

# Airport Land Use Commission



AIRPORT ENVIRONS  
LAND USE PLAN  
for  
JOINT FORCES TRAINING BASE  
LOS ALAMITOS

Amended: August 17, 2017

**Please note:**

The majority of the 2017 *AELUP* amendment reflects updates based on changes made to the *California Airport Land Use Planning Handbook* dated October 2011 prepared by the State of California Department of Transportation, Division of Aeronautics.

The Commission received an Installation Compatible Use Zone (ICUZ) report prepared by California Army National Guard (CAARNG) dated December 2015. The ICUZ study examined aircraft operations within the boundary of JFTB, Los Alamitos, but did not analyze aircraft operations to and from the Base that might impact surrounding land uses. The 2015 ICUZ is included in Appendix K for information. Because there is no new noise analysis for aircraft arriving and departing JFTB, Los Alamitos, the 60 CNEL and 65 CNEL contours used in the previous AELUP (Final AICUZ Study for AFRC, (JFTB) Los Alamitos dated June 1, 1994) are still the approved noise contours for Planning Area purposes. The 1994 AICUZ is included as Appendix J.

## AIRPORT ENVIRONS LAND USE PLAN

2017

Text of Plan	Adopted – April 17, 1975
Marine Corps Air Station, El Toro	Adopted – April 17, 1975
Orange County Airport	Adopted – May 15, 1975
Fullerton Municipal Airport	Adopted – June 5, 1975
Naval Air Station, Los Alamitos	Adopted – August 7, 1975
First Revised Edition	Adopted – June 30, 1983
Updated for Amendments	Adopted – December 19, 1985
Second Revised Edition	Adopted – September 15, 1988
1990 Airport Environs Land Use Plan (AELUP)	Adopted – November 29, 1990
1994 AELUP	Adopted – December 15, 1994
1995 AELUP	Adopted – November 16, 1995
2002 AELUP	Adopted – December 19, 2002
2005 Confirm Nonapplicability of AELUP for MCAS El Toro	Adopted – July 21, 2005
2008 AELUP for JWA	Adopted – April 17, 2008
2008 AELUP for Heliports	Adopted – June 19, 2008
2017 AELUP Amendment JFTB, Los Alamitos	Adopted – August 17, 2017

## AIRPORT LAND USE COMMISSION

### FOR ORANGE COUNTY

### MEMBERSHIP AS OF 2017

#### Commissioners

Gerald Bresnahan, Chairman

Mark Monin, Vice-Chairman

Stephen Beverburg

Jeff Herdman

Jeff Mathews

Schelly Sustarsic

Brendan O'Reilly

#### Alternates

Patricia Campbell

Kyle Monin

Vacant

Dave Kiff

Vacant

Gary Miller

Jeff Rountree

Staff

Kari A. Rigoni, Executive Officer

Lea Choum, Staff Planner

Martha McCool, Recording Secretary

TABLE OF CONTENTS

	<u>Page</u>
SECTION 1.0 – INTRODUCTION	
1.1 Background	1
1.2 Purpose and Scope	5
1.3 Authority	5
1.4 Requirements	7
1.5 Concept of the Planning Document	7
1.6 Applicability	8
1.7 Glossary/Definitions	10
SECTION 2.0 – PLANNING GUIDELINES	
2.1 Standards and Criteria	15
2.1.1 Aircraft Noise	15
2.1.2 Safety	16
2.1.3 Airspace Protection/Building Height Restrictions	17
2.1.4 Overflight	19
2.1.5 Airports/Heliports/Helistops	21
2.1.6 Airport Planning Areas	22
2.1.7 Planning Areas – New Airports	23
2.2 Establishment of Planning Areas for JFTB, Los Alamitos	23
SECTION 3.0 – LAND USE POLICIES	
3.1 Concept	27
3.2 Land Use Policies	27

## TABLE OF CONTENTS

3.2.1	General Policy	27
3.2.2	Specific Policies	28
3.2.3	Noise Impact Zone “1” – High Noise Impact	29
3.2.4	Noise Impact Zone “2” – Moderate Noise Impact	31
3.2.5	Clear Zone “CZ” Extreme Crash Hazard	31
3.2.6	Height Restriction Zone	31
3.2.7	Airspace/Airport Inconsistency	32
3.2.8	Avigation Easements	32
3.3	Specific Policies for Consistency Determination	32

