the San Diego region.

The move to Miramar included the assignment of (F/A)-18 "Hornets"; KC-130s "Hercules"; CH-46 "Sea Knights"; and CH-53 "Super Stallions".

The move to Miramar from MCAS El Toro and Tustin included the assignment of both fixed and rotary-wing aircraft, including the Fighter Attack (F/A)-18 "Hornets"; KC-130s "Hercules"; CH-46 "Sea Knights"; and lastly, CH-53 "Super Stallions". Miramar remains home to the projection of Marine Corps' West Coast air power indefinitely.

1.7 ECONOMIC IMPACT

There are approximately 9,300 military and 1,300 civilians that work at MCAS Miramar

There are approximately 9,300 military and 1,300 civilians that work at MCAS Miramar, with an annual economic impact on San Diego County that exceeds one-half billion dollars. This economic impact results from both military and civilian payrolls, construction requirements, maintenance efforts, utility expenses, infrastructure improvements and retail purchases. MCAS Miramar remains the seventh largest employer in San Diego County today. Regionwide, there is a $17 billion dollar total military economic impact on San Diego County.

To provide for the safekeeping of our military service members and their dependents, the Military Family Housing **(MFH)** Program is managed on a regional basis. Miramar presently provides 527 MFH units and an additional 1,600 MFH units are planned for East Miramar. Military family housing will be constructed using Public Private Venture **(PPV)** resources, and acreage will be provided for the construction of school sites within the new MFH housing in the area. Additionally, there are 3,158 units of bachelor housing at Miramar for the single marines and sailors in the area.

1.8 FACILITIES

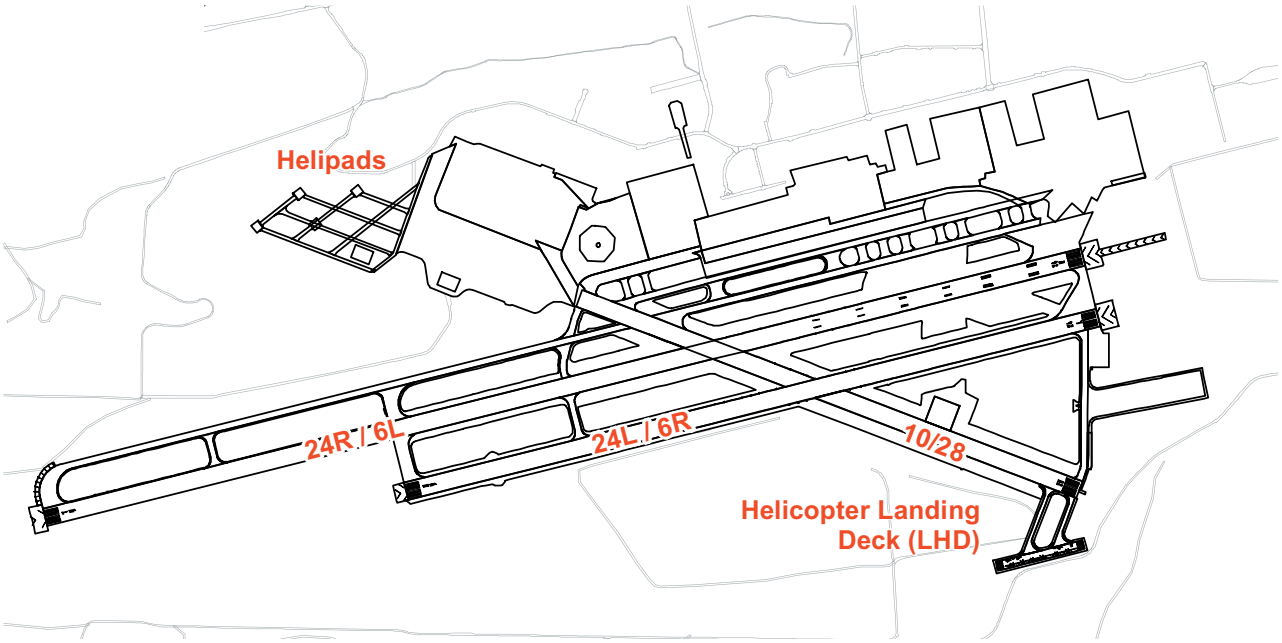
MCAS Miramar is comprised of three runways, one Helicopter Landing Deck (LHD) strip, six helicopter pads, and multiple support facilities.

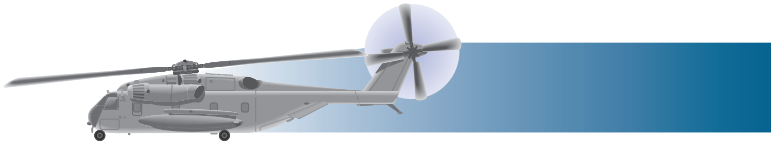
MCAS Miramar is a master jet station, which can operate 24 hours per day, seven days per week. However, normal hours of operation are from 0700-2400 Monday through Thursday, 0700-1800 on Friday, and 0800-1800 on Saturday, Sunday and holidays.

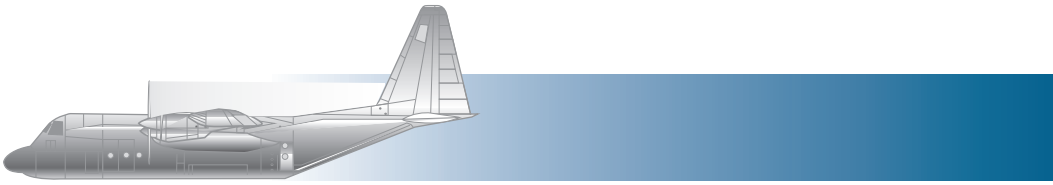
MCAS Miramar is comprised of three runways, one Helicopter Landing Deck **(LHD)** strip, six helicopter pads, and multiple support facilities. Figure 1-2 illustrates the location and orientation of the runways, LHD strip, and helicopter pads. The primary and secondary runways parallel each other and are designated as Runways 24R/06L and 24L/06R respectively. The primary runway is 12,000 feet long, whereas the secondary runway is 8,000 feet long. Crossing the parallel runways is Runway 28, which is only 2,800 feet long and is used in emergency situations. The LHD strip (24S/06S runway) is 1,000 feet long for helicopter pattern operations and parallels the primary and secondary runways to the south. Helicopter Pads one through six are all located northwest of the main runways.

Due to noise abatement procedures and the prevailing winds, Runways 24R and 24L historically receive ninety-five percent of all operations. During extreme weather conditions, for example Santa Ana winds, Runways 6L and 6R are utilized to ensure safety of flight.

Figure 1-2: Aviation Facilities







MARINE CORPS AIR STATION, MIRAMAR

CHAPTER 2-BACKGROUND INFORMATION

AIR INSTALLATIONS COMPATIBLE USE ZONES

This AICUZ is an evolution of the program designed to protect both the community and the ability of the installation to continue its mission. Therefore, an understanding of previous efforts is warranted.

2.1 PREVIOUS EFFORTS & STUDIES

The first NAS Miramar AICUZ study was produced by Wilsey-Ham, Inc. in 1976 and was later modified by Bolt, Beranek and Newman, Inc. The revised NAS AICUZ formed the basis of the NAS Miramar CLUP adopted in July 1977 by the Comprehensive Planning Organization, now known as the San Diego Association of Governments **(SANDAG)**. Historically, SANDAG has served as the Airport Land Use Commission **(ALUC)** for the San Diego region until the transfer to the San Diego County Regional Airport Authority in 2003. The NAS Miramar CLUP Land Use Compatibility Guidelines were adopted for proposed development within the City of San Diego in 1990. Lastly, the NAS CLUP was codified within the City of San Diego Land Development Code as a municipal ordinance known as the Miramar Airport Environs Overlay Zone. This ordinance continues to serve as an additional mechanism to ensure compatible land use planning in surrounding communities affected by Miramar operations.

Operational aircraft at Miramar have changed over the years from F-4s in the 1970s to the F-14s during the 1980/1990s. The 1992 AICUZ and CLUP reflected the aircraft fleet mix and operational tempo for NAS Miramar at that time.

2.2 CHANGES THAT WARRANT AN AICUZ UPDATE

Changes in aircraft type and operational procedures warrant an AICUZ Update

The migration of Marine Corps fixed and rotary-wing units to Miramar requires that the Miramar AICUZ be updated to refine the existing land use guidelines as adopted. Previously, there were no helicopters based at Miramar. However, the normalizing of routine operational procedures and tempo has been established. In addition, there has been a change in the Fighter aircraft assigned to Miramar from the F-14 A, A+ or D aircraft to the F/A-18 airframes assigned today. Lastly, Miramar now accommodates a refueling cargo squadron in support of the First Marine Expeditionary Force and amphibious doctrine.

CH-46 Sea Knight

KC-130 Hercules

CH-53 Super Stallion

F/A-18

There are a total of 222 aircraft on board Miramar.

2.3 CHANGES IN AIRCRAFT MIX

There are a total of 219 aircraft on board Miramar subject to deployment cycles and world events. The aircraft assigned to Miramar primarily include seven tactical and one training F/A-18 squadron(s), one C-130 refueling squadron, four CH-46 and four CH-53 helicopter squadrons and one composite squadron of various helicopters designed to meet the forward presence of Marine Corps air power globally. Table 2-1 summarizes the aircraft type and quantities that make up the current aircraft loading for MCAS Miramar.

Table 2-1 ***"Existing"*** *Aircraft Loading*

Aircraft	Squadron	Number of Squads	Squadron Type	Sub-Total	Total
F/A-18C	VMFA	3	Fighter Attack Squadrons*	36	
F/A-18D	VMFA (AW)	3	All Weather Fighter Attack Squadrons*	36	
F/A-18 A/C/D	VMFAT	1	Training Fighter Attack Squadron**	42	
F/A-18A	VMFA (MCR)	1	Reserve Fighter Attack Squadron	12	
	Total Squadrons	**8**		**Total F/A-18 Aircraft**	**126**
KC-130	VMGR	1	Marine Aerial Refueler / Transport Squadron	12	
UC12B/UC35	MFD	1	Miramar Flight Division	3	
C-9	TRANSIENTS		Transient Average On-Board	3	
C-141	TRANSIENTS		Transient Average On-Board	4	
F-14	TRANSIENTS		Transient Average On-Board	4	
	Total Squadrons	**2**		**Total Other Fixed Wing**	**26**
CH-46	HMM	3	Helicopter Marine Medium Lift Squadrons*	36	
CH-46	HMM (MCR)	1	Reserve Helicopter Marine Medium Lift Squadrons	12	
	Total Squadrons	**4**		**Total CH-46 Aircraft**	**48**
CH-53E	HMH	4	Helicopter Heavy Lift Squadrons*	64	
	Total Squadrons	**4**		**Total CH-53 Aircraft**	**64**
				GRAND TOTAL MAXIMUM AIRCRAFT	**264**
				DEPLOYED AIRCRAFT	**45**
				GRAND TOTAL AVERAGE ON BOARD AIRCRAFT	**219**

** Includes (3) T-34 Aircraft

2.4 FLIGHT OPERATION DEFINITIONS

A flight operation refers to any takeoff or landing at MCAS Miramar. The takeoff and landing may be part of a training maneuver (or pattern) associated with the air station runway, or may be associated with a departure or arrival of an aircraft to or from a defense-related special-use airspace. Certain flight operations are conducted as patterns (e.g., Ground-Controlled Approach Box, Touch-and-Go). A pattern consists of two flight operations. Basic flight operations at MCAS Miramar are described below:

- **Departure.** An aircraft taking off to a local training area, a non-local training area, or as part of a training maneuver (i.e., touch-and-go).
- **Straight-In / Full-Stop Arrival**. An aircraft lines up 6 to 10 nautical miles from the field on the runway centerline. The aircraft descends gradually, lands, comes to a full stop, and then taxis off the runway.
- **Overhead Arrival.** An expeditious arrival using visual flight rules. An aircraft approaches the runway 500 feet above the altitude of the landing pattern. Approximately halfway down the runway, the aircraft performs a 180-degree turn to enter the landing pattern. Once established in the pattern, the aircraft lowers landing gear and flaps and performs a 180-degree descending turn to land on the runway.

- **Ground-Controlled Approach (GCA) Box.** A radar or "talk down" approach directed from the ground by Air Traffic Control personnel. Air Traffic Control personnel provide pilots with verbal course and glideslope information, allowing them to make an instrument approach during inclement weather. The GCA box actually is counted as two operations- the landing is counted as one operation and the takeoff is counted as another.
- **Touch-and-Go Operation.** An aircraft lands and takes off on a runway without coming to a full stop. After touching down, the pilot immediately goes to full power and takes off again. The touch-and-go is counted as two operations- the landing is counted as one operation and the takeoff is counted as another.
- **Field Carrier Landing Practice (FCLP).** An aircraft practices simulated carrier landing. FCLPs are required training for all pilots before landing on a carrier. The number of FCLPs performed is determined by the length of time that has elapsed since the pilot's last landing on a carrier. The FCLP is counted as two operations- the landing is counted as one operation and the take off is counted as another.
- **Low Approach.** An approach where the pilot does not make contact with the runway.

2.5 CHANGES IN OPERATIONAL TEMPO

The level of Miramar air operations can vary substantially from year to year due to deployment cycles and world events.

The level of air operations at Miramar has changed over the years, especially as the base changed it basic mission from a fixed-wing Naval Air Station to a rotary and fixed-wing Marine Corps Air Station. For example, from 1976 to the mid 1990s, the average number of annual NAS Miramar operations fluctuated between approximately 175,000 and 267,000. The adopted AICUZ for NAS Miramar was based on 257,360 fixed wing (F-14, F-16, A-4 and E-2 aircraft) operations. Table 2-2 indicates the historic Marine Corps levels of operations. Deployment cycles driven by world events continue to affect the operational tempo at Miramar.

Table 2-2 Historical Annual Aircraft Operations at MCAS Miramar

Year	MILITARY		CIVIL		TOTAL
	Navy/Marine	Other	Air Carrier	Gen. Aviation	
1996	159,600	1,192	29	6,130	166,951
1997	116,464	1,348	56	7,409	125,277
1998	80,261	834	25	7,825	88,945
1999	102,283	1,200	40	6,710	110,233
2000	84,588	987	75	5,214	90,864
2001	100,660	801	1	6,099	107,561
2002	109,655	664	37	12,005	122,361
2003	80,033	716	76	10,731	91,556

The F/A 18 and the KC-130 aircraft remain the dominant aircraft noise category for Miramar operations.

Land-use compatibility guidelines are based on the Average Annual Day **(AAD)** operations. For the existing conditions, the number of annual flight operations were provided by aircraft and operation type, and then divided by 365 days to derive the AAD operations. As indicated in Table 2-3, the fixed-wing aircraft modeled under this effort are the F/A-18 and KC-130 aircraft. These two aircraft types dominate in number of operations and in noise generation.

*Table 2-3 "**Existing and Projected**" Annual Aircraft Operations at MCAS Miramar*

Aircraft Type	Existing Condition	Projected Condition
F/A-18C/D	61,673	67,294
KC-130	7,995	9,061
UC-35	388	409
T-34	868	999
C-12	1,434	1,602
Total Fixed-Wing	**72,358**	**79,365**
CH-46	15,570	17,323
CH-53	11,341	13,351
Transient	2,203	2,203
Total Helicopter & Transient	**29,114**	**32,877**
Grand Total	**101,472**	**112,242**

The number of aircraft operations assumed under the existing Marine Corps conditions are shown on Table 2-4 for fixed-wing aircraft and Table 2-5 for rotary-wing aircraft. The existing condition is based on 2002 data.

*Table 2-4 "**Existing**" MCAS Miramar Fixed-Wing Annual Aircraft Operations*

AIRCRAFT TYPE	Mission Readiness (MR)	DEPARTURES		ARRIVALS		CLOSED PATTERNS			TOTAL
		JULIAN	SEAWOLF	SI	OVHD	GCA	TGO	FCLP	
F/A-18C/D (-400, -402)	77.9%	8,779	8,919	9,099	9,417	891	14,711	9,857	61,673
KC-130	75.0%	401	304	108	471	232	6,479	0	7,995
UC-35	94.9%	121	120	121	0	13	13	0	388
T-34	86.9%	172	172	172	172	30	150	0	868
C-12	89.5%	389	388	389	0	134	134	0	1,434
Total Fixed-Wing		**9,862**	**9,903**	**9,889**	**10,060**	**1,136**	**21,487**	**9,857**	**72,358**

Notes: (1) SI - Straight-In Arrivals; OVHD - Overhead-Break Arrivals; TGO - Touch and Go
(2) FCLP - Field Carrier Landing Practice; GCA - Ground Controlled Approach
(3) Arrivals do not equal departures due to mission schedules
(4) GCA and TGO and FCLP are counted as 2 Operations
(5) UC-35, T-34, and C-12 aircraft not modeled
Source: MCAS Miramar, 2002

*Table 2-5 **"Existing"** MCAS Miramar Rotary-Wing Annual Aircraft Operations*

Helicopter Type	Mission Readiness (MR)	Departures	SI Arrivals	Closed Patterns			Total
				TGO	FCLP	GCA	
CH-46	76.4%	3,499	3,711	8,036	-	325	15,570
CH-53	72.2%	2,462	2,660	5,953	-	266	11,341
Transient	N/A	518	630	893	-	161	2,203
Total Helos		**6,479**	**7,001**	**14,882**	**-**	**752**	**29,114**

Notes: (1) SI - Straight-In Arrivals; TGO - Touch and Go
(2) FCLP - Field Carrier Landing Practice; GCA - Ground Controlled Approach
(3) Arrivals do not equal departures due to mission schedules
(4) GCA and TGO and FCLP are counted as 2 Operations
(5) Transient helicopters not modeled
Source: CY01 ATA reports, MCAS Miramar, 2002

The number of operations for the projected MCAS Miramar condition was based on the methodology used for MCAS Miramar's 2003 Clean Air Act conformity analysis. Projected operations were determined by taking current operations and adjusting upward to reflect the highest expected flight operations using a mission readiness factor of 85%. Mission readiness is an indicator of the availability of an aircraft for flight operations, reflecting maintenance and fiscal constraints. Based on input from the 3D Marine Aircraft Wing, the projected mission readiness factor is not expected to exceed 85%. The projected operations are shown on Tables 2-6 and 2-7. Charts and tables in this document reflect the projected condition based on 85% mission readiness.