### SECTION 4.0 – IMPLEMENTATION

4.1	Statutes	35
4.2	General Plans and Specific Plans (Zoning)	35
4.3	Amendments to General Plans and Specific Plans (Zoning)	35
4.4	Zoning Ordinances and Buildings Regulations	35
4.5	Airport Master Plans	36
4.6	Other Submittals	36
4.7	Submittal Requirements	36
4.8	Submittal Deadlines	37
4.9	Acceptance of Submittal	37
4.10	Who May File	38
4.11	Commission Finding of Inconsistency	38
4.12	Inconsistent Local Agency	38
4.13	Continuous Monitoring	38
4.14	Periodic Review	38
4.15	AELUP Amendments	39

## APPENDICES

- Appendix A Web Address for State Aeronautics Act and Airport Land Use Commission Law.  
[http://www.dot.ca.gov/hq/planning/aeronaut/documents/regulations/PUC\\_SAA.pdf](http://www.dot.ca.gov/hq/planning/aeronaut/documents/regulations/PUC_SAA.pdf)
- Appendix B Summary of Federal Aviation Regulations Part 77 – “Objects Affecting Navigable Airspace”.
- Appendix C Pertinent Resolutions of the Airport Land Use Commission.
- Appendix D Exhibit D1: Notification Area for JFTB, Los Alamitos.  
Exhibit D2: AELUP Height Restriction for JFTB, Los Alamitos.  
Exhibit D3: Impact Zones for JFTB, Los Alamitos.
- Appendix E Summary of Federal Aviation Administration Advisory Circular No. 150/5190-4A, “A model Zoning Ordinance” and current web address.  
[http://www.faa.gov/documentlibrary/media/advisory\\_circular/150-5190-4A/150\\_5190\\_4A.pdf](http://www.faa.gov/documentlibrary/media/advisory_circular/150-5190-4A/150_5190_4A.pdf)
- Appendix F Web Address for Airport and Heliport Regulations, California Code of Regulations. <http://www.dot.ca.gov/hq/planning/aeronaut>
- Appendix G Web Address for Noise Standards for California Airports, California Code of Regulations.  
<http://www.dot.ca.gov/hq/planning/aeronaut/documents/regulations/statenoisestnds.pdf>
- Appendix H Sample: Avigation Easement and Deed Notice.
- Appendix I FAA Advisory Circular No. 150/5200-33 B: Hazardous Wildlife Attractants On or Near Airports. <http://www.faa.gov>
- Appendix J AICUZ Study for AFRC, (JFTB) Los Alamitos, June 1, 1994.
- Appendix K California Army National Guard Installation Compatible Use Zone Study, December 2015.

## SECTION 1.0 – INTRODUCTION

### 1.1 Background

In 1967 the first Airport Land Use Commission (ALUC) statute was adopted by the California legislature, according to the California Airport Land Use Planning Handbook. The legislation has been amended many times in the ensuing years. Particularly significant amendments occurred in 1982, 1984, 1994 and 2000, 2002 and 2015. The 1982 amendments more clearly articulated the purpose of ALUCs, eliminated the reference to “achieve by zoning”, required consistency between local general plans and zoning and ALUC compatibility plans, required that local agencies make findings of fact before overriding an ALUC decision and changed the vote required for an override from four-fifths to two-thirds. In 1984, amendments to compatibility plans were limited to once per year and immunity was extended to airports if an ALUC action is overridden by local agency not owning the airport. In 1994 the California Environmental Quality Act (CEQA) statutes as applied to the preparation of environmental documents in the vicinity of airports was amended. Lead agencies are required to use the Airport Land Use Planning Handbook as a technical resource when assessing the airport-related noise and safety impacts of airport vicinity projects. In 2000, Section 21670 (f) was added to clarify that special districts are among the local agencies to which airport land use planning laws are intended to apply. In 2002 the ALUC removed and deleted the Airport Environs Land Use Plan (AELUP) relating to and surrounding Marine Corp Air Station (MCAS) Tustin. In 2005, the ALUC removed and deleted the AELUP relating to and surrounding MCAS El Toro. The 2017 update reflects amendments to the California Airport Land Use Planning Handbook, published by the State of California Department of Transportation Division of Aeronautics Caltrans. As noted in the handbook, several PUC sections identify the Handbook as a resource for airport land use compatibility planning, including Sections 21674.5 and 21674.7.

The purpose of ALUCs has remained essentially unchanged since the early years of the statutes. The Public Utilities Code Section 21674 authorizes ALUCs to:

- Assist local planning jurisdictions with ensuring that land use development in the vicinity of airports is compatible with airport operations, to the extent that such land is not already devoted to incompatible uses;
- Coordinate Planning at the state, regional and local levels in order to provide for the orderly development of air transportation while simultaneously protecting the public health, safety and welfare;
- Adopt rules and regulations consistent with the provisions of the State Aeronautics Act.

To fulfill these obligations ALUCs have two specific duties according to the Handbook.

- Prepare and adopt an airport land use plan for each of the airports within its jurisdiction (Section 21674 (c) and 21675 (a)).
- Review the plans, regulations, and other actions of local agencies and airport operators pursuant to Section 21676 (Section 21674 (d)).

The key limitations are 1) that the ALUCs have no authority over existing land uses regardless of whether such uses are incompatible with airport activities and 2) the “powers of the commission shall in no way be construed to give the commission jurisdiction over the operation of any airport.”

The Airport Land Use Commission for Orange County was established in late 1969. Between 1970 and the actual adoption of the first Airport Land Use Compatibility Plan (ALUCP), the Commission made advisory comments on projects. The first ALUCP elements were adopted by the Commission between April 17 and August 7, 1975 and were called Airport Environs Land Use Plans (AELUPs).

Prior to 2002, the AELUPs for all airports in Orange County were addressed in one document. In 2002, the AELUP was separated into individual stand-alone AELUP volumes for each airport in Orange County as well as a separate AELUP for Heliports. The ALUC serves all the airports in Orange County which include John Wayne Airport (JWA), Fullerton Municipal Airport (FMA) and Joint Forces Training Base Los Alamitos. Figure 1 depicts the Airport Planning Areas for each airport.

The 2017 update to this AELUP for JFTB, Los Alamitos reflects amendments to the California Airport Land Use Planning Handbook. In addition, the California Army National Guard (CAARNG) published a Final Installation Compatible Use Zone (ICUZ) dated December 2015. The ICUZ study examined aircraft operations within the boundary of JFTB, Los Alamitos, but did not analyze aircraft operations to and from the Base that might impact surrounding land uses. The 2015 ICUZ is included in Appendix K for information. Because there is no new noise analysis for aircraft arriving and departing JFTB, Los Alamitos, the 60 CNEL and 65 CNEL contours used in the previous AELUP are still the approved noise contours for Planning Area purposes.

### History of JFTB

The U.S. Navy purchased land for a Naval Air Station (NAS) in 1939 and NAS Los Alamitos opened in early 1942. Los Alamitos was used extensively for aviation training by the Navy in World War II and provided alert aircraft to patrol and defend the California coast. After the war, the Naval Air Station supported Naval Reserve Aviation activities, and during the 1950s and 1960s, NAS Los Alamitos was the largest Naval Air Reserve organization on the west coast. Additionally, Los Alamitos supported mobilization for Korea and Vietnam. In August 1973, the Department of Defense (DoD) directed that NAS Los Alamitos be redesignated Los Alamitos Armed Forces Reserve Center. Concurrently it was directed that the CAARNG would operate LAAAF (LAAAF) and the Air Traffic Control (ATC) facilities. On July 29, 1977, the training base was transferred from the