*Table 2-6 "**Projected**" MCAS Miramar Fixed-Wing Annual Operations*

Aircraft Type	Mission Readiness (MR)	Departures		Arrivals		Closed Patterns			Total
		JULIAN	SEAWOLF	SI	OVHD	GCA	TGO	FCLP	
F/A-18C/D (-400)	85.0%	4,790	4,866	4,964	5,138	486	8,026	5,378	33,647
F/A-18C/D (-402)	85.0%	4,790	4,866	4,964	5,138	486	8,026	5,378	33,647
KC-130	85.0%	454	345	122	534	263	7,343	0	9,061
UC-35	100.0%	128	126	128	0	14	14	0	409
T-34	100.0%	198	198	198	198	35	173	0	999
C-12	100.0%	435	434	435	0	150	150	0	1,602
Total Fixed-Wing		**10,794**	**10,834**	**10,811**	**11,007**	**1,433**	**23,731**	**10,755**	**79,365**

Notes: (1) SI - Straight-In Arrivals; OVHD - Overhead-Break Arrivals; TGO - Touch and Go
(2) FCLP - Field Carrier Landing Practice; GCA - Ground Controlled Approach
(3) Arrivals do not equal departures due to mission schedules
(4) GCA and TGO and FCLP are counted as two (2) Operations
(5) UC-35, T-34, and C-12 aircraft not modeled
Source: MCAS Miramar, 2002

*Table 2-7 "**Projected**" MCAS Miramar Rotary-Wing Annual Operations*

Helicopter Type	Mission Readiness (MR)	Departures	Arrivals	Closed Patterns			TOTAL
				TGO	FCLP	GCA	
CH-46	85.0%	3,892	4,128	8,941	-	361	17,323
CH-53	85.0%	2,899	3,132	7,008	-	313	13,351
Transient	N/A	518	630	893	-	161	2,203
Total Helos		**7,309**	**7,890**	**16,842**	**0**	**836**	**32,877**

Notes: (1) TGO - Touch and Go
(2) FCLP - Field Carrier Landing Practice; GCA - Ground Controlled Approach
(3) Arrivals do not equal departures due to mission schedules
(4) GCA and TGO and FCLP are counted as two (2) Operations
(5) Transient helicopters not modeled
Source: CY01 ATA reports, MCAS Miramar, 2002

2.6 CHANGES IN FLIGHT TRACKS / PROCEDURES

A series of routes are used as flight corridors by MCAS based and visiting aircraft. Figure 2-1: "Regional Flight Routes" indicates the general location of these regional routes. Training ranges and complexes used by MCAS Miramar based squadrons are the Whiskey (W)-291 (a warning area used for military over-water training), R-2510 (a training complex in Imperial Valley), Naval Auxiliary Landing Field (**NALF**) San Clemente Island (primarily a FCLP training field), Navy Outlying Field (**NOLF**) San Nicolas Island, Marine Corps Base (**MCB**) Camp Pendleton, MCAS Camp Pendleton, Expeditionary Air Field (**EAF**) Twentynine Palms and MCAS Yuma.

Regional Flight Routes

Figure 2-1

MCAS MIRAMAR

- **Military Airfield or Range Destination**
- **Military Installations**
- **Generalized Aviation Corridor Destination**
- **County Boundaries**

There are four main arrival and departure routes for assigned CH-46 and CH-53 helicopters.

There are four main arrival and departure routes for assigned CH-46 and CH-53 helicopters at MCAS Miramar. The Fairway Corridor transits over the Torrey Pines Municipal Golf Course. The Beach Route follows the railroad tracks and heads towards the ocean turning west just south of Del Mar, proceeding over the Los Penasquitos Lagoon to the ocean. The I-15 Corridor follows Interstate 15 for transit north to ranges at Camp Pendleton or the desert. Lastly, the Yuma Corridor heads east just south of the runways, proceeding over the Padre Dam Municipal Water District ponds (Santee Lakes) to a variety of ranges to the north and training facilities in multiple desert areas to the east. Flight operations for helicopters are primarily conducted under Visual Flight Rules **(VFR)**, subject to weather and air traffic conditions. Permitted reporting points, published altitudes and headings are utilized to reduce and/or lessen the single event noise impacts from transiting rotary-wing aircraft on a routine basis.

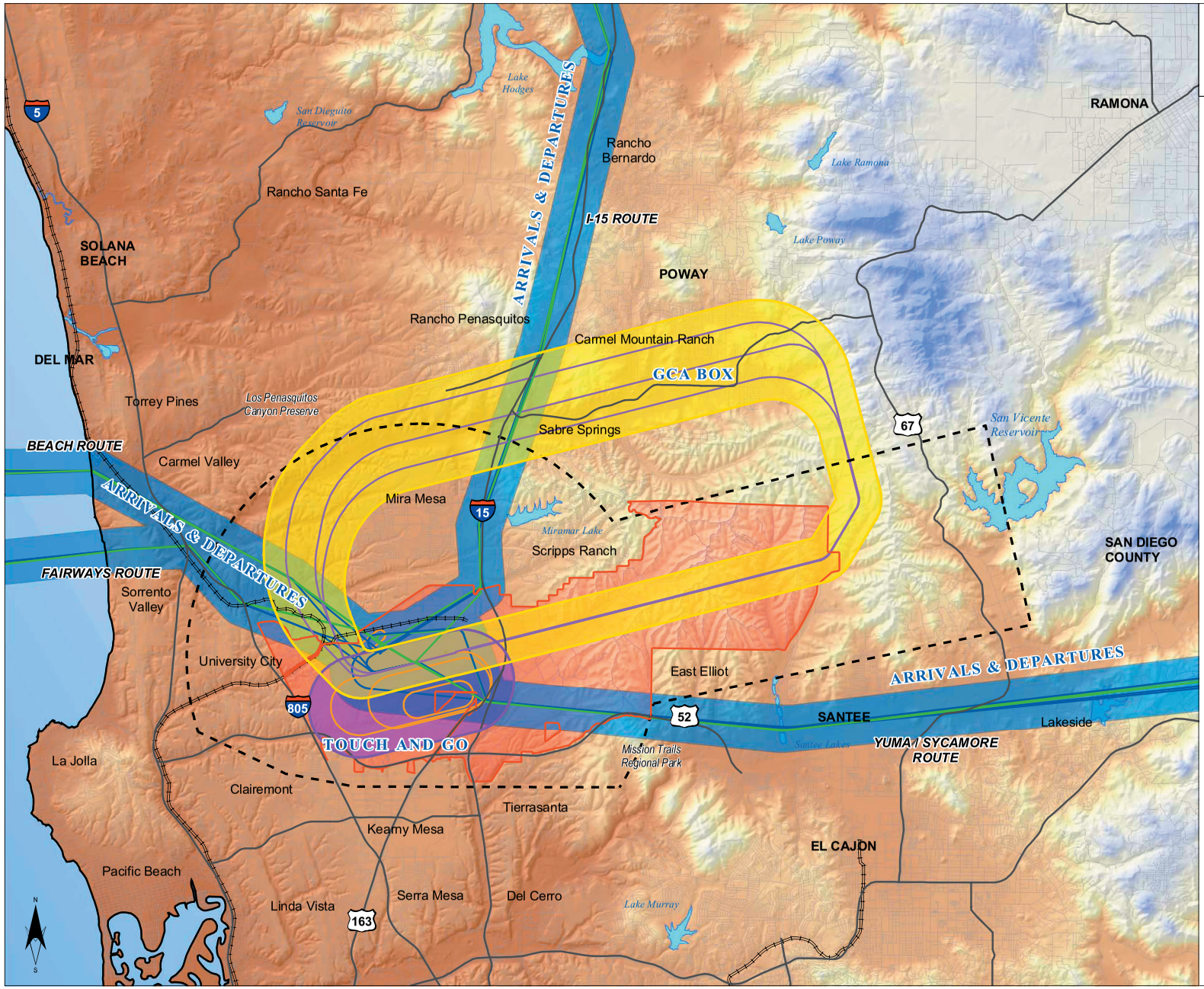
Helicopter pilots often perform T&G and GCA patterns to ensure proficiency in these areas. The primary T&G pattern is south of the runways on the LHD strip. Flight operations in these corridors are show on Figure 2-2.

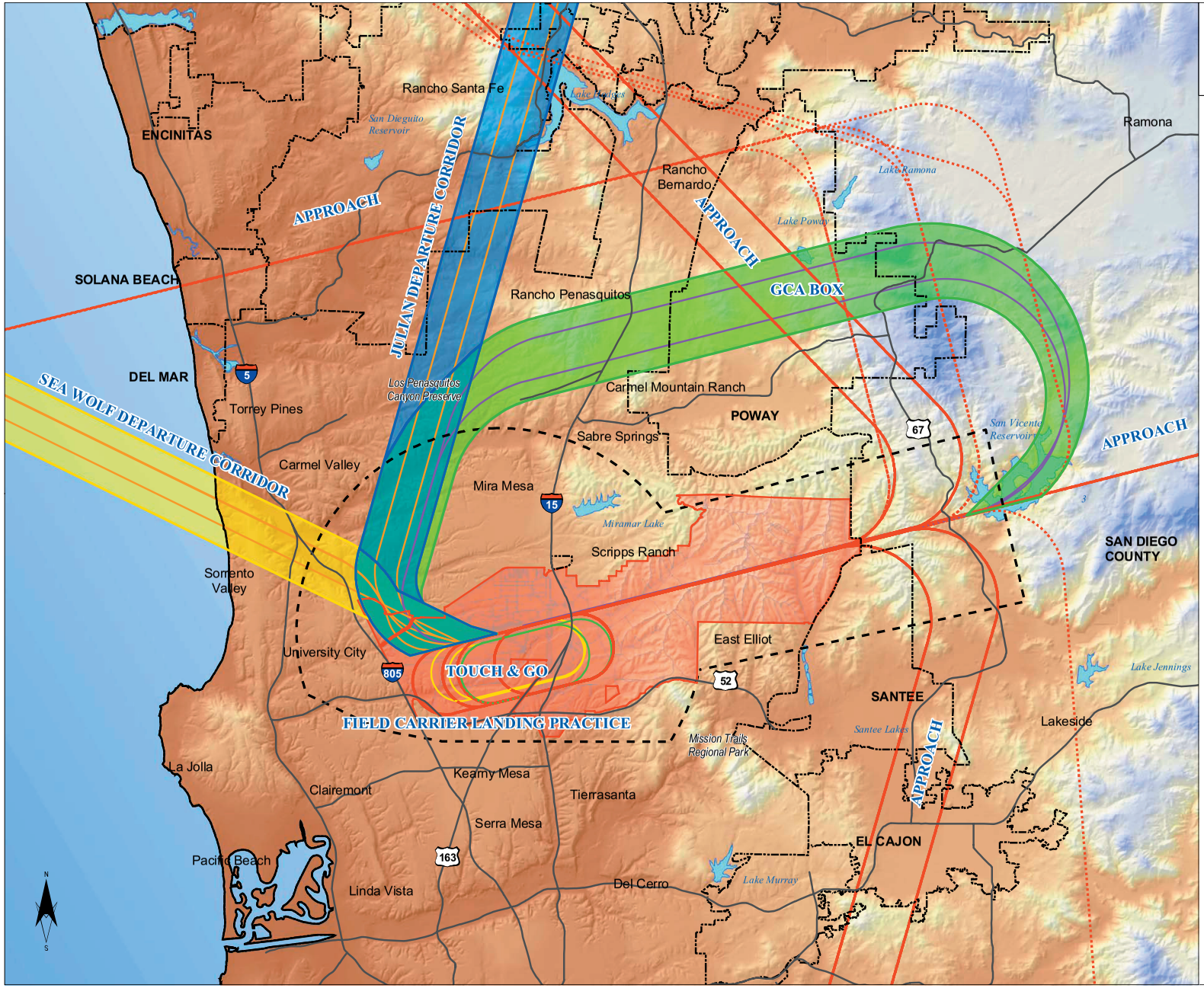
Fixed-wing flight operations are conducted in the Seawolf, Julian, Field Carrier Landing Practice, T&G and GCA Box Pattern Flight Corridors. Fixed-wing flight corridors for Miramar operations are consistent with historical practices. Fixed-wing operations include the F/A-18, C-130 and C-12 aircraft and are mainly conducted under Instrument Flight Rules **(IFR)** and through specific Air Traffic Control clearance instructions with directional vectoring by the Federal Aviation Administration. Arrivals can occur from the south or the north and were designed to reduce the impacts on adjacent communities to the maximum amount practicable. Flight operations in these corridors are shown on Figure 2-3.

2.7 AICUZ STUDY AREA

The AICUZ Study Area utilizes major roadways and/or community boundaries to define its edge.

Boundaries of the AICUZ Study Area **(ASA)** are based on the existing community planning or jurisdictional boundaries of local municipalities located nearby. Figure 2-4 identifies the ASA for MCAS Miramar. The ASA has been defined to reflect those areas identified within surrounding communities affected by military aircraft operations. Community Noise Equivalent Level **(CNEL)** Noise Contours, Accident Potential Zones **(APZs)** and routine flight corridors have been included for land use planning purposes. The adopted NAS Miramar CLUP did not include the Ground Controlled Approach **(GCA)** Box Corridor (a closed loop training pattern) for land use planning purposes. The ASA includes all routine operating areas and flight corridors for fixed and rotary-wing aircraft assigned to MCAS Miramar.


MCAS MIRAMAR
Figure 2-2
MCAS Miramar Rotary-Wing Flight Corridors
Airport Traffic Area
Departure & Arrival Corridors
GCA Box Corridor
Touch & Go Corridor
ARRIVAL
DEPARTURE
GCA
TOUCH AND GO
Note: Flight Tracks are provided in the Final Noise Survey for MCAS Miramar. This figure represents flight corridors only. Approximately 90 percent of all operations occur within these corridors.
2 0 2
Scale in Miles
ARRIVALS & DEPARTURES
I-15 ROUTE
GCA BOX
TOUCH AND GO
BEACH ROUTE
FAIRWAYS ROUTE
YUMA / SYCAMORE ROUTE
Lake Hodges
San Dieguito Reservoir
Lake Ramona
Lake Poway
San Vicente Reservoir
Miramar Lake
Mission Trails Regional Park
Santee Lakes
Lake Murray
Los Penasquitos Canyon Preserve
RAMONA
Rancho Bernardo
Rancho Santa Fe
SOLANA BEACH
POWAY
Rancho Penasquitos
Carmel Mountain Ranch
DEL MAR
Torrey Pines
Sabre Springs
Carmel Valley
Mira Mesa
Scripps Ranch
SAN DIEGO COUNTY
Sorrento Valley
University City
East Elliot
SANTEE
Lakeside
La Jolla
Clairemont
Tierrasanta
Kearny Mesa
EL CAJON
Pacific Beach
Linda Vista
Serra Mesa
Del Cerro
5
15
67
805
52
163



MCAS MIRAMAR

Figure 2-3

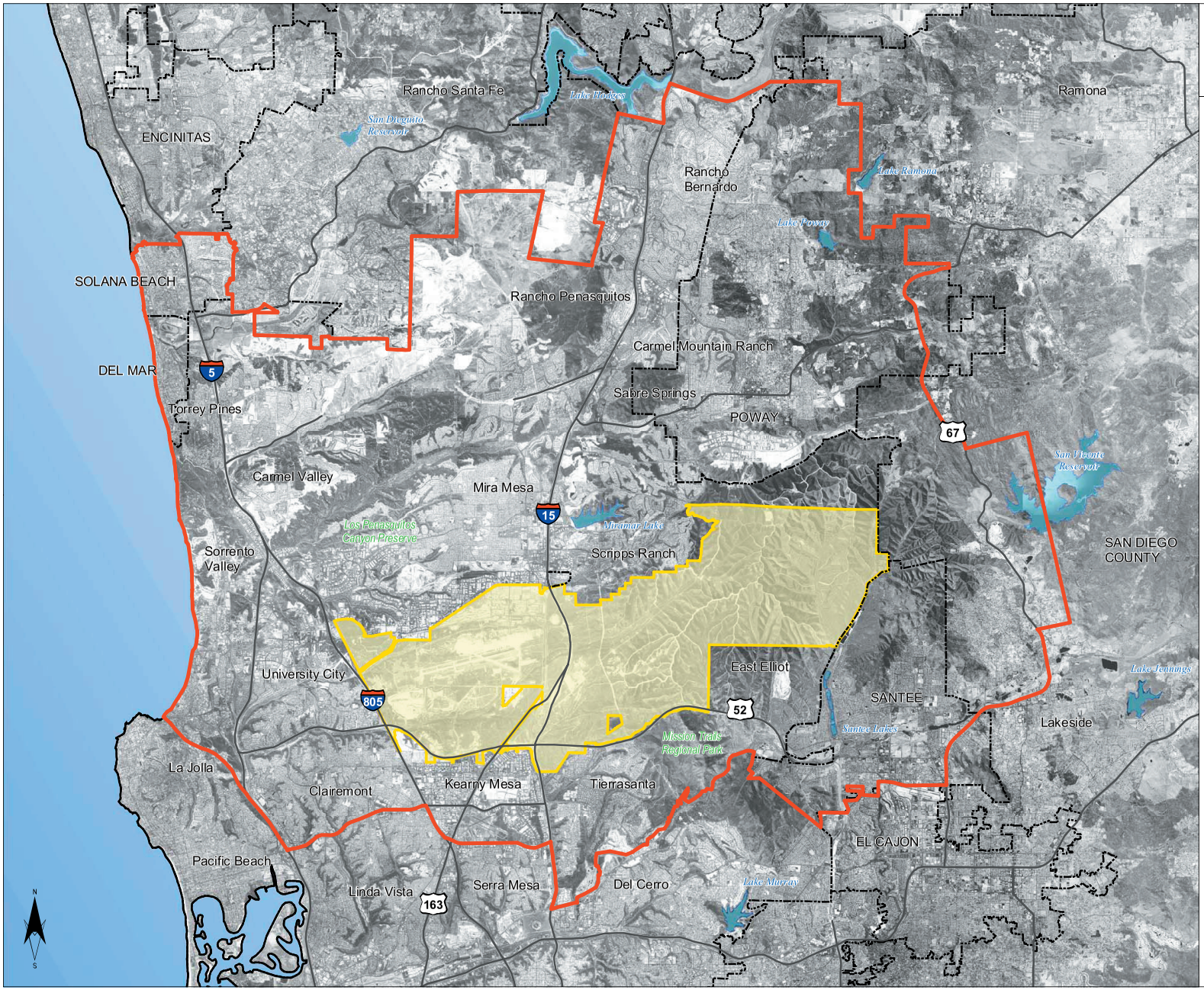
MCAS Miramar Fixed Wing Flight Corridors

- Airport Traffic Area
- Julian Corridor
- GCA Box Corridor
- Seawolf Corridor
- ARRIVAL
- DEPARTURE
- FCLP
- GCA
- TOUCH AND GO

Note: Flight Tracks are provided in the Final Noise Survey for MCAS Miramar. This figure represents flight corridors only. Approximately 90 percent of all operations occur within these corridors.