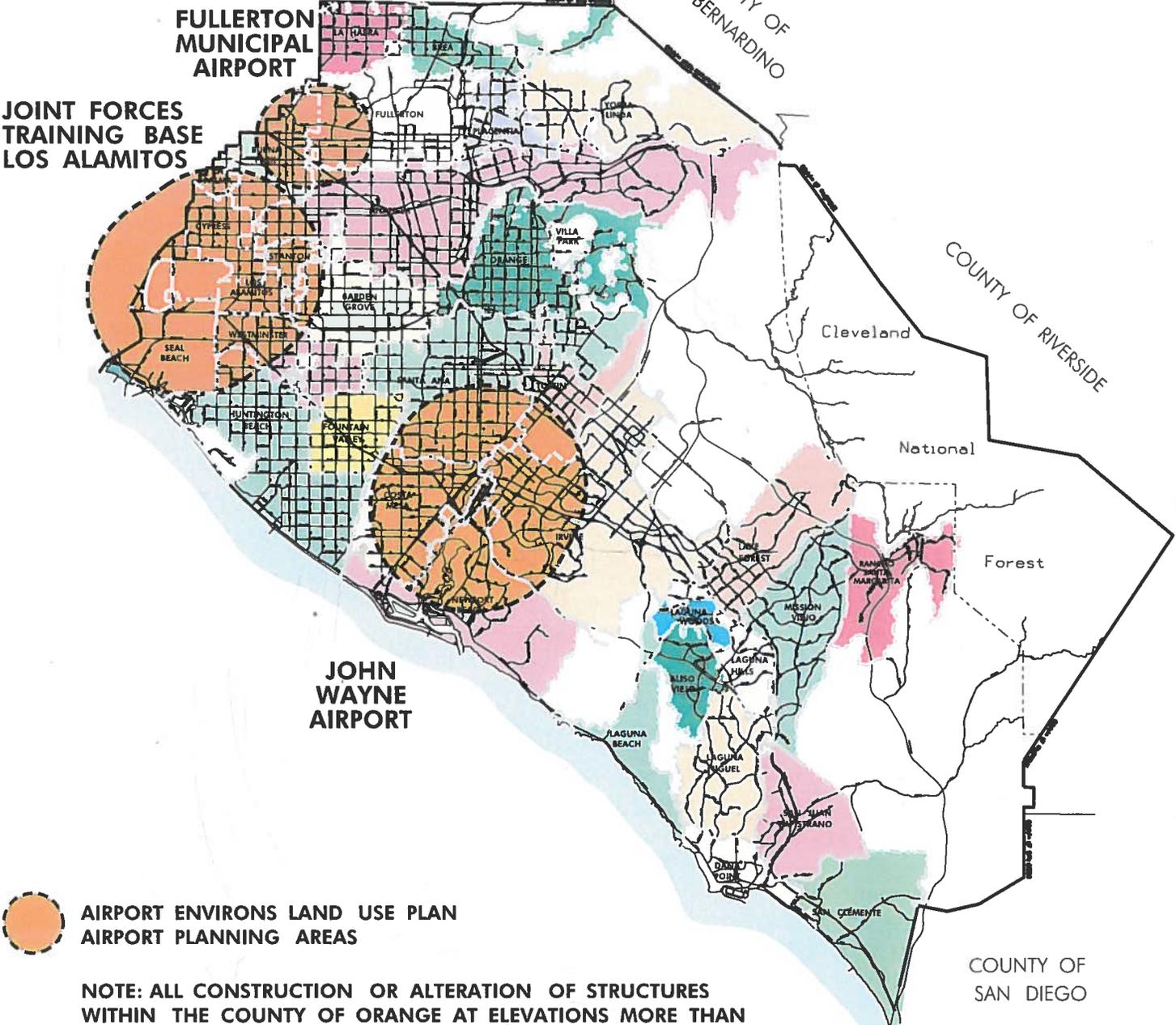
Navy to the Army. On August 13, 1977, the CAARNG was directed to be the host and was assigned operational control of the new installation. In July 2000, the training base was renamed the “Los Alamitos Joint Forces Training Center.”

COUNTY OF LOS ANGELES

COUNTY OF SAN BERNARDINO

COUNTY OF RIVERSIDE

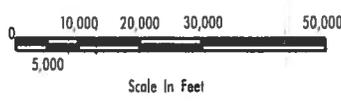
COUNTY OF SAN DIEGO



 AIRPORT ENVIRONS LAND USE PLAN  
AIRPORT PLANNING AREAS

NOTE: ALL CONSTRUCTION OR ALTERATION OF STRUCTURES  
WITHIN THE COUNTY OF ORANGE AT ELEVATIONS MORE THAN  
200 FT. ABOVE GROUND LEVEL REQUIRE FAA AND ALUC NOTIFICATION.  
SEE AELUP SECTION 2.1.6

**AIRPORT LAND USE COMMISSION**  
**for ORANGE COUNTY**  
**AIRPORT PLANNING AREAS**  
**Figure 1**



CERTIFICATION  
Adopted by the Airport Land Use Commission for Orange County  
*Kari A. Rigoni* 8/17/17  
Kari A. Rigoni, Executive Officer Date