2 0 2

Scale in Miles

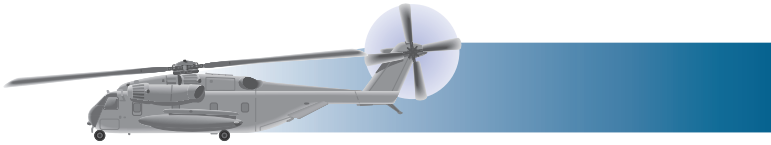


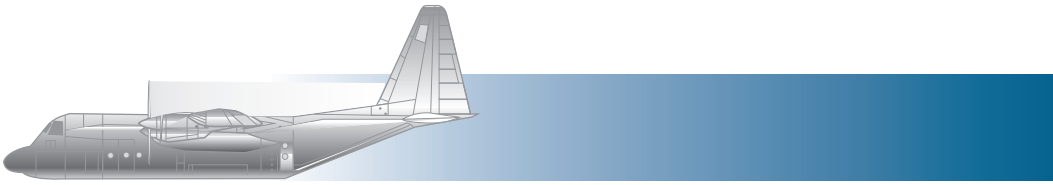
MCAS MIRAMAR

Figure 2-4
AICUZ Study Area

Freeways
City Boundary
MCAS Miramar Boundary
AICUZ Study Area

2 0 2
Scale in Miles





MARINE CORPS AIR STATION, MIRAMAR

CHAPTER 3 - NOISE ENVIRONMENT

AIR INSTALLATIONS COMPATIBLE USE ZONES

Sensitivity to noise varies depending on the individual. Different individuals react uniquely to the same noise environment. For some, the roaring and constant drone of roadway noise is deafening, while for others, this noise is perceived as background and is mostly filtered out of their perception.

The basis for all noise measurements is what is referred to as Community Noise Equivalent Level **(CNEL)** *Noise Contours.*

For land use planning purposes, noise impacts are characterized in a standardized manner throughout the State of California. The basis for all noise measurements is what is referred to as Community Noise Equivalent Level **(CNEL)** Noise Contours. The State of California adopted this noise measurement standard in Title 21, Section 5001 of the California Code of Regulations. CNEL measurements reflect the heightened sensitivity when people are home and during nighttime sleep cycles. The CNEL does not focus on single event noise impacts, but rather concentrates on average noise levels with special weighting of these levels for evening and nighttime hours.

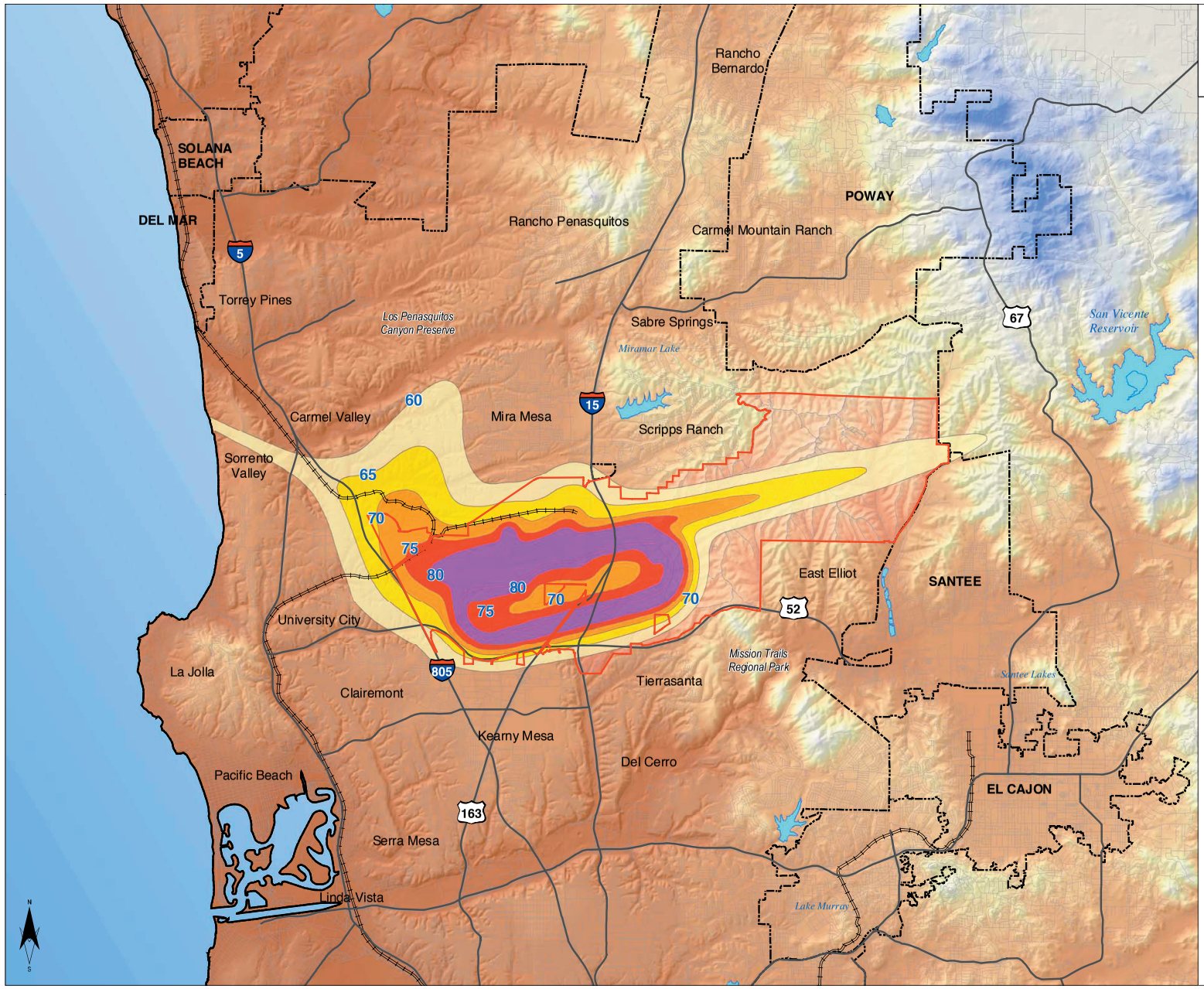
3.1 NOISE CONTOURS

The noise contours were developed by Wyle Aviation Services under Report WR 03-05, Aircraft Noise Study for MCAS Miramar, November 2004.

The historic noise zones associated with the adopted NAS Miramar AICUZ and CLUP are shown on Figure 3-1. These contours are shown for comparison purposes only and do not reflect the current flight operations and corridors utilized by the Marine Corps.

Projected CNEL noise contours have been prepared for MCAS Miramar and are shown on Figure 3-2. These noise contours were developed by Wyle Aviation Services under Report WR 03-05, Aircraft Noise Study for MCAS Miramar, November 2004. This report provides the basis for the contours, as well as all of the technical and tabular information needed to document the noise contours. Some of the major assumptions and variables that directly affect the noise contour creation include:

- Number of operations per day over a 365 day year;
- Time of day these events occurred;
- Percentage of operations that occurred, their location, and on which flight track;
- Power management/flight profiles/corresponding airspeed of all aircraft modeled and at representative locations; and
- The number and duration of maintenance engine testing.



NAS MIRAMAR

Figure 3-1

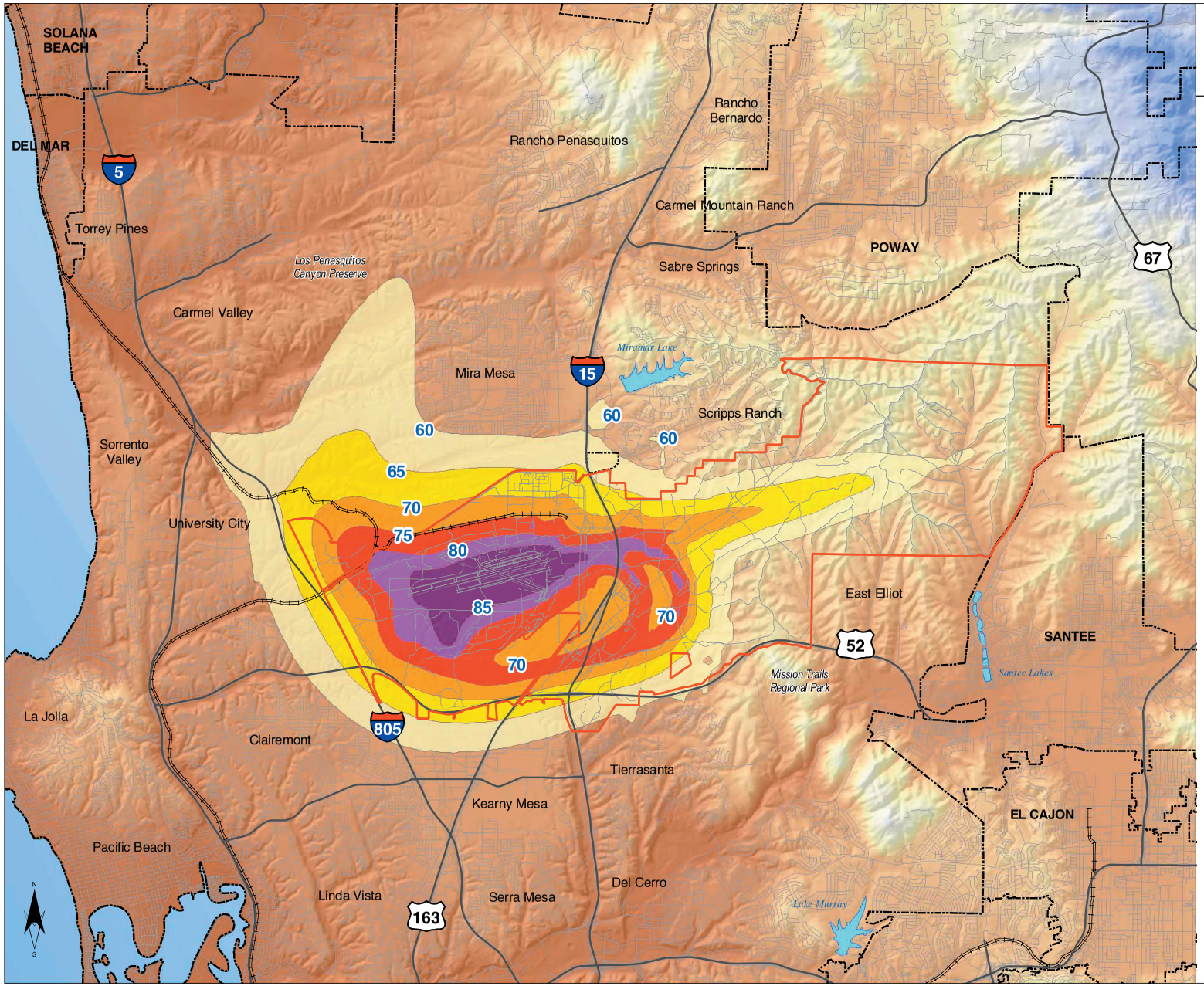
Adopted NAS Miramar Noise Contours

MCAS Miramar Boundary
City Boundary
Railroad

Adopted Noise Contours
60 CNEL
65 CNEL
70 CNEL
75 CNEL
80 CNEL

Source: 1992 NAS noise contours from SANDAG CLUP.

1.5 0 1.5
Scale in Miles



MCAS MIRAMAR

Figure 3-2
MCAS Miramar Noise Contours

MCAS Miramar Boundary
City Boundary
Railroad

MCAS Miramar Noise Contours
- *60 CNEL*
- *65 CNEL*
- *70 CNEL*
- *75 CNEL*
- *80 CNEL*
- *85 CNEL*

Source: Noisemap 7.0

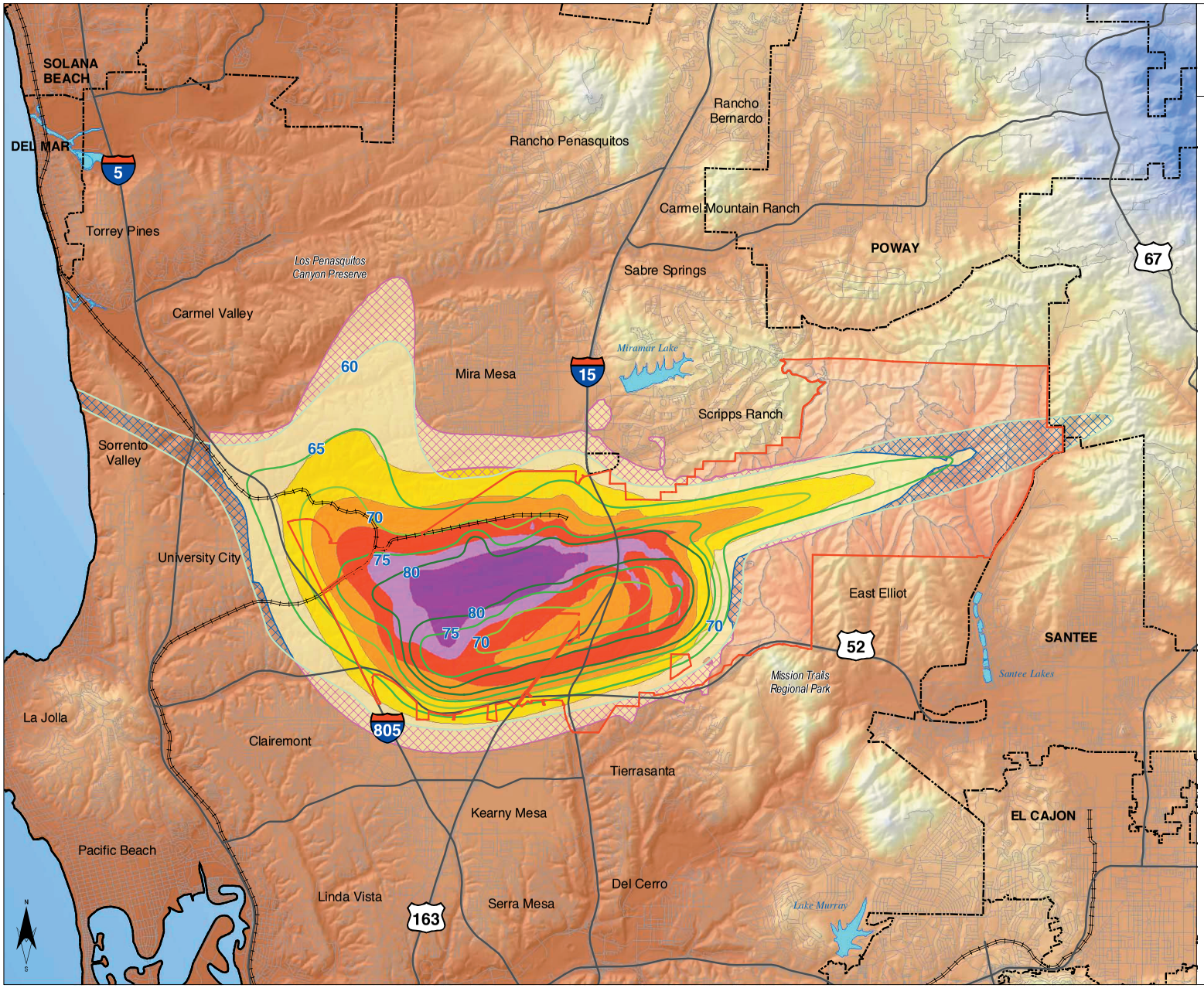
1.5 0 1.5
Scale in Miles

Some of the changes in the noise environment map are related to changes in the modeling, while others represent the change from Naval aircraft to Marine Corps aircraft that utilized modified flight corridors.

Noise contours for MCAS Miramar operations were developed using current software identified as NOISEMAP 7.0. This software now includes the ability to address the terrain and obstruction benefits of existing structures to ameliorate the sound propagation from aircraft operations. These and additional refinements have improved the methodology considerably. Noise metrics will continue to evolve in this manner, creating a situation where many of the changes in the noise environment will actually be related to improved modeling, not changed conditions.

3.2 CHANGES IN THE NOISE ENVIRONMENT

Adopted noise contours were modeled using an earlier version of noise model referred to as NOISEMAP 5.2. Figure 3-3 compares the adopted Navy noise contours to the Marine Corps noise contours. Some of the changes shown on this map are a result of the new noise model and the remainder of the changes reflect the normalized operating conditions of new fixed and rotary-wing aircraft. The Marine Corps provides for the forward projection of air power in support of the amphibious doctrine and the air to ground mission is unique from the Navy in this area. Notable changes in the CNEL noise contours are the result of the USMC requirement for equal concentration of departure operations in the Seawolf and Julian Departure Flight Corridors to support these training requirements. Previously, 75% of Navy departures occurred in the Seawolf and 25% within Julian Departure Corridors for noise modeling purposes. As seen on Figure 3-2, pockets of 60 dB CNEL noise exist in the Scripps Ranch area that are a direct result of greater accuracy in the latest noise modeling software that captures the testing of jet engines needed for maintenance requirements.



MCAS MIRAMAR

Figure 3-3

Comparison of Adopted NAS Miramar and MCAS Miramar Noise Contours

MCAS Miramar Boundary
City Boundary
Railroad

Adopted NAS Noise Contours
60 CNEL
65 CNEL
70 CNEL
75 CNEL
80 CNEL

MCAS Miramar Noise Contours
60 CNEL
65 CNEL
70 CNEL
75 CNEL
80 CNEL
85 CNEL

Increase
Decrease

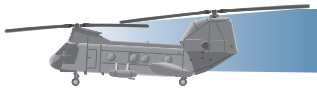
Source: NAS noise contours from SANDAG CLUP, 1992 (calculated using NOISEMAP version 5.2). Proposed noise contours from Wyle Laboratories, 2003 (calculated using NOISEMAP version 7.0 noise model)

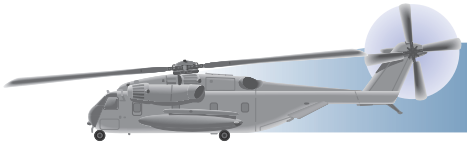
1.5 0 1.5
Scale in Miles

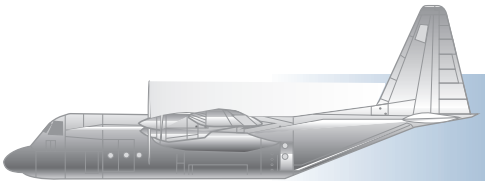
3.3 NOISE COMPLAINTS

Noise complaints have tapered off over the past two years to just 360 in 2003.

Noise concerns in surrounding communities have stabilized with the normalizing of Marine Corps operations at Miramar, and annual complaints declined to just over 360 in 2003.



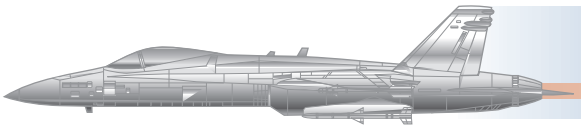




MARINE CORPS AIR STATION, MIRAMAR

CHAPTER 4 - ACCIDENT POTENTIAL ZONES

AIR INSTALLATIONS COMPATIBLE USE ZONES



The safety impact areas for fixed and rotary-wing aircraft at MCAS Miramar have been prepared in accordance with existing DoN policies (OPNAVINST 11010.36B, December 2002). With the migration of Marine Corps aviation units to Miramar, the F/A-18 and KC-130 cargo aircraft continue to justify the extended safety impact areas to the coastline for the Fixed-Wing Seawolf Departure Corridor. The extended geometry to the coastline is unique for Miramar within the Department of the Navy, but is consistent with historical practices. No significant changes have been identified, and minor changes are consistent with historical practices.

With the transition of Marine Corps aviation units to Miramar, the F/A-18 and KC-130 cargo aircraft continue to justify the extended safety impact areas to the coastline for the Seawolf Departure Corridor.

According to OPNAVINST 11010.36B, flight tracks with less than 5,000 annual operations typically do not warrant APZs. The same instruction indicates that APZs associated with rotary-wing aircraft are very limited in size. All of the APZs associated with rotary-wing aircraft are fully contained within the station boundaries.

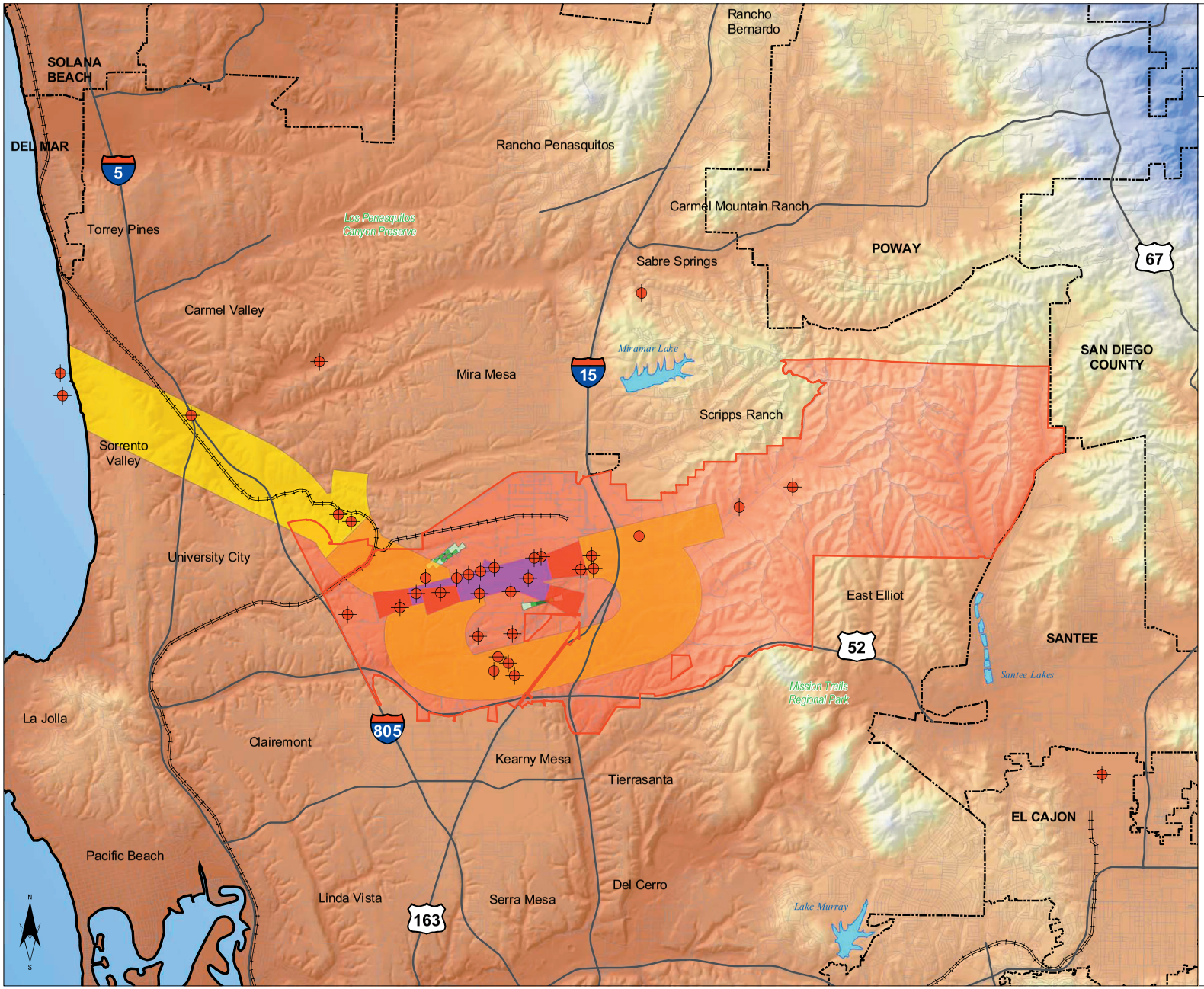
4.1 PROPOSED ACCIDENT POTENTIAL ZONES

In recent years, the Seawolf Corridor was modified to accommodate the safe co-location of both fixed and rotary-wing aircraft at Miramar. This functional airspace has been sectored to meet the timely and mission essential training and readiness requirements and provides the required horizontal and vertical separation between rotary and fixed-wing aircraft to ensure safety of flight in this area. The APZs associated with the Marine Corps aircraft and operational tempo are shown on Figure 4-1. This figure also shows the locations of accidents since the 1970s within fifteen miles of the base. These accidents support both the standard establishment of APZs according to OPNAVINST 11010.36B, and the extension of APZs following adjustment criteria from this same instruction.

4.2 MODIFICATIONS TO APZs

Minor changes in APZs have occurred, with an adjustment to the south and slight movement to the north within the Seawolf Corridor and Julian Corridor areas.

Figure 4-2 compares NAS Miramar with MCAS Miramar Accident Potential Zones. Minor changes have occurred, with a regression to the south and slight refinements to the north within the Seawolf Corridor and Julian Corridor areas. No significant changes in land use have been identified within the safety impact areas for the projected MCAS Miramar APZs. Table 4-1 contrasts the land uses found within the adopted NAS Miramar AICUZ to the MCAS Miramar APZs. The total number of acres within APZs will be reduced from 10,155 acres to 10,122 acres which is statistically insignificant. This 33-acre drop represents less than one third of one percent of the total acres. It is recommended that new development established within the APZs be limited to reduce densification in these areas.



MCAS MIRAMAR

Figure 4-1

MCAS Miramar APZs and Aircraft Mishap History

- MCAS Boundary
- Accident Potential Zone II
- Accident Potential Zone I
- Clear Zone
- Primary Surface
- Helipad APZ I
- Clear Zone
- Primary Surface
- Crash Sites

Note: This map was generated by developing APZs based on OPNAVINST 11010.36B. They were based on proposed flight tracks obtained from the 1995 Wyle Noise Study. In several cases, the APZs were extended based on historic accident data, airspace constraints and operational conditions from 1972-2004. APZs were created based on the following flight tracks which have over 5,000 annual operations. 4RS1, 4RS2, 4RJ2, LF1, LT2 and E2OH.

1.5 0 1.5

Scale in Miles

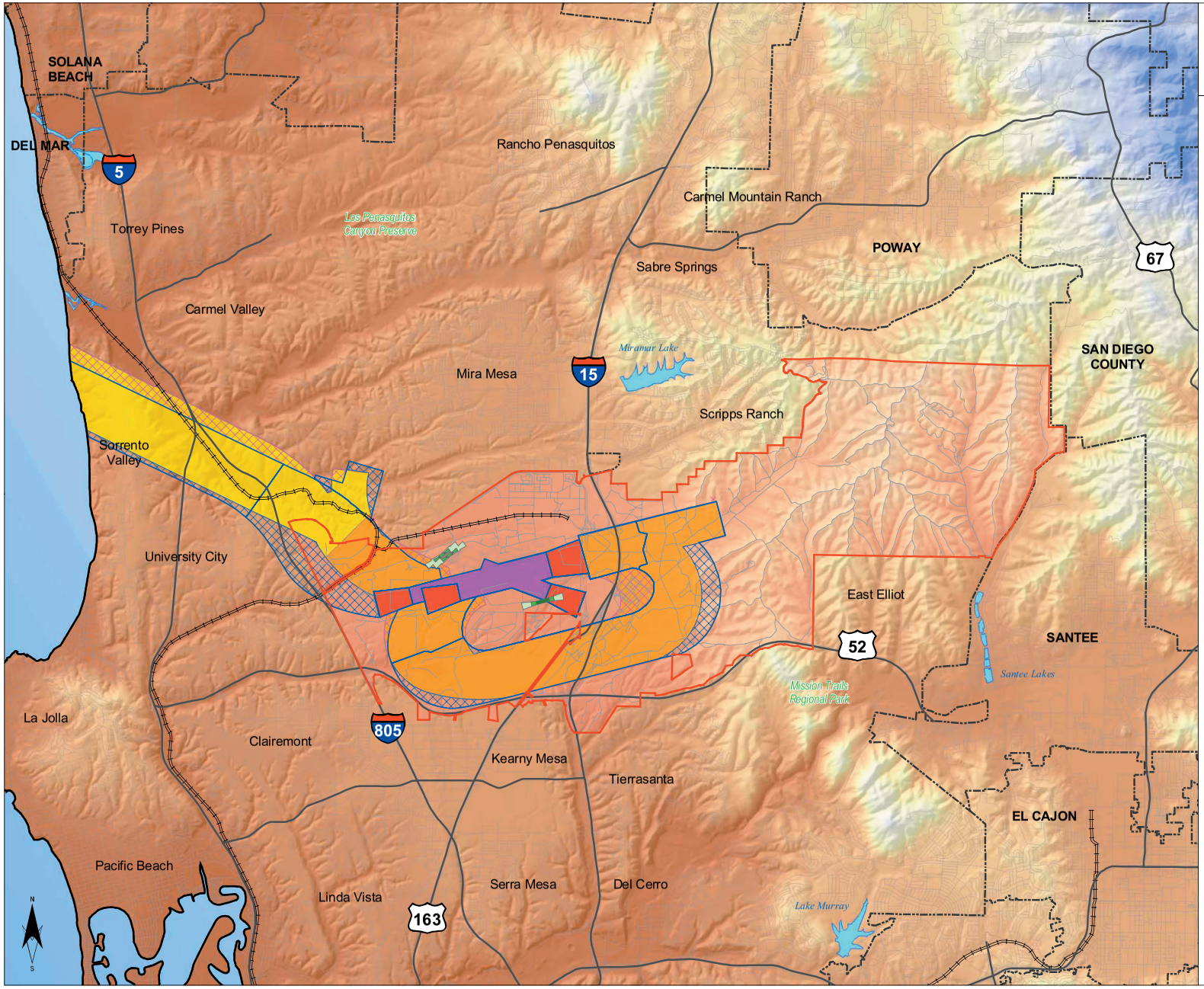
4.3 APZ GUIDELINES/CONSIDERATIONS

DoN policies and guidelines have been modified to include density maximums based on Floor Area Ratios **(FAR)** within safety impact areas. The recommended FARs are identified within the subsequent Land Use Compatibility Chapter of the Miramar AICUZ. The revised DoN policy and guidelines are provided to local jurisdictions and recommended for incorporation within the general and community plans of adjacent communities. The evaluation criteria prescribed by these guidelines include, but are not limited to, the following:

- Local accident history;
- Type of aircraft operations;
- Airspace limitations;
- Flight Tracks;
- Closed Loop Patterns; and
- Existing/proposed development.

Table 4-1: Major Changes in Adopted NAS Miramar Baseline APZs and Proposed MCAS Miramar APZs

Accident Potential Zones	NAS Miramar Baseline Conditions		MCAS Miramar Projected Conditions		ACRES CHANGED	
	On-base Acres	Off-base Acres	On-base Acres	Off-base Acres	On-base Acres	Off-base Acres
Primary Surface	560	0.0	560	0.0	0	0
Clear Zone	581	0.7	581	0.7	0	0
APZ 1	5,679	1,154.7	5,246	194.4	-433	-960
APZ 2	0	2,179.7	133	3,406.2	133	1,227
SUB-TOTALS	6,820	3,335	6,520	3,601	-300	266
GRAND TOTALS		**10,155**		**10,122**		**-33**
						-0.33%



MCAS MIRAMAR

Figure 4-2

Comparison of NAS Miramar and MCAS Miramar Accident Potential Zones

Increase
Decrease

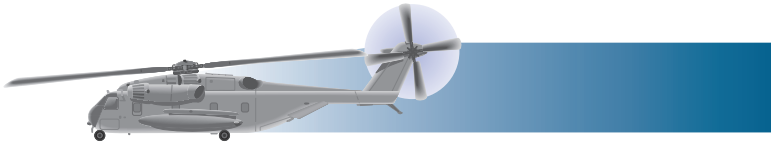
MCAS Miramar Accident Potential Zone
Accident Potential Zone II
Accident Potential Zone I
Clear Zone
Primary Surface

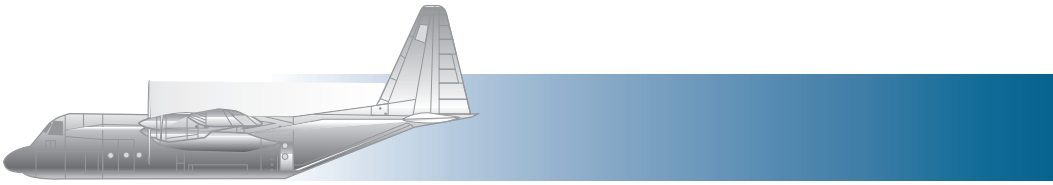
Helipad APZ I
Helipad Clear Zone
Helipad Primary Surface

Note: This map was generated by developing APZs based on OPNAVINST 11010.36B. They were based on proposed flight tracks obtained from the 2003 Wyle Noise Study. In several cases, the APZs were extended based on historic accident data, airspace constraints and operational conditions. APZs were created based on the following flight tracks which have over 5,000 annual operations. 4RS1, 4RS2, 4RS3, 4RJ2, LF1, LT2 and E2OH.

*Patterns shown for increase of accident potential zones apply only to fixed wing APZs. All rotary wing accident potential zones are contained within the station boundaries.