## 1.1 Purpose and Scope

This land use compatibility plan, or AELUP, intends, for the twenty year planning future for Joint Forces Training Base, Los Alamitos to safeguard the general welfare of the inhabitants within the vicinity of the airport and to ensure the continued operation of the airport. Specifically, the plan seeks to protect the public from the adverse effects of aircraft noise, to ensure that people and facilities are not concentrated in areas susceptible to aircraft accidents, and to ensure that no structures or activities adversely affect navigable airspace. The implementation of this plan will forestall additional urban encroachment on the airport and will allow for its continued operation. This compatibility plan for Joint Forces Training Base, Los Alamitos, affects the cities of Anaheim, Buena Park, Cypress, Garden Grove, Huntington Beach, La Palma, Los Alamitos, Seal Beach, Stanton and Westminster, as well as unincorporated areas of the County of Orange. A portion of Los Angeles County falls within the notification area for JFTB, Los Alamitos. Additionally, per Federal Aviation Regulation (FAR) Part 77, Section 77.9 notice to the Federal Aviation Administration (FAA) is required for any proposed structure more than 200 feet Above Ground Level (AGL) of its site within any jurisdiction. Notices to the FAA provide a basis for evaluating project impacts on operational procedures and air navigation. To coincide with the FAA regulations, the ALUC also requires notification of all such proposals.

## 1.2 Authority

Public Utilities Code (PUC) Section 21675(a) states that each commission shall formulate an airport land use compatibility plan that will provide for the orderly growth of each airport and that area surrounding the airport within the jurisdiction of the commission, and will safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general.

The ALUC is charged by PUC Section 21674 “to coordinate planning at the state, regional, and local levels, so as to provide for the orderly development of air transportation while, at the same time, protecting the public health, safety and welfare.” The preparation and dissemination of the AELUP are important long-term steps in fulfilling this duty. The AELUP and subsequent updates are sent to state, regional and local agencies for review and comment, and the commission regularly coordinates with these agencies on specific project submittals.

PUC Section 21676 (a) requires each local agency whose General Plan includes areas covered by an airport land use commission plan to submit a copy of its general plan and specific plans (each reference to specific plan also includes conventional zoning and planned community zoning) to the airport land use commission.

If the plan or plans are inconsistent with the ALUC’s plan, the local agency shall be notified and that local agency shall have another hearing to reconsider its plans. The local agency may overrule the commission after such hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes stated in PUC section 21670. The local agency should be aware that per PUC Sections 21678 and

21675.1 (f) if a local agency overrules an airport land use commission with respect to a publicly owned airport not operated by that local agency, the agency operating the airport shall be immune from liability for damages to property or personal injury caused by or resulting directly or indirectly from the public agency's decision to overrule the commission's action or recommendation.

Section 21676 (b) of the Public Utilities Code Requires that prior to the amendment of a general plan or a specific plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the airport land use commission pursuant to Section 21675, the local agency shall first refer the proposed action to the commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The local agency may, after public hearing, overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes stated in Section 21670.

Section 21676 (c) requires that each public agency owning any airport within the boundaries of an airport land use commission plan shall, prior to modification of its airport master plan, refer each proposed change to the airport land use commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The public agency may, after a public hearing, overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes stated in Section 21670.

Section 21676. (d) requires that each commission determination pursuant to subdivision (b) or (c) of Section 21676 shall be made within 60 days from the date of referral of the proposed action. If a commission fails to make the determination within that period, the proposed action shall be deemed consistent with the commission's plan.

Section 21676.5 (a) and (b) provide that:

- (a) If the commission finds that local agency has not revised its general plan or specific plan or overruled the commission by a two-thirds vote of its governing body after making specific findings that the proposed action is consistent with the purposes as stated in Section 21670, the commission may require that the local agency submit all subsequent actions, regulations, and permits to the commission for review until its general plan or specific plan is revised or the specific findings are made. If, in the determination of the commission, an action, regulation or permit of the local agency is inconsistent with the commission plan, the local agency shall be notified and that local agency shall hold a hearing to reconsider its plan. The local agency may overrule the commission after the hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes in Section 21670.
- (b) Whenever the local agency has revised its general plan or specific plan or has overruled the commission pursuant to subdivision (a), the proposed action of the local agency

shall not be subject to further commission review, unless the commission and the local agency agree that individual projects shall be reviewed by the commission.

It should be noted that if a local agency overrule of the commission occurs, the PUC provides in Section 21678 that if the local agency does not operate the public airport in question, then the operator of that affected public airport shall be immune from liability for damages to property or personal injury caused by, or resulting directly or indirectly from, the local agency's decision to overrule the commission. (Also, refer to Section 4.11 of this AELUP.)