1.5 0 1.5
Scale in Miles





MARINE CORPS AIR STATION, MIRAMAR

CHAPTER 5 - HEIGHT OBSTRUCTIONS

AIR INSTALLATIONS COMPATIBLE USE ZONES

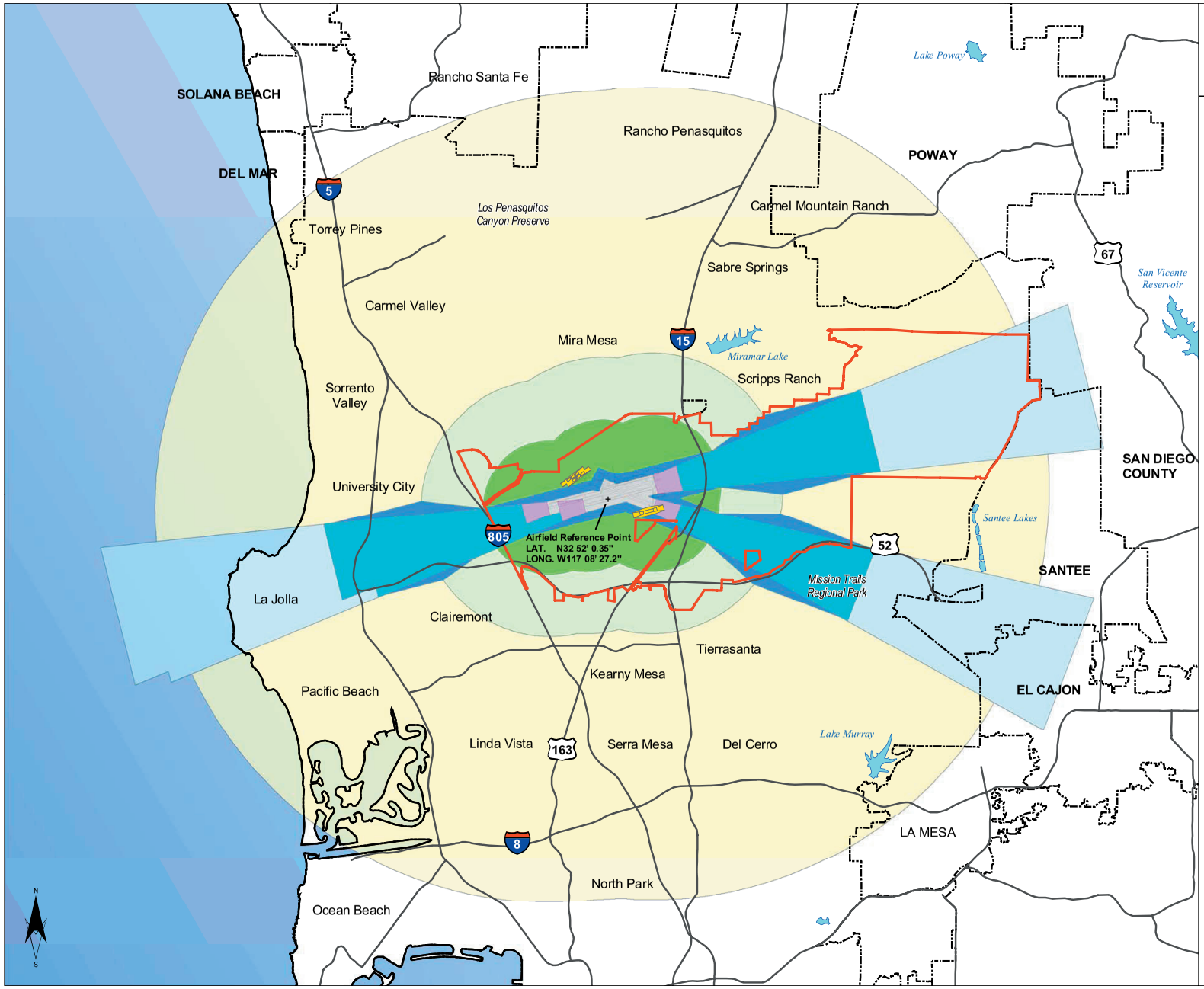
The published Airport Reference Point (ARP) is utilized for obstruction evaluations of any proposed project in proximity to Miramar flight operations.

Height restrictions are necessary to ensure that no object will interfere with the safe operations of aircraft transiting the MCAS Miramar operating environment. This obstruction-free zone is needed for all runway surfaces and under all weather conditions. The horizontal planes and transitional surfaces for MCAS Miramar are depicted on Figure 5-1. These surfaces, in addition to published instrument departures for Miramar, are utilized to ensure that proposed site development in proximity to these critical operating areas will not be obstructed in any way, or that penetration of these transitional surfaces will not be affected to meet mission essential training and readiness requirements. The published Airport Reference Point **(ARP)** is utilized for obstruction evaluations of any proposed project in proximity to Miramar flight operations. Any proposed land use which exceeds 200 feet Above Ground Level **(AGL)** or penetrates the 100:1 slope extending 20,000 feet from the nearest point of the closest runway must be submitted to both the FAA and MCAS Miramar for further review. Both agencies will advise the local land use authority regarding safety impacts to insure safety of flight for Miramar operations.

5.1 HORIZONTAL /TRANSITIONAL SURFACES

The imaginary surfaces affecting Miramar's runways are described below:

- **Primary Surface** – A surface on the ground centered lengthwise on the runway and extending 200 feet beyond the runway thresholds. The primary surface for each runway is 1,500 feet wide.
- **Clear Zone Surface** – The area at runways end, beginning at the same width as the primary surface flaring to seven degrees 58'-11'' to a width of 2,284 feet and 3,000 feet long. The clear zone surface requires significant limitations to accommodate requirements for aircraft overrun areas and unrestricted visibility of airfield lighting. Clear zones are maintained as open, graded and free of above ground objects with the exception of navigational aids.
- **Inner Horizontal Surface –** Oval-shaped planed surface 150 feet above the established airfield elevation, extending 7,500 feet from the runway end and centerlines.
- **Conical Surface** – Surface extending 7,000 feet from the periphery of the inner horizontal surface extending at a slope of 20:1 to a height of 500 feet above the established airfield elevation.
- **Outer Horizontal Surface** – Level imaginary plan located 500 feet above airfield elevation, extending 30,000 feet from the conical surface.



MCAS MIRAMAR

Figure 5-1

MCAS Miramar Imaginary Surfaces

- MCAS Miramar Boundary
- Primary Surface (478' Elev)
- Clear Zone Surface
- Approach-Departure Clearance Surface (Glide Angle = 50:1)
- Approach-Departure Clearance Surface (Horizontal)
- Inner Horizontal Surface (150 feet above airfield elevation)
- Conical Surface (20:1)
- Outer Horizontal Surface (500 feet above airfield elevation)
- Transitional Surface (7:1)
- Helicopter Imaginary Surfaces (All contained on station)

Source: KTU+A, 1999. Based on criteria from NAVFAC P-80.3.

2 0 2

Scale in Miles

- **Transitional Surface** – Inclined plane that connects the primary surface and the approach/departure clearance surfaces to the inner horizontal, conical and outer horizontal surface areas. The 7:1 slope extends at right angles to the runway and extended centerlines.

All surfaces are consistent with DoN policy guidelines and directives.

5.2 AIRSPACE

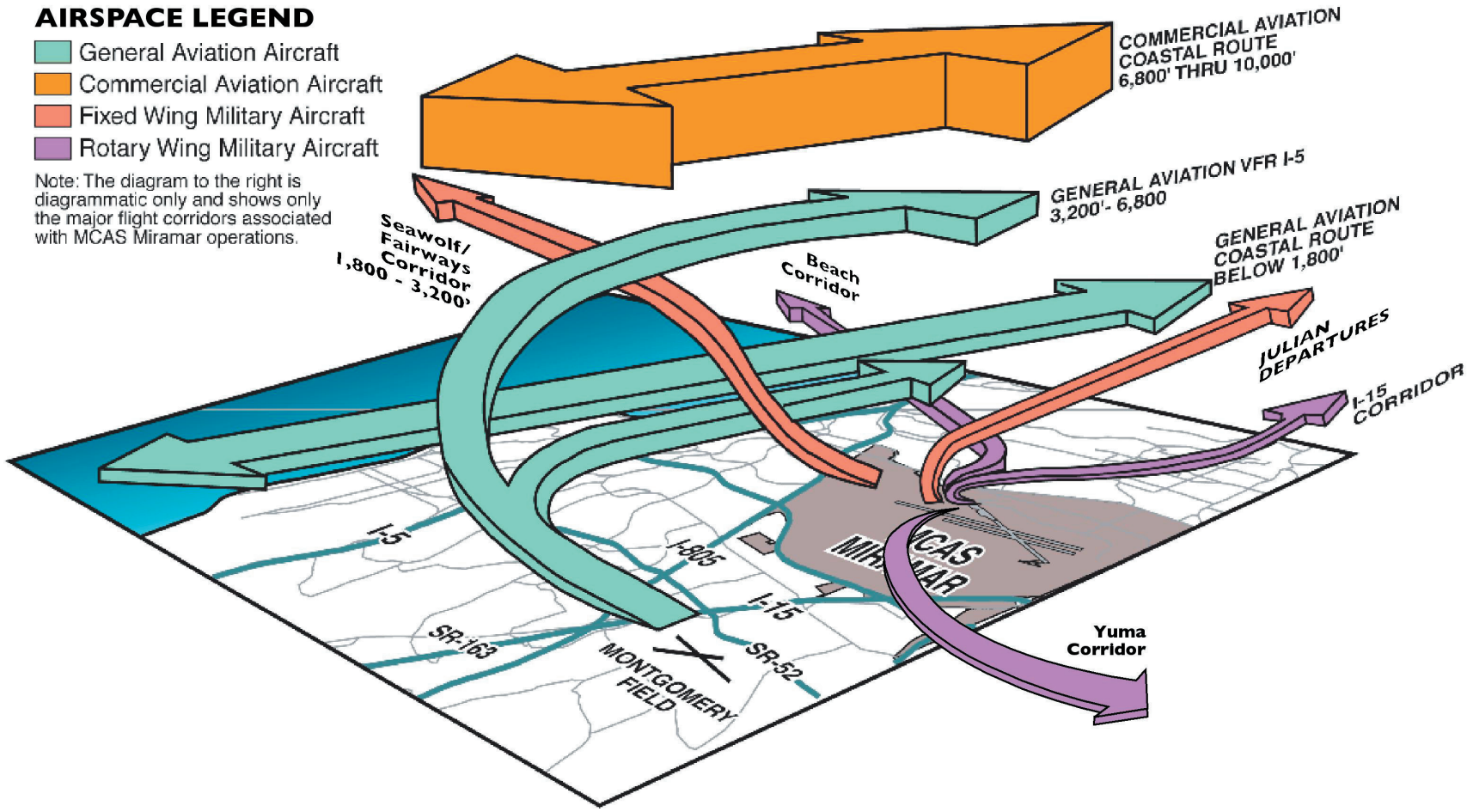
In 1981, the Federal Aviation Administration **(FAA)** established a Terminal Control Area **(TCA)** in the San Diego region to enhance safety of flight. All aircraft operating within the boundaries of the TCA are now under positive radar control as Class B Airspace. A three-dimensional map is shown on Figure 5-2. This map represents existing airspace that provides for the safe vertical and horizontal separation of aircraft transiting to and from MCAS Miramar. The Class B Airspace provides for VFR flight corridors, including altitude ranges, at which rotary-wing aircraft can transit to ranges and operating areas in the region.

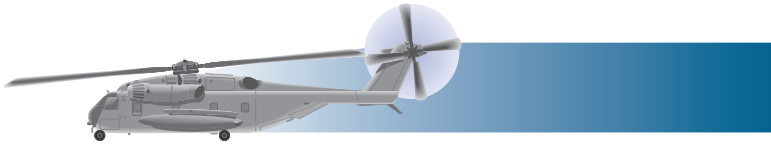
5.3 COMPATIBLE DEVELOPMENT CRITERIA

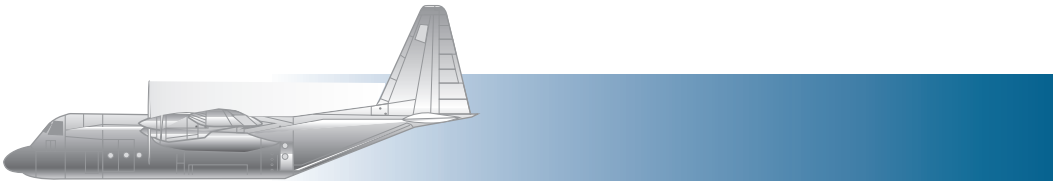
The following are parameters for determining nonconforming land uses and developments with MCAS Miramar's operations:

- Objects penetrating the 100:1 surface that are not noticed to the FAA, Airport Land Use Commission **(ALUC)**, or MCAS Miramar for analysis.
- Objects determined to be an obstruction or hazard by Federal Aviation Regulations, Part 77 or Department of Transportation/FAA Terminal Instrument Procedures, Chapter 12 criteria.
- Objects that would require a permanent change to MCAS Miramar flight operations, approach minimums or arrival/departure routes.
- Uses which release into the air any substance that would impair visibility or otherwise interfere with the operation of aircraft such as dust, smoke or steam.
- Uses that emit or reflect light which would interfere with aircrew vision.
- Uses which produce emissions that would interfere with aircraft communication, navigation or electrical systems.
- Uses which would attract birds or waterfowl and the growing of certain types of vegetation.

Figure 5-2: Regional Airspace







MARINE CORPS AIR STATION, MIRAMAR

CHAPTER 6 - LAND USE PLANNING

AIR INSTALLATIONS COMPATIBLE USE ZONES

To ensure compatible land use planning, three separate and distinct issues need to be addressed. Focused areas of concern include noise, safety, and airspace.

The AICUZ presents three areas of concerns for land use planning; noise zones, Accident Potential Zones, and height and obstruction criteria.

Local governments are charged with protecting the health, safety, and welfare of residents. To achieve this responsibility, local governments with land use authority plan and control land use development through zoning. The Marine Corps will continue to identify impacted areas and provide technical assistance by supplying guidelines and recommendations that local governments can use when exercising their jurisdictional authority.

6.1 NOISE EFFECTS ON LAND USE

Existing acreage within the adopted noise contours (both off-base and on-base) is 24,755 acres and will increase to 26,288 acres for projected MCAS Miramar operations.

The existing acreage within the adopted noise contours (both off-base and on-base) is 24,755 acres and increases to 26,288 acres under the projected MCAS Miramar operations. This represents a 1,533 acre increase from the Navy to the projected Marine Corps operations overall. The largest increase in a contour is for the 60 db CNEL which will increase from 8,954 acres to 10,138 acres and occurs in an area that is primarily industrial and commercial in orientation. The 65 db CNEL increased from 5,135 acres to 5,575 acres. In contrast, the 80 db CNEL decreased from 4,110 acres to 1,560 acres. The most noticeable contour changes occur in three areas: the Seawolf Corridor, the Julian Corridor, and the I–15 Corridor.

Based on the current adopted noise contours, the total residential population affected is 17,961 persons in 8,220 houses.

Based on the current adopted noise contours, the total residential population affected is 17,961 persons in 8,220 houses. This number increases to 25,223 in 10,433 houses using the new proposed MCAS contours. Table 6-1 includes a comparison of the effects of noise on residential land uses between the adopted contours and the projected noise for Miramar operations.

The DoN has established recommendations for land use planning to include minimum building sound level requirements. Table 2 of the appendix "Suggested Land Use Compatibility in Noise Zones", summarizes the criteria outlined in OPNAVINST 11010.36B. The California Code of Regulations, Title 24, Noise Insulation Standards (CCR Title 24), limits the interior noise level of all new multi-family residences to 45 dB CNEL or below. In addition, if the exterior sound level is greater than 60 dB CNEL, Title 24 requires the preparation of an acoustical analysis showing that the proposed design for single family homes will limit interior noise to less than 45 dB CNEL. The City of San Diego standards for construction of homes apply Title 24 requirements to new detached single family residences within an aircraft-generated CNEL of 65 dB or greater.

Table 6-1: Comparison of Residential Population and Housing Units Affected by Noise Contours

NAS Miramar CLUP Noise Contours

CNEL Noise Level	Census 2000 Data		
	Residential Population	Housing Units	Totals Acres
60 dB	16,709	7,741	8,954
65 dB	1,248	477*	5,135
70 dB	4	2	3,655
75 dB	0	0	2,901
80 dB	0	0	4,110
	17,961	8,220	24,755

MCAS Miramar Projected Noise Contours

CNEL Noise Level	Census 2000 Data		
	Residential Population	Housing Units	Totals Acres
60 dB	24,126	10,111	10,138
65 dB	1,096	322**	5,575
70 dB	1	0	4,250
75 dB	0	0	3,373
80 dB	0	0	1,560
85 dB	0	0	1,392
	25,223	10,433	26,288

* 488 based on census, fieldwork verified only 477 residential units

** 449 based on census data, fieldwork verified only 322 detached homes & 68 mobile homes

6.2 EXISTING AND PROJECTED LAND USE

The region's population, housing and employment growth and its geographic distribution are described in the 2030 City/County, Regional Economic Growth Forecast prepared by SANDAG. It projects regionwide totals of population, housing and employment for a 30 year period (2000-2030). The second phase of the management plan determines the distribution of the population, housing and employment among the region's 18 cities and the unincorporated areas of the county.The proposed land uses addressed in this chapter are based on adopted community plans and general plans associated with each city or unincorporated area as documented by SANDAG.

6.3 LAND USE OVERSIGHT

Since the military does not have jurisdictional powers to control surrounding area land uses, installations are dependent upon cooperative efforts from local planning agencies to help protect the public health, safety, and welfare. MCAS Miramar operations fall within the jurisdictions of the cities of San Diego, Poway, Del Mar, and the County of San Diego.