### 1.3 Requirements

Section 21675 of the California Public Utilities Code specifies that:

“(a) Each commission shall formulate a comprehensive land use plan that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission, and will safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general. The commission plan shall include and shall be based on a long-range master plan or an airport layout plan, as determined by the Division of Aeronautics of the Department of Transportation that reflects the anticipated growth of the airport during at least the next 20 years. In formulating a land use plan, the commission may develop height restrictions on buildings, specify use of land, and determine building standards including soundproofing adjacent to airports, within the planning area. The comprehensive land use plan shall be reviewed as often as necessary in order to accomplish its purposes, but shall not be amended more than once in any calendar year. (see Appendix A for web address to state law)

(b) The commission may include, within its plan formulated pursuant to subdivision (a), the area within the jurisdiction of the commission surrounding any military airport for all of the purposes specified in subdivision (a). The airport land use compatibility plan shall be consistent with the safety and noise standards in the Air Installation Compatible Use Zones prepared for that military airport. This subdivision does not give the commission any jurisdiction or authority over the territory or operations of any military airport.”

### 1.4 Concept of the Planning Document

This document has been designed to reflect a uniform approach to planning for Joint Forces Training Base, Los Alamitos. Noise and safety impacts have been identified for each airport in Orange County by using similar standards and criteria except where the size of an airport or type of aircraft operations dictated otherwise. All building height restrictions will have as their ultimate limits the imaginary surfaces as applicable and as defined in Part 77 of the Federal Aviation Regulations. When a project is proposed by an agency, which exceeds the height limits established by FAR Part 77, a determination will be made by the Airport Land Use Commission for Orange County on a case by case basis.

Land use policies have been established on the basis of noise and safety impacts on the welfare of the public, and on the building height and activity impacts upon the continued operation of the airport. The concept and processes presented below illustrate the Commission's efforts to ensure that land use policies were determined only by the most incontrovertible methods.

## 1.6 Applicability

Section 21670 (a) (2) of the Public Utilities Code indicates that a commission's authority is applicable only within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

1.6.1 Sections 21674.7 provides that an airport land use commission that formulates, adopts or amends a comprehensive airport land use plan shall be guided by information prepared and updated pursuant to Section 21674.5 and referred to as the California Airport Land Use Planning Handbook ("Handbook") published by the Division of Aeronautics of the California Department of Transportation.

The Handbook advises that while existing development which is incompatible becomes a nonconforming use with respect to ALUC criteria, any redevelopment of those areas would be subject to ALUC policies.

1.6.2 "Existing Land Use" is defined by the Commission as a property already "devoted to" a certain use or a use that has been vested by virtue of the fact that a property developer has:

- Obtained a valid building permit (as distinguished from merely a foundation or other specific permit); *and*
- Performed substantial work; *and*
- Incurred substantial liabilities in good faith reliance upon the permit.

*or*

- Entered into a Development Agreement

*or*

- Obtained a Vesting Tentative Map

1.6.3 The Commission believes that the limitation on its authority over existing land uses applies only to the extent that the use remains constant. If new or increased compatibility conflicts would result and to the extent that such land use changes require discretionary approval on the part of a county or city, the Commission policy is to review expansion, conversion, or redevelopment of existing uses.

- 1.6.4 Infill development is development proposed in a location where some development already exists. These are commonly residual vacant areas within already established areas. These existing areas may represent either compatible or incompatible land uses within the Commission's planning area for an airport.

The Commission recognizes that while a particular non-conforming infill use would likely be inconsistent with its compatibility plan, the introduction of a use which is compatible into a development area may raise broader community planning issues. The Commission, therefore, will weigh both the severity of the incompatibility and the integrity of the already developed area.

Infill projects are those submitted to the Commission pursuant to applicable law, which seek to develop residual vacant areas within established neighborhoods. Such existing neighborhoods may represent either compatible or incompatible land uses within an airport's planning areas. An infill project must comply with all applicable Specific Policies (and their associated mitigation measures, such as sound attenuation, height limitation, occupancy limits, etc.) in order to be found consistent with this AELUP. The Commission will not find an infill project to be consistent with this AELUP, if the project would result in an increase of incompatible land use within the airport's planning areas. Examples of potentially incompatible infill projects include, but are not limited to, the development of: dwelling units within the 65 CNEL contour, high-occupancy buildings within an APZ, and excessively tall structures deleterious to the navigable airspace.