The current guidelines for land use planning purposes are presented in the 1992 SANDAG Comprehensive Land Use Plan (CLUP) for NAS Miramar. The CLUP identifies the operational impacts, such as noise and accident po-

Table 6-2: Comparison of Land Uses Found under the NAS Miramar and MCAS Miramar CNEL Noise Contours

	60 CNEL		65 CNEL		70 CNEL		75 CNEL		80 CNEL		85 CNEL	
	NAS Miramar	MCAS Miramar	NAS Miramar	MCAS Miramar	NAS Miramar	MCAS Miramar	NAS Miramar	MCAS Miramar	NAS Miramar	MCAS Miramar	NAS Miramar	MCAS Miramar
EXISTING LAND USE												
Residential	767	1,045	100	147	1	0	0	0	0	0	0	0
Lodging / Group Quarters	50	35	46	20	13	41	0	13	0	0	0	0
Industrial	1,640	1,604	734	1,019	369	493	15	144	1	0	0	0
Junkyard/Landfill		0	10	33	177	165	385	281	300	287	0	106
Transportation	949	1,260	774	863	454	524	285	300	936	215	0	678
Commercial	142	224	79	115	50	49	0	37	0	0	0	0
Office	234	339	165	157	6	6	7	6	3	6	0	1
Public Service	24	13	128	126	9	21	2	1	0	2	0	1
Medical	5	12	5	5	0	0	0	0	0	0	0	0
Military	911	651	462	375	340	306	142	110	77	23	0	5
Schools	53	139	0	0	0	0	0	0	0	0	0	0
Park & Recreation	224	69	385	212	69	325	34	74	73	35	0	0
Open Space	1,829	2,658	801	783	758	862	821	1,145	1,365	465	0	325
Agriculture	9	39	0	21	57	66	22	0	0	0	0	0
Vacant Land	2,057	2,003	1,425	1,674	1,352	1,391	1,186	1,262	1,355	523	0	276
Water Bodies	3	3	0	0	1	1	4	0	0	4	0	0
Under Construction	58	44	21	25	0	0	0	0	0	0	0	0
Total Acres	**8,954**	**10,138**	**5,135**	**5,575**	**3,655**	**4,250**	**2,901**	**3,373**	**4,110**	**1,560**	**0**	**1,392**

Some of the land uses (shown in yellow above) are considered existing and nonconforming to the Navy Guidleines for noise contours (see Appendix Table 2)

tential zones, to ensure compatible land use planning with Miramar operations. Land use authority is retained by the local jurisdictions for site development and to implement the conditions set forth in the CLUP. This is exercised for all ministerial and discretionary permits, including community plan amendments, specific plans, planned development permits, rezoning applications, building and tenant improvement permits.

A variety of other land use strategies oriented towards federal, Marine Corps, state and local levels are available for encouraging compatible land uses within the AICUZ footprint. Implementation of the AICUZ land use guidelines ensures beneficial use of nearby property that is consistent with airfield operations.

6.4 RESTRICTIVE USE EASEMENTS

During the 1970s and 80s, the DoN acquired restrictive use easements over nearly 400 acres of property in surrounding communities. These parcels are mostly contained within the primary departure corridors for Miramar operations and were determined to be essential in ensuring compatible land use planning within these critical areas. Additionally, restrictive use easements were retained in South Miramar with the construction of State Route 52, which then transected federal property. Remnant parcels severed by the freeway then were sold subject to restrictive use easements that run with the land. Development within these parcels must be consistent with the provisions of the easements held by the United States of America. Site elevation, lot coverage and types of land uses are specifically addressed within these covenants. These easements are maintained as an additional tool to ensure compatible land use planning in surrounding communities adjacent to MCAS Miramar and serve to protect the military's mission essential training and readiness requirements in these areas. A map identifying where these areas are located is provided on Figure 6-1.

MCAS MIRAMAR

Figure 6-1

Restrictive Use Easements

Restrictive Use Easements

MCAS Miramar Boundary

2,500 0 2,500

Scale in Feet

6.5 MAJOR DEVELOPMENT PROJECTS

Proposed long range land use plans in surroundings communities include the following (refer to Figure 6-2):

1. North City Future Urbanizing Area Framework Plan

The North City Future Urbanizing Area (**NCFUA**) is 12,000 acres, stretching from Interstate 5 east almost to Interstate 15, with the Los Penasquitos Canyon at the southernmost edge and the Santa Fe Valley to the north. The Framework Plan envisions half of the area to be retained in open space. Some small land areas with higher intensity uses are proposed to contain mixed use community cores and employment centers. It has been proposed that the area's designation be shifted from future urbanizing to urbanizing.However, during the spring 1994 election, the proposition was voted down. Unless another proposal and ballot measure is passed, the area is likely to develop as rural residential.

2. Fenton Parcel, Carroll Canyon

The Fenton Parcel, consisting of approximately 592 acres, reclaims the Fenton mining site by creating a multi-use community consisting of a combination of land uses including office, light industrial/business parks, residential and retail commercial uses. Development of the parcel includes 40 acres of mixed use; 47 acres of industrial; 66 acres of industrial/business park; 69 acres of residential; and 20 acres of parks. The remaining acreage will be set aside as open space.

3. Carroll Canyon Business Park

The Vulcan Parcel (formerly owned by CALMAT) is approximately 443 acres and allows for the development of the resource extraction land owned by Vulcan. It is located on both the north and south sides of the planned extension of Carroll Canyon Road, beginning generally at the intersection of Carroll Canyon Road at Black Mountain Road and extending westward beyond its intersection with Camino Ruiz. Proposed development includes retail, office, industrial, research and development, and residential.

4. Spectrum Center

The development is partially complete and is located on the former General Dynamics site, east of SR 163 and south of Clairemont Mesa Boulevard.This project is consistent with the adopted CLUP for NAS Miramar and this AICUZ.

5. Monticeto/Sycamore Estates

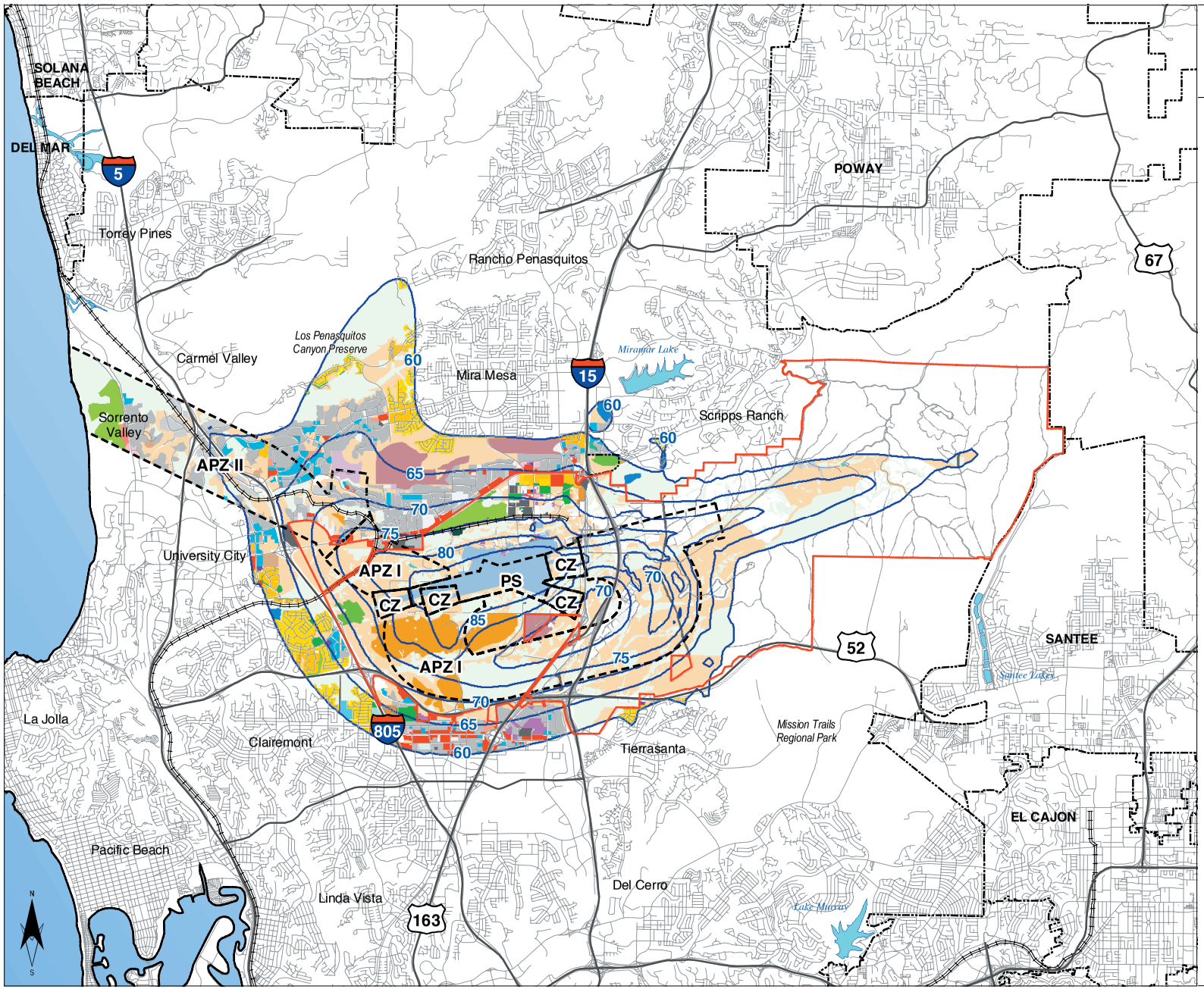
These relatively large scale residential communities will be built directly to the north of the station boundary, on former General Dynamics property.This major new project is consistent with the adopted CLUP for NAS Miramar and this AICUZ.

6. Fanita Ranch

Fanita Ranch has been proposed in a variety of density alternatives and is not approved at this time. It is situated under the approach flight path and is consistent with the adopted CLUP for NAS Miramar and this AICUZ.

7. Allred Collins Business Park

This property has been approved for development by the City of San Diego. It is situated directly adjacent to the station, south of SR-52, east of I-805 and west of Convoy Street. The project site is proposed to be a light industrial and business park. However, based on current market conditions, only commercial retail uses have been developed thus far. Some of the property is affected by restrictive use easements.



MCAS MIRAMAR

Figure 6-2

Developed Land Uses Within MCAS Miramar CNEL Noise Contours and APZs

- Single Family Residential
- Multi Family Residential
- Hotel/Motel/Resorts
- Light Industry
- Extractive Industry
- Junkyard/Dump/Landfill
- Other Transportation
- Commercial
- Office
- Religious Facilities
- Other Public Services
- Health Care
- Schools
- Other Recreation
- Parks
- Open Space Reserves/Preserves
- Agriculture
- Vacant / Undeveloped
- Under Construction
- Military

MCAS Miramar Noise Contours

MCAS Miramar APZ

Source: Land Use from SANDAG, 2002

1.5 0 1.5

Scale in Miles

6.6 APZ EFFECTS ON LAND USE AND SAFETY

The purpose of land use compatibility guidelines for APZs is to limit the density of people at any one time and the coverage of development on a particular site. Restrictions on persons per acre and maximum site coverages are methods that allow for decreasing public risk and increasing pilot options for downing a malfunctioning aircraft. Land use guidelines in APZs are more conservative than those for noise impact, since the possible consequences of incompatible development are more serious. An overlay of the APZs and the underlying land uses can be seen on Figure 6-2.

Table 6-3, "Suggested Land Use Compatibility in APZs" can be found in the appendix. This reference from OPNAVINST 11010.36B provides guidance for determining the types of land uses considered to be compatible and provides exceptions and conditions to ensure consistency with Miramar operations.

Restrictions on persons per acre and maximum site coverages are methods that allow for decreasing public risk and increasing pilot options for downing a malfunctioning aircraft.

Table 6-3 summarizes the land uses within the APZs under existing conditions using 2002 land use data.

The total number of acres within APZs will drop from 10,155 acres to 10,122 acres. Off-base acreage will increase by 266 acres. In general, most of the uses affected by the APZs are considered to be compatible. Those that may or may not be compatible based on use and density are shown highlighted on Table 6-3 in yellow.

6.7 COMPATIBILITY WITH HEIGHT & OBSTRUCTIONS

It is beyond the scope of this study to determine the incompatibilities of future development under the appropriate height and obstruction criteria. However, discussion of the criteria is provided below. Figure 5-1 in Chapter 5 can be referenced for the height and obstruction criteria.

The total number of acres within APZs will drop from 10,155 acres to 10,122 acres. Off-base acreage will increase by 266 acres.

Any development proposal that includes an object over two hundred feet above ground level or which penetrates the 100:1 slope surface extending to 20,000 feet from the nearest point of the nearest runway must be submitted to the FAA for an obstruction evaluation. In addition, the CLUP requires that SANDAG and MCAS Miramar be notified of these proposals by the applicant.

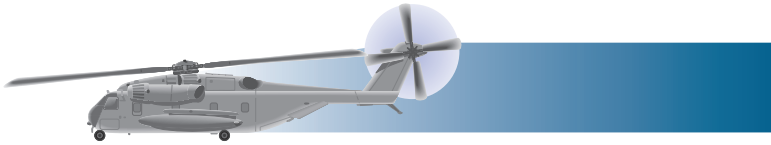
6.8 AIRSPACE ENCROACHMENT CONFLICTS

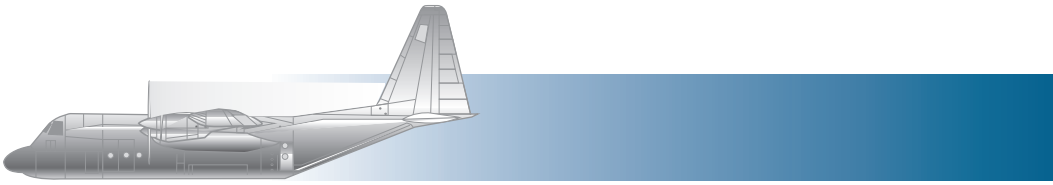
The airspace in the San Diego area is one of the most congested air traffic areas in the country. The FAA and the Department of Defense have established air traffic control procedures and patterns to ensure safety of flight in the airspace.

Table 6-3: Off-base Land Uses Found within the APZs

Land Uses Affected (Acres) Based on Existing Land Use	CLEAR ZONE		APZ 1		APZ 2		
	NAS Miramar	MCAS Miramar	NAS Miramar	MCAS Miramar	NAS Miramar	MCAS Miramar	Total Change
Golf Course Clubhouses					5.90	5.90	No change
Other Recreation	0.01	0.01	1.43		10.64	3.04	-9.03
Arterial Commercial			7.57	1.92			-5.65
Automobile Dealerships			9.87	14.45		0.91	5.49
Cemetery					10.34	35.47	25.13
Communications and Utilities			34.51	9.84	0.95	6.36	-19.26
Community Shopping Centers				6.18			6.18
Extractive Industry			0.06				-0.06
Fire/Police Stations			1.00			1.00	No change
Freeways			186.66	29.20	133.63	199.23	-91.86
Golf Courses					246.74	228.55	-18.19
Hospitals-General					23.51	12.91	-10.60
Hotel/Motel					11.69	12.42	0.73
Industrial Parks			149.59	34.27	424.61	585.91	45.98
Industrial Under Construction			5.33		16.13	16.13	-5.33
Junkyard/Dump/Landfill			12.70			12.70	No change
Landscaped Open Space					0.42	0.42	No change
Light Industry General			41.17		127.16	230.77	62.44
Multi-Family Residential					0.85	15.53	14.68
Neighborhood Shopping Centers			0.03		8.85	8.88	No change but shifted
Office Under Construction			1.11		5.80	4.40	-2.51
Office-high rise					4.77	6.18	1.41
Office-low rise			62.68		49.42	114.13	2.03
Open Space Reserves-Preserves			144.59	0.93	535.71	946.74	267.37
Retail Trade or Strip Commercial			4.17	2.68		4.17	2.68
Post Offices						2.01	2.01
Railroad Right of Ways			62.58	32.26	22.26	71.79	19.21
Resort					14.87	14.87	No change
Road Right of Ways	0.62	0.62	70.13	26.17	131.45	209.01	33.60
Unclassified					0.89	0.89	No change
Vacant and Undeveloped Land	0.04	0.04	322.01	30.70	390.38	611.25	-70.44
Warehousing & Public Storage			29.76	5.83	2.27	32.46	6.26
Wholesale Trade			7.71		0.42	12.19	4.06
TOTAL PER ZONE	**0.67**	**0.67**	**1,154.66**	**194.43**	**2,179.66**	**3,406.22**	**266.33**

Some of the land uses (shown in yellow above) are considered existing and nonconforming to the Navy Guidelines for an APZ (see Appendix Table 3)





MARINE CORPS AIR STATION, MIRAMAR

CHAPTER 7 - AICUZ STRATEGIES

AIR INSTALLATIONS COMPATIBLE USE ZONES

This chapter discusses a variety of issues and possible resolutions to the issues presented in the previous chapters. Many of these recommendations are similar and consistent to recommendations proposed in the adopted NAS Miramar 1992 CLUP and AICUZ.

7.1 CURRENT SUCCESS OF AICUZ EFFORTS

The AICUZ and CLUP documents, coupled with the full time staff of Community Planning Liaison Office and the cooperative efforts of the City of San Diego and SANDAG have all contributed to the success of this program.

The NAS/MCAS Miramar AICUZ program has been very successful in recent years. The adopted AICUZ and CLUP documents, coupled with the full time staff of the Community Planning Liaison Office (**CPLO**) at MCAS Miramar and the cooperative efforts of the City of San Diego and SANDAG, have all contributed to the success of this program. Based on the CPL mission statement, this department will continue to function as the primary vehicle for implementing and managing the AICUZ program. The Mission and Functions Statement for the CPLO states:

- Advise and assist the Commander, Marine Corps Air Bases Western Area **(COMCABWEST)**, through the Chief of Staff, to assure the availability of assets to accommodate future mission requirements through strategic planning in the areas of encroachment control, compatible land use, real estate development and environmental protections.

- Inform and coordinate with all necessary parties the planning for development of compatible land uses in the area of influence surrounding COMCABWEST installations. Additionally, assist local zoning authorities in the establishment of provision for sound attenuation, full disclosure by notification statements and restrictive land zoning in the areas affected by flight operations surrounding these installations.

- Establish and maintain liaison with federal agencies, local governments, land developers and landowners, local civilian community leaders, planning commissions, zoning authorities and civic groups within the operational sphere of influence of COMCABWEST installations.

- Provide assistance to municipal governments and to state and federal agencies involved in airfield and airspace studies that may affect the current and long range status of Marine aviation activities which occur at COMCABWEST installations.

In terms of public safety, the AICUZ program (through the CLUP) has been instrumental in controlling incompatible development under the departure corridors. When accidents have occurred, injuries and property damage have been limited.

MCAS Miramar has adjusted many of their operations over the years to help lessen the noise and safety impacts on the community. These adjustments include the use of hush-houses, limitation of engine run-ups, changes in standard instrumentation departure methods, modification to flight tracks, distribution of flight operations per track, and the control of daily and weekly flight tempo of operations.