- 1.6.5 The Commission will utilize the following additional criteria in determining consistency/inconsistency of an infill action/project with the applicable planning area(s):

- The portions of the planning area within which infill is to be permitted (infill within the runway protection zone would be prohibited, for example)
- The maximum size of a parcel or parcels on which infill is to be allowed;
- The extent to which the site must be bounded by similar uses (and not extend the perimeter of incompatible uses);
- The density and/or intensity of development allowed relative to that of the surrounding uses and the otherwise applicable compatibility criteria; and
- Other applicable development conditions (such as easement dedications or special structural noise level attenuation requirements) which must be met.

- 1.6.6 Conditions such as acoustical treatment of structures, recorded deed notices, aviation easement dedication (if offered by a local agency or project proponent), buyer awareness measures, real estate disclosure statements, and building

occupancy limits may be considered and applied by the Commission to find an infill project/action consistent.

## 1.7 Glossary/Definitions

ACCIDENT POTENTIAL ZONE (APZ)	Designated areas for military airports that require density and intensity use restrictions due to the potential for loss of life and property resulting from aircraft accident.
AELUP	Airport Environs Land Use Plan. (A land use compatibility plan referred to in Public Utilities Code Section 21675.)
AERONAUTICAL STUDY	The technical analysis performed by the Federal Aviation Administration (FAA) pursuant to the filing of Form 7460-1 “Notice of Proposed Construction or Alteration” by a project proponent.
AICUZ	Air Installations Compatible Use Zones. (A Federal Department of Defense program to identify incompatible land uses around military airports.) AICUZ plans serve as recommendations to local government bodies having jurisdiction over land uses surrounding these facilities.
AIRPORT	Any public or military airport, airstation, or air facility within Orange County, California.
AIRPORT PLANNING AREA	The area in which current or future airport-related noise, overflight, safety, and/or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses. In most instances, the airport planning area is designated by the ALUC as its airport <i>influence area boundary</i> for the airport and the two terms can be considered synonymous. See Figure 1 and Exhibit D1 of Appendix D.
AIRSPACE ANALYSIS	The technical analysis performed by the FAA pursuant to the filing of Form 7460-1 “Notice of Proposed Construction or Alteration,” or Form 7480-1 “Notice of Landing Area Proposal” by a project proponent.
AVIGATION EASEMENT	Avigation easement is generally defined by the Caltrans Aeronautics Division as: “A type of easement which typically conveys the following right: a right-of-way for free and unobstructed passage of aircraft through the airspace over the property at any altitude above a surface specified in the easement. . . a right to subject the property to noise, vibrations, fumes, dust, and fuel particle emissions associated with normal airport activity; a right to prohibit the erection or growth of any structure, tree, or other object that would

enter the acquired airspace; a right-of-entry onto the property with proper advance notice for the purpose of removing, marking, or lighting any structure or other object that enters the acquired airspace; a right to prohibit electrical interference, glare, misleading lights, visual impairments, and other hazards to aircraft flight from being created on the property.” (Caltrans Division of Aeronautics *California Airport Land Use Planning Handbook* dated October 2011 Appendix H, Exhibit H1 sample avigation easement is included in Appendix H of this AELUP.)

CAARNG	California Army National Guard
CLEAR ZONE	A trapezoidal area off each end of a runway used to enhance the protection of people and property on the ground. The innermost of the safety zones. Also referred to as Runway Protection Zone (RPZ).
CNEL	Community Noise Equivalent Level [CNEL is the energy average noise level measured in A-level for a 24-hour period, with different weighting factors for the hourly noise levels occurring during the daytime (0700 to 1900, 0 dB weighting), and nighttime (2200 to 0700, 10 dB weighting) periods.]
COMMISSION	The Airport Land Use Commission for Orange County
dB(A)	A-Weighted sound pressure level or A-level is the sound pressure level which has been filtered or weighted to quantitatively reduce the effect of the low frequency noise. It was designed to approximate the response of the human ear to sound. A-level is measured in units of decibels.
DoD	Department of Defense
FAA	Federal Aviation Administration.
FAR	Federal Aviation Regulations.
FREE-STANDING BUILDING	A building which does <u>not</u> share a common wall with another building.
HABITABLE ROOM	Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