MCAS Miramar has adjusted operations over the years to help reduce the noise and increase safety for the community. These adjustments include the use of hush-houses, limitation of engine run-ups, changes in standard instrumentation departure (**SID**) methods, modification of flight tracks, distribution of flight operations per track, and the control of daily and weekly flight tempo of operations.

The Marine Corps' proactive involvement with land use and development issues has resulted in the prevention of most nonconforming development. Most existing nonconforming land uses were in place or approved prior to the 1992 AICUZ.

7.2 "THE WAY AHEAD"

MCAS Miramar AICUZ program management is a chartered responsibility of the Community Plans and Liaison (CP&L) Office, under the leadership of the Commander, Marine Corps Air Bases Western Area (COMCABWEST). The office maintains a full time staff with dedicated resources that focus on the integration of the military mission for Miramar within the land use planning process for all jurisdictions.

A proactive program that points to "the way ahead" is always more successful than one based on a reactionary approach.

The DoN mechanism to prevent incompatible development of land affected by military operations is the AICUZ Program. Cooperative efforts employed by local, regional, state and federal government agencies are important to the sustainability of the military mission to meet national security objectives.

Strategic planning on all levels and ongoing dialogue within the neighboring communities continues to serve as a foundation for existing and future program initiatives.

7.3 OVERALL AICUZ RESPONSIBILITIES

There are a number of strategies employed by governments and their agencies that are available for obtaining compatible land uses surrounding MCAS Miramar. However, the most important responsibilities will be those of MCAS officials and local agencies. Military installations and local government agencies with planning and zoning authority share the responsibility for preserving land use compatibility near a military air installation. Cooperative action by both parties is essential to ensure consistency for land use planning purposes. If land use problems are not addressed, they can lead to restrictions on the operational capability of the air station. Reduced operational capability often affects the economy of the community due to the reduction of military spending.

The San Diego Regional Airport Authority is designated by the San Diego County Board of Supervisors to assume the responsibilities of the Airport Land Use Commission and has the responsibility of creating and implementing the CLUP.

Section 21670.3 of the California Public Utilities Code directed the SDCRAA to assume the responsibilities of the Airport Land Use Commission (**ALUC**). A CLUP for NAS Miramar was prepared by the ALUC under the authority of Section 21675, California Public Utilities Code. The CLUP identifies operational impacts, such as noise and accident potential zones, and makes recommendations for land uses compatible with air operations. Section 21670.3 directs the SDCRAA to adopt a new CLUP by June 2005.

7.4 APPLICABLE FEDERAL LAWS AND REGULATIONS

The following federal laws and regulations provide an opportunity for MCAS Miramar to identify, comment on, and influence the direction of land uses around the installation. This list is not meant to be exhaustive, but will serve as a foundation for future AICUZ efforts.

A variety of federal, state and local legislative and policy programs allow MCAS staff to monitor and help direct development around the installation.

National Environmental Policy Act of 1969

The National Environmental Policy Act (**NEPA**) mandates full analysis of the environmental impacts resulting from proposed federal actions. The NEPA process provides the air station early notice of and an opportunity to comment on other federal projects that may impact or be impacted by flight operations. The NEPA process typically applies only to federally funded or approved projects.

E.O. 12372, Intergovernmental Review of Federal Programs

Presidential Executive Order 12372 allows the states to set up review periods and processes for federal projects. Through the state clearing house, the air station is able to enter into the planning process and comment on federal projects it may not see otherwise.

HUD Circular 1390.2

Approvals of mortgage loans from the Federal Housing Administration or the Department of Veterans Affairs are subject to the requirements of this HUD circular. The circular sets forth a discretionary policy to withhold funds for housing projects when noise exposure levels are in excess of prescribed levels. HUD funding for residential housing may be permitted inside the 65 CNEL contour, provided sound insulation is accomplished. Insulation, however, may make siting in these areas financially less attractive. Because the HUD policy is discretionary, variances may also be permitted, depending on regional interpretation and local conditions. HUD also has a policy which does not provide funding for projects in clear zones and accident potential zones unless the project is compatible with the AICUZ (24 CFR Section 51.300).

GSA Federal Management Circular 75-2

This circular allows the air installation to extend its land use recommendations to federally funded projects in the vicinity. Specifically, it requires agencies sponsoring federally funded projects to ensure they are compatible with land use plans of the airport operator.

7.5 DEPT. OF THE NAVY REAL ESTATE EFFORTS

Easements

Restrictive use easements give the DoN the ability to insure that development and land uses outside the base are consistent with AICUZ recommendations. Navy policy is to consider easement acquisition only if all other means of insuring compatible land use fail.

Fee Title Acquisitions

Any lands considered to be essential in protecting the airspace and operations of the base that cannot be controlled through cooperative efforts with the local land use agencies or acquisition of restrictive use easements should be considered for fee title acquisition and Marine Corps ownership. At this time, no lands fall within this category.

7.6 STATE AND REGIONAL LAWS AND REGULATIONS

The California Environmental Quality Act (**CEQA**) requires most significant projects within the state to undergo environmental review. This enables the air station to comment on the planning process for non–federal projects at an early stage of project development.

In 1970, the State of California provided each county the ability to form an Airport Land Use Commission. This provided the opportunity for one agency to be responsible for land use planning in the vicinity of an airport.

In 1970, the San Diego Board of Supervisors designated the San Diego Association of Governments as the Airport Land Use Commission for San Diego County. In 2002, by state legislation, the San Diego County Regional Airport Authority was designated as the Regional Airport Land Use Authority.

7.7 CITY AND LOCAL STRATEGIES

Land use compatibility is a shared concern of the Marine Corps, the public, and the local government agencies who have planning and zoning authority. The decision makers for the local government have the key responsibility for taking actions that preserve land use compatibility. The cooperative action of all parties helps to resolve land use compatibility problems.

City and local governments have the extremely powerful strategies of land use planning, zoning, ordinances, and public improvement programs to provide for compatible land use surrounding airports.

One of the first steps in providing local governments with the tools needed to control land use would be the creation and adoption of a new CLUP. Based on the findings in this AICUZ (and in the subsequently prepared CLUP), an Airport Environs Overlay Zone Ordinance (**AEOZO**) is recommended. It is recommended that the AEOZO be developed from the ASA and the AICUZ footprint. Because of the number of noise complaints associated with helicopter operations during realignment to Miramar, an expanded real estate "Disclosure" area should be considered.

Disclosure areas should be based on the following recommendations:

- Community Noise Equivalent Level Noise Contours (Figure 3-2)
- Accident Potential Zones (Figure 4-2)
- AICUZ Study Area (Figure 2-5)
- Rotary/Fixed-Wing Flight Corridors (Figure 2-3, 2-4, & 3-5)
- Heights and Obstruction Criteria (Figure 5-1).

Planning

The City of Poway, County of San Diego, and the City of San Diego general plans, and the various community plans of Mira Mesa, University City, Tierrasanta, Rancho Penasquitos, Sabre Springs, Carmel Mountain Ranch, Kearny Mesa, Torrey Pines, Scripps Ranch, and Clairemont provide land use guidelines for noise and safety. It is recommended that general and community plans be amended to incorporate the new CNEL noise contours and accident potential zones, horizontal planes/transitional surfaces, AICUZ Study Area and flight corridors for land use planning purposes.

Zoning

The City of San Diego zoning ordinance (Land Development Code) identifies what land uses are permitted within the MCAS Miramar AICUZ Study Area. This study provides recommendations that should be used as a guide for the review and update of the community plans and General Plan zoning in these areas. Zoning changes may be required for any area deemed incompatible with the noise and safety impacts of MCAS Miramar operations.

Capital Improvements

Certain public improvements, such as water lines, municipal sewer lines, road improvements, or new rights-of-way could precipitate development in areas where it might not otherwise be economically feasible. Capital improvements programs should be monitored to avoid the development of improvements which are inconsistent with the recommendations and findings of this AICUZ update.

Truth-in-Sales and Rental Ordinances

Truth-in-sales and rental ordinances should be applied when residential developments occur within the AICUZ footprint. This is a useful strategy for existing residential uses, proposed residential development and for subdivision approval. This strategy is especially important in areas where aircraft overflights and noise occur only during weekdays or during special training operations. In these situations, the buyer is particularly susceptible since overflights and/or noise may not occur during visual inspection of the property. The DoN should encourage San Diego County to incorporate the truth-in-sales and rental ordinances into their zoning codes and a county-wide disclosure statement.

San Diego County Regional Airport Authority

In California, airport land use commissions have been established to guide development occurring around airports. The SDCRAA now acts as the Airport Land Use Commission for the region. Previously, the SANDAG adopted the CLUP for NAS Miramar in 1990 (amended 1992). Section 21670.3 of the California Public Utilities Code directs the SDCRAA to adopt a new CLUP by 2005.

7.8 SPECIFIC RECOMMENDATIONS

Most of the recommendations in the 1992 CLUP are still valid. Those that need adjustment have been indicated in the text to the right.

The following section provides specific recommendations as part of this AICUZ program. The recommendations are directed to each of the major stakeholders and responsible organizations for improving public safety.

The AICUZ update makes the following recommendations to SDCRAA:

- Review the land use plans and regulations proposed by the City of San Diego and act in accordance with the ALUC rules and regulations adopted by the ALUC of SDCRAA.

- Utilize the Airport Noise/Land Use Compatibility Matrix with the Accident Potential Zone/Land Use Compatibility Matrix (see Tables 2 and 3 in the appendix) to determine land use compatibility with the MCAS Miramar AICUZ Study Area (ASA as shown on Figure 2-5).

- Utilize the Accident Potential Zones (revised as shown on Figure 4-2) based on accident potential data provided by MCAS Miramar in determining areas subject to accident potential.

- Discourage federal expenditures on projects intended to support residential or other types of incompatible development within areas subject to excessive noise levels and/or accident potential as defined in this plan.

- Encourage the City of San Diego to coordinate with the DoN to develop a method by which all buyers, leasers, and renters are informed as part of the public report when the property is affected by an annual CNEL of 60 dB or greater (revised as shown on Figure 3-2). In addition, it is recommended that notice of flight corridors (both fixed-wing and rotary) should become part of the formal disclosure process (as shown on Figure 2-3 and 2-4) in adjacent communities.

- Notify the DoN of any actions, projects, or studies which may lead, directly or indirectly, to inconsistent development near MCAS Miramar, or may impact its flight mission. Wherever possible, the DoN should be brought into the planning process early as active participants in such actions, projects or studies.

The AICUZ update makes the following recommendations to the City of San Diego:

- Prohibit nonconforming land uses within the AICUZ Study Area (Figure 2-4), as defined by a newly revised CLUP.

- Utilize this plan as a guide for the review and update of the community plans and general plans for the City of San Diego within the Area of Influence.

- Amend Section 59.6.0701 of the San Diego Municipal Code to apply existing and applicable California Noise Insulation Standards (Title 24, California Administrative Code) to single family detached residences in the same manner as they are applied to multi-family residences, hotels, motels and other buildings.

- After SDCRAA adopts the new CLUP based on this AICUZ, identify undeveloped land zoned in a manner that permits nonconforming development with the CLUP and take steps to rezone that land in a consistent manner. Adopt an Airport Environs Overlay Zone Ordinance requiring compliance with height restrictions, densities and land uses that are compatible with the AICUZ footprint.

- Prohibit the above ground storage of flammable, and toxic materials for those land uses within the accident potential zone. Storage of the material should be in accordance with the most stringent federal, state, and local ordinances and regulations.

- Discourage property owners, developers and architects from using all-glass buildings due to glare from reflective light and the difficulty in meeting interior sound attenuation requirements.

The AICUZ update makes the following recommendations to MCAS Miramar:

- Continue to take all actions to ensure that approach and departure flight operations, as well as the Field Carrier Landing Practice, the Ground Controlled Approach Box Pattern, and Touch and Go practices, conform to prescribed flight patterns in efforts to reduce noise and/or accident potential with the surrounding communities.

- Continue to carry out a concerted educational program at MCAS Miramar to inform pilots of community impacts regarding aircraft that deviate from authorized flight patterns and procedures.

- Maintain aircraft accident safety records at MCAS Miramar and make available to SDCRRA, upon request, information describing the aircraft activity at MCAS Miramar during the previous and current years, the status of noise contours and accident potential zones, and mitigation measures which have or will be employed to minimize the impacts on surrounding communities.

- Coordinate a noise abatement program with affected communities, the City of San Diego and the ALUC. Coordination will take place through public meetings and addresses: (1) annual complaint totals; (2) noise abatement procedures; and (3) projected changes in mission.

7.9 MCAS MIRAMAR PROGRAMS

Beyond the update of the AICUZ and CLUP, several other programs are employed by MCAS staff. Below is a discussion of many of these programs.

Public Relations and Education Programs

Beyond the update of the AICUZ and CLUP, several other programs will be required by MCAS staff to be implemented. Below is a discussion of many of these programs.

These programs are extremely important in achieving the AICUZ objectives. The programs can utilize a number of techniques such as community information meetings, distribution of printed materials, media releases, noise complaint response programs and community liaison programs.

The CP&L office continues to conduct community relations throughout the region and coordinates the requisite forums to promote enhanced community awareness of ongoing Marine Corps training. The ongoing "Tours and Talks" program is available to the local constituency for educational purposes.

Public Presentations

Public presentations offer an excellent opportunity for direct communication with the community. Presentations are given to various community organizations, such as the chamber of commerce, service clubs, community groups, etc.

Media Materials

Press releases or short presentations on television and radio also provide an effective means of keeping the community informed.

Monitoring Programs

The Community Plans and Liaison Office will monitor the following:

- City zoning changes
- City general and community plan amendments
- City capital improvements plans
- City building code changes
- Airport land use plan updates and amendments
- Airport land use commission meetings
- Major land sales
- Proposed development plans
- Environmental impact statement and reports
- Proposed city annexations

Air Crew Education

Along with published operational procedures, air crews will be briefed on noise abatement and flight procedures to reduce noise impacts to the communities and keep air traffic within the established APZs and corridors.

Coordination Between the Navy and Marine Corps, City of San Diego, SDCRAA and SANDAG

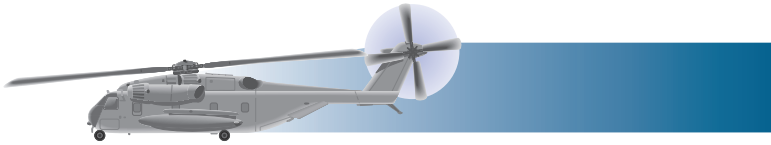
Monitoring will be required on a continuing basis. If a cooperative effort between SANDAG and the City of San Diego continues, then monitoring efforts can be shifted toward the review of projects that Miramar has been noticed for. The ASA should be used to indicate when and if a project should be brought to the attention of MCAS Miramar staff.

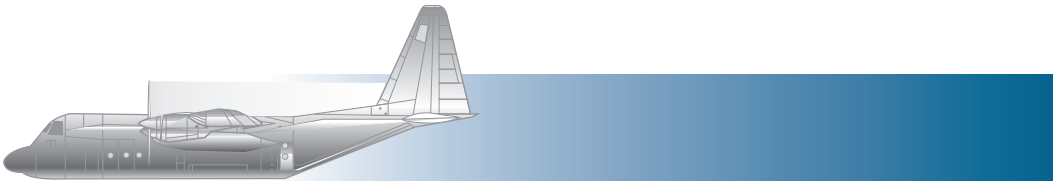
- The Navy and the Marine Corps will continue to be represented as a liaison member of the SANDAG Board of Directors, ensuring that the goals of the military are given proper consideration.

- A recommendation for the update of the Airport Environs Ordinance Zone Overlay should come from the DoN with a recommendation that the City of San Diego include MCAS Miramar ASA in this overlay.

- The incorporation of disclosure statements in all property transactions and land use/regulatory efforts must be established.

- The City of San Diego planners and MCAS Miramar staff continue to work together regarding proposed developments, zoning amendments, annexations and other proposals which might implicate AICUZ considerations in surrounding communities.





MARINE CORPS AIR STATION, MIRAMAR

APPENDIX - AICUZ SUGGESTED LAND USE COMPATIBILITY TABLES

AIR INSTALLATIONS COMPATIBLE USE ZONES

TABLE 2 FROM OPNAVINST 11010.36B "AIR INSTALLATIONS COMPATIBLE USE ZONES, SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES"

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
SLUCM NO	**LAND USE NAME**	**< 55**	**55- 64**	**65 - 69**	**70 -74**	**75- 79**	**80 -84**	**85+**
	Residential							
11	Household Units	Y	Y [1]	N [1]	N [1]	N	N	N
11.11	Single units: detached	Y	Y [1]	N [1]	N [1]	N	N	N
11.12	Single units: semidetached	Y	Y [1]	N [1]	N [1]	N	N	N
11.13	Single units: attached row	Y	Y [1]	N [1]	N [1]	N	N	N
11.21	Two units: side-by-side	Y	Y [1]	N [1]	N [1]	N	N	N
11.22	Two units: one above the other	Y	Y [1]	N [1]	N [1]	N	N	N
11.31	Apartments: walk-up	Y	Y [1]	N [1]	N [1]	N	N	N
11.32	Apartment: elevator	Y	Y [1]	N [1]	N [1]	N	N	N
12	Group quarters	Y	Y [1]	N [1]	N [1]	N	N	N
13	Residential Hotels	Y	Y [1]	N [1]	N [1]	N	N	N
14	Mobile home parks or courts	Y	Y [1]	N	N	N	N	N
15	Transient lodgings	Y	Y [1]	N [1]	N [1]	N [1]	N	N
16	Other residential	Y	Y [1]	N [1]	N [1]	N	N	N
20	***Manufacturing***							
21	Food & kindred products; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
22	Textile mill products; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
23	Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
24	Lumber and wood products (except furniture); manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
25	Furniture and fixtures; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
26	Paper and allied products; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
27	Printing, publishing, and allied industries	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
28	Chemicals and allied products; manufacturing	Y	Y	Y	Y[2]	Y[3]	Y[4]	N
29	Petroleum refining and related industries	Y	Y	Y	Y[2]	Y[3]	Y[4]	N

TABLE 2 - AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES (Continued)

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
SLUCM NO.	**LAND USE NAME**	**< 55**	**55- 64**	**65 - 69**	**70 -74**	**75- 79**	**80 -84**	**85+**
30	***Manufacturing (continued)***							
31	Rubber and misc. plastic products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
32	Stone, clay and glass products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
33	Primary metal products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
34	Fabricated metal products; manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	Y	Y	Y	25	30	N	N
39	Miscellaneous manufacturing	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
40	***Transportation, communication and utilities.***							
41	Railroad, rapid rail transit, and street railway transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
42	Motor vehicle transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
43	Aircraft transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
44	Marine craft transportation	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
45	Highway and street right-of-way	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
46	Automobile parking	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
47	Communication	Y	Y	Y	25 [5]	30 [5]	N	N
48	Utilities	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
49	Other transportation, communication and utilities	Y	Y	Y	25 [5]	30 [5]	N	N
50	***Trade***							
51	Wholesale trade	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
52	Retail trade – building materials, hardware and farm equipment	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
53	Retail trade – shopping centers	Y	Y	Y	25	30	N	N
54	Retail trade - food	Y	Y	Y	25	30	N	N

TABLE 2 - AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES (Continued)

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
SLUCM NO	**LAND USE NAME**	**< 55**	**55- 64**	**65 -69**	**70 -74**	**75-79**	**80 -84**	**85+**
50	***Trade (Continued)***							
55	Retail trade – automotive, marine craft, aircraft and accessories	Y	Y	Y	25	30	N	N
56	Retail trade – apparel and accessories	Y	Y	Y	25	30	N	N
57	Retail trade – furniture, home, furnishings and equipment	Y	Y	Y	25	30	N	N
58	Retail trade – eating and drinking establishments	Y	Y	Y	25	30	N	N
59	Other retail trade	Y	Y	Y	25	30	N	N
60	***Services***							
61	Finance, insurance and real estate services	Y	Y	Y	25	30	N	N
62	Personal services	Y	Y	Y	25	30	N	N
62.4	Cemeteries	Y	Y	Y	Y [2]	Y [3]	Y [4,11]	Y [6,11]
63	Business services	Y	Y	Y	25	30	N	N
63.7	Warehousing and storage	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
64	Repair Services	Y	Y	Y	Y [2]	Y [3]	Y [4]	N
65	Professional services	Y	Y	Y	25	30	N	N
65.1	Hospitals, other medical fac.	Y	Y [1]	25	30	N	N	N
65.16	Nursing Homes	Y	Y	N [1]	N [1]	N	N	N
66	Contract construction services	Y	Y	Y	25	30	N	N
67	Government Services	Y	Y [1]	Y [1]	25	30	N	N
68	Educational services	Y	Y [1]	25	30	N	N	N
69	Miscellaneous	Y	Y	Y	25	30	N	N
70	***Cultural, entertainment and recreational***							
71	Cultural activities (& churches)	Y	Y[1]	25	30	N	N	N
71.2	Nature exhibits	Y	Y[1]	Y[1]	N	N	N	N
72	Public assembly	Y	Y[1]	Y	N	N	N	N
72.1	Auditoriums, concert halls	Y	Y	25	30	N	N	N
72.11	Outdoor music shells, amphitheaters	Y	Y [1]	N	N	N	N	N
72.2	Outdoor sports arenas, spectator sports	Y	Y	Y [7]	Y [7]	N	N	N
73	Amusements	Y	Y	Y	Y	N	N	N
74	Recreational activities (include golf courses, riding stables, water rec.)	Y	Y[1]	Y[1]	25	30	N	N
75	Resorts and group camps	Y	Y [1]	Y [1]	Y [1]	N	N	N
76	Parks	Y	Y [1]	Y [1]	Y [1]	N	N	N
79	Other cultural, entertainment and recreation	Y	Y [1]	Y [1]	Y [1]	N	N	N

TABLE 2 - AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES (Continued)

Land Use		Suggested Land Use Compatibility						
		Noise Zone 1 *(DNL or CNEL)*		Noise Zone 2 *(DNL or CNEL)*		Noise Zone 3 *(DNL or CNEL)*		
SLUCM NO.	**LAND USE NAME**	**< 55**	**55- 64**	**65 -69**	**70 -74**	**75-79**	**80 -84**	**85+**
80	***Resource Production and Extraction***							
81	Agriculture (except live stock)	Y	Y	Y [8]	Y [9]	Y [10]	Y [10,11]	Y [10,11]
81.5,	Livestock farming	Y	Y	Y [8]	Y [9]	N	N	N
81.7	Animal breeding	Y	Y	Y [8]	Y [9]	N	N	N
82	Agriculture related activities	Y	Y	Y [8]	Y [9]	Y [10]	Y [10,11]	Y [10,11]
83	Forestry Activities	Y	Y	Y [8]	Y [9]	Y [10]	Y [10,11]	Y [10,11]
84	Fishing Activities	Y	Y	Y	Y	Y	Y	Y
85	Mining Activities	Y	Y	Y	Y	Y	Y	Y
89	Other resource production or extraction	Y	Y	Y	Y	Y	Y	Y

KEY TO TABLE 2 - SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES

SLUCM	Standard Land Use Coding Manual, U.S. Department of Transportation
Y (Yes)	Land Use and related structures compatible without restrictions.
N (No)	Land Use and related structures are not compatible and should be prohibited.
Y^x (Yes with Restrictions)	The land use and related structures are generally compatible. However, see note(s) indicated by the superscript.
N^x (No with exceptions)	The land use and related structures are generally incompatible. However, see notes indicated by the superscript.

NLR (Noise Level Reduction)	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35	The numbers refer to Noise Level Reduction levels. Land Use and related structures generally compatible however, measures to achieve NLR of 25, 30 or 35 must be incorporated into design and construction of structures. However, measures to achieve an overall noise reduction do not necessarily solve noise difficulties outside the structure and additional evaluation is warranted. Also, see notes indicated by superscripts where they appear with one of these numbers.

DNL Day-Night Average Sound Level.

CNEL Community Noise Equivalent Level (Normally within a very small decibel difference of DNL)

Ldn Mathematical symbol for DNL.

NOTES FOR TABLE 2 - SUGGESTED LAND USE COMPATIBILITY IN NOISE ZONES

1.

a) Although local conditions regarding the need for housing may require residential use in these Zones, residential use is discouraged in DNL 65-69 and strongly discouraged in DNL 70-74. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the residential use would not be met if development were prohibited in these Zones.

b) Where the community determines that these uses must be allowed, measures to achieve and outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB in DNL 65-69 and NLR of 30 dB in DNL 70-74 should be incorporated into building codes and be in individual approvals; for transient housing a NLR of at least 35 dB should be incorporated in DNL 75-79.

c) Normal permanent construction can be expected to provide a 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, upgraded Sound Transmission Class (STC) ratings in windows and doors and closed windows year round. Additional

consideration should be given to modifying NLR levels based on peak noise levels or vibrations.

d) NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, design and use of berms and barriers can help mitigate outdoor noise exposure NLR particularly from ground level sources. Measures that reduce noise at a site should be used wherever practical in preference to measures that only protect interior spaces.

2. Measures to achieve NLR of 25 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.

3. Measures to achieve NLR of 30 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.

4. Measures to achieve NLR of 35 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.

5. If project or proposed development is noise sensitive, use indicated NLR; if not, land use is compatible without NLR.

6. No buildings.

7. Land use compatible provided special sound reinforcement systems are installed.

8. Residential buildings require a NLR of 25

9. Residential buildings require a NLR of 30.

10. Residential buildings not permitted.

11. Land use not recommended, but if community decides use is necessary, hearing protection devices should be worn.

TABLE 3 FROM OPNAVINST 11010.36B "AIR INSTALLATIONS COMPATIBLE USE ZONES, SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES" [1]

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation	APZ-I Recommendation	APZ-II Recommendation	Density Recommendation
10	***Residential***				
11	Household Units				
11.11	Single units: detached	N	N	Y[2]	Maximum density of 1-2 Du/Ac
11.12	Single units: semidetached	N	N	N	
11.13	Single units: attached row	N	N	N	
11.21	Two units: side-by-side	N	N	N	
11.22	Two units: one above the other	N	N	N	
11.31	Apartments: walk-up	N	N	N	
11.32	Apartment: elevator	N	N	N	
12	Group quarters	N	N	N	
13	Residential Hotels	N	N	N	
14	Mobile home parks or courts	N	N	N	
15	Transient lodgings	N	N	N	
16	Other residential	N	N	N	
20	***Manufacturing*** [3]				
21	Food & kindred products; manufacturing	N	N	Y	Maximum FAR 0.56
22	Textile mill products; manufacturing	N	N	Y	Same as above
23	Apparel and other finished products; products made from fabrics, leather and similar materials; manufacturing	N	N	N	
24	Lumber and wood products (except furniture); manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
25	Furniture and fixtures; manufacturing	N	Y	Y	Same as above
26	Paper and allied products; manufacturing	N	Y	Y	Same as above
27	Printing, publishing, and allied industries	N	Y	Y	Same as above
28	Chemicals and allied products; manufacturing	N	N	N	
29	Petroleum refining and related industries	N	N	N	

TABLE 3 - AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES [1]
(Continued)

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation	APZ-I Recommendation	APZ II Recommendation	Density Recommendation
30	***Manufacturing [3] (continued)***				
31	Rubber and misc. plastic products; manufacturing	N	N	N	
32	Stone, clay and glass products; manufacturing	N	N	Y	Maximum FAR 0.56
33	Primary metal products; manufacturing	N	N	Y	Same as above
34	Fabricated metal products; manufacturing	N	N	Y	Same as above
35	Professional scientific, & controlling instrument; photographic and optical goods; watches & clocks	N	N	N	
39	Miscellaneous manufacturing	N	Y	Y	Maximum FAR of 0.28 in APZ I & 0.56 in APZ II
40	***Transportation, communication and utilities [4].***				See Note 3 below.
41	Railroad, rapid rail transit, and street railway transportation	N	Y[5]	Y	Same as above.
42	Motor vehicle transportation	N	Y[5]	Y	Same as above
43	Aircraft transportation	N	Y[5]	Y	Same as above
44	Marine craft transportation	N	Y[5]	Y	Same as above
45	Highway and street right-of-way	N	Y[5]	Y	Same as above
46	Auto parking	N	Y[5]	Y	Same as above
47	Communication	N	Y[5]	Y	Same as above
48	Utilities	N	Y[5]	Y	Same as above
485	Solid waste disposal (Landfills, incineration, etc.)	N	N	N	
49	Other transport, comm. and utilities	N	Y[5]	Y	See Note 3 below
50	***Trade***				
51	Wholesale trade	N	Y	Y	Maximum FAR of 0.28 in APZ I. & .56 in APZ II.
52	Retail trade – building materials, hardware and farm equipment	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II

TABLE 3 - AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES [1]
(Continued)

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation	APZ-I Recommendation	APZ-II Recommendation	Density Recommendation
50	***Trade (Continued)***				
53	Retail trade – shopping centers	N	N	Y	Maximum FAR of 0.22.
54	Retail trade - food	N	N	Y	Maximum FAR of 0.24
55	Retail trade – automotive, marine craft, aircraft and accessories	N	Y	Y	Maximum FAR of 0.14 in APZ I & 0.28 in APZ II
56	Retail trade – apparel and accessories	N	N	Y	Maximum FAR 0.28
57	Retail trade – furniture, home, furnishings and equipment	N	N	Y	Same as above
58	Retail trade – eating and drinking establishments	N	N	N	
59	Other retail trade	N	N	Y	Maximum FAR of 0.22
60	***Services*** [6]				
61	Finance, insurance and real estate services	N	N	Y	Maximum FAR of 0.22 for "General Office/Office park"
62	Personal services	N	N	Y	Office uses only. Maximum FAR of 0.22.
62.4	Cemeteries	N	Y′	Y′	
63	Business services (credit reporting; mail, stenographic, reproduction; advertising)	N	N	Y	Max. FAR of 0.22 in APZ II
63.7	Warehousing and storage services	N	Y	Y	Max. FAR 1.0 APZ I; 2.0 in APZ II
64	Repair Services	N	Y	Y	Max. FAR of 0.11 APZ I; 0.22 in APZ II
65	Professional services	N	N	Y	Max. FAR of 0.22
65.1	Hospitals, nursing homes	N	N	N	
65.1	Other medical facilities	N	N	N	
66	Contract construction services	N	Y	Y	Max. FAR of 0.11 APZ I; 0.22 in APZ II
67	Government Services	N	N	Y	Max FAR of 0.24
68	Educational services	N	N	N	
69	Miscellaneous	N	N	Y	Max. FAR of 0.22

TABLE 3 - AIR INSTALLATIONS COMPATIBLE USE ZONES
SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES [1]
(Continued)

SLUCM NO.	LAND USE NAME	CLEAR ZONE Recommendation	APZ-I Recommendation	APZ-II Recommendation	Density Recommendation
70	***Cultural, entertainment and recreational***				
71	Cultural activities	N	N	N	
71.2	Nature exhibits	N	Y[8]	Y[8]	
72	Public assembly	N	N	N	
72.1	Auditoriums, concert halls	N	N	N	
72.11	Outdoor music shells, amphitheaters	N	N	N	
72.2	Outdoor sports arenas, spectator sports	N	N	N	
73	Amusements - fairgrounds, miniature golf, driving ranges; amusement parks, etc	N	N	Y	
74	Recreational activities (including golf courses, riding stables, water recreation)	N	Y[8]	Y[8]	Max. FAR of 0.11 APZ I; 0.22 in APZ II
75	Resorts and group camps	N	N	N	
76	Parks	N	Y[8]	Y[8]	Same as 74
79	Other cultural, entertainment and recreation	N	Y[8]	Y[8]	Same as 74
80	***Resource production and extraction***				
81	Agriculture (except live stock)	Y[4]	Y[9]	Y[9]	
81.5, 81.7	Livestock farming and breeding	N	Y[9,10]	Y[9,10]	
82	Agriculture related activities	N	Y[9]	Y[9]	Max FAR of 0.28 APZ I; 0.56 APZ II no activity which produces smoke, glare, or involves explosives
83	Forestry Activities [11]	N	Y	Y	Same as Above
84	Fishing Activities [12]	N[12]	Y	Y	Same as Above
85	Mining Activities	N	Y	Y	Same as Above
89	Other resource production or extraction	N	Y	Y	Same as Above
90	***Other***				
91 93	Undeveloped Land Water Areas	Y N[13]	Y N[13]	Y N[13]	

KEY TO TABLE 3 - SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES

SLUCM -	Standard Land Use Coding Manual, U.S. Department of Transportation
Y (Yes) -	Land use and related structures are normally compatible without restriction.
N (No) –	Land use and related structures are not normally compatible and should be prohibited.
Y^x – (Yes with restrictions)	The land use and related structures are generally compatible. However, see notes indicated by the superscript.
N^x – (No with exceptions)	The land use and related structures are generally incompatible. However, see notes indicated by the superscript.
FAR – Floor Area Ratio	A floor area ratio is the ratio between the square feet of floor area of the building and the site area. It is customarily used to measure non-residential intensities.
Du/Ac – Dwelling Units per Acre	This metric is customarily used to measure residential densities.

NOTES FOR TABLE 3 - SUGGESTED LAND USE COMPATIBILITY IN ACCIDENT POTENTIAL ZONES

The following notes refer to Table 3.

1. A “Yes” or a “No” designation for compatible land use is to be used only for general comparison. Within each, uses exist where further evaluation may be needed in each category as to whether it is clearly compatible, normally compatible, or not compatible due to the variation of densities of people and structures. In order to assist installations and local governments, general suggestions as to floor/area ratios are provided as a guide to density in some categories. In general, land use restrictions which limit commercial, services, or industrial buildings or structure occupants to 25 per acre in APZ I, and 50 per acre in APZ II are the range of occupancy levels considered to be low density. Outside events should normally be limited to assemblies of not more that 25 people per acre in APZ I, and maximum assemblies of 50 people per acre in APZ II.

2. The suggested maximum density for detached single-family housing is one to two Du/Ac. In a Planned Unit Development (PUD) of single family detached units where clustered housing development results in large open areas, this density could possibly be increased provided the amount of surface area covered by structures does not exceed 20 percent of the PUD total area. PUD encourages clustered development that leaves large open areas.

3. Other factors to be considered: Labor intensity, structural coverage, explosive characteristics, air-pollution, electronic interference with aircraft, height of structures, and potential glare to pilots.

4. No structures (except airfield lighting), buildings or aboveground utility/ communications lines should normally be located in Clear Zone areas on or off the installation. The Clear Zone is subject to severe restrictions. See NAVFAC P-80.3 or Tri-Service Manual AFM 32-1123(I); TM 5-803-7, NAVFAC P-971 “Airfield and Heliport Planning & Design” dated 1 May 99 for specific design details.

5. No passenger terminals and no major above ground transmission lines in APZ I.

6. Low intensity office uses only. Accessory uses such as meeting places, auditoriums, etc. are not recommended.

7. No Chapels are allowed within APZ I or APZ II.

8. Facilities must be low intensity, and provide no tot lots, etc. Facilities such as clubhouses, meeting places, auditoriums, large classes, etc. are not recommended.

9. Includes livestock grazing, but excludes feedlots and intensive animal husbandry. Activities that attract concentrations of birds creating a hazard to aircraft operations should be excluded.

10. Includes feedlots and intensive animal husbandry.

11. Lumber and timber products removed due to establishment, expansion, or maintenance of Clear Zones will be disposed of in accordance with appropriate DOD Natural Resources Instructions.

12. Controlled hunting and fishing may be permitted for the purpose of wildlife management.

13. Naturally occurring water features (e.g., rivers, lakes, streams, wetlands) are compatible.