HELIPORT	An identifiable area on land or water, including any building or facilities thereon, used or intended to be used for the landing and takeoff of helicopters. Does not include temporary landing and takeoff sites, as defined in the California Aeronautics Act. Refueling and overnight maintenance are permitted. Please note that AELUP policies related to heliports apply equally to helistops.
HELISTOP	An identifiable area on land or water, including any building or facilities thereon, used or intended to be used for the landing and takeoff of helicopters. Does not include temporary landing and takeoff sites, as defined in the California Aeronautics Act. Refueling and overnight maintenance are <u>not</u> permitted.
ICUZ	Installation Compatible Use Zone
INFILL	Development which takes place on vacant property largely surrounded by existing development, especially development which is similar in character.
JFTB	Joint Forces Training Base
LAAAF	Los Alamitos Army Airfield
LOCAL AGENCY	The County of Orange, or any city or special district within Orange County.
MILITARY AIRPORT	A military airport or airbase is used by a military force for the operation of military aircraft and is a location from which aircraft flight operations take place, regardless of whether they involve air cargo, passengers or neither.
NAS	Naval Air Station
NEW AIRPORT	Any new public airport that is proposed to be constructed and operated by a local agency such as county(ies), city(ies), or special district(s) or authorities.
NOISE DISCLOSURE	Appropriate written notification, usually in the form of avigation easement, deed notice, or real estate disclosure statement, or final tract or parcel map, which informs the future resident of aircraft noise. Noise disclosure examples are present in AELUP Section 3.3.
NOTICE OF AIRPORT IN VICINITY	Notice disclosure defined by Section 11010 of the Business and Professions Code.

NOTIFICATION AREA	The ALUC adopted the FAA FAR Part 77 Notification Area as the Airport Planning Area for JFTB, Los Alamitos. FAR Part 77 defines the notification area as a 20,000 foot radius from the nearest point of the nearest runway with its longest runway being more 3,200 feet in actual length, excluding heliports. See Exhibit D1 of Appendix D.
OBSTRUCTION	Any object of natural growth, terrain or permanent or temporary construction or alteration, including equipment or materials used therein, the height of which exceeds the standards established in Subpart C of Federal Aviation Regulations Part 77, <i>Objects Affecting Navigable Airspace</i> .
OPERATION	Any single landing or approach performed by an aircraft. Also any single take-off or departure constitutes an operation.
OUTDOOR LIVING AREAS	Spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings.
OVERRIDE	See “Overrule” below.
OVERRULE	The formal procedure set forth in PUC Sections 21675.1, 21676, 21676.5, and 21677 whereby a local agency’s governing body may overrule an ALUC determination of inconsistency.
PLANNING AREA	Public Utilities Code Section 21675(c) requires that area surrounding any airport which affects, or is affected by, aircraft operations be embraced by the boundaries of its compatibility plan. The planning area sets limits of the area within which proposed land use projects are to be referred to the ALUC for review. With certain exceptions, planning area boundaries are determined by the location and configuration of the airport included in the plan, and the extent of the noise and safety impacts associated with the airport. The overall planning area is the furthest extent of the 60 CNEL Contour,

the FAR Part 77 Notification Surface and the runway safety zones associated with the airport.

PUC

Public Utilities Code of the California Codes

**REDEVELOPMENT** The expansion or conversion of an existing land use, whether compatible or incompatible with an airport environs, which would result in an intensified use, or in a new use which may or may not be compatible.

**RUNWAY  
PROTECTION  
ZONE (CLEAR  
ZONE)**

A trapezoidal area off each end of a runway used to enhance the protection of people and property on the ground. The innermost of the safety zones.

**SINGLE EVENT  
NOISE EXPOSURE  
LEVEL (SENEL)**

In decibels, shall mean the sound exposure level of a single event, such as an aircraft fly-by, measured over the time interval between the initial and final times for which the sound level of a single event exceeds the threshold sound level. SENEL is an A-weighted measure of an individual flyover, which time-integrates the level accumulated during this event with reference to a duration of one second. Because of this integration process, SENEL takes into consideration both the duration and the magnitude of the noise signal.

## SECTION 2.0 – PLANNING GUIDELINES

Guidelines for airport land use planning have been set down in a variety of cohesive approaches and systematic forms. Civilian and military authorities have established regulations or statutes which specify numerous methodologies for mitigating the incompatibilities between an airport and its environs, and such incompatibilities have been adequately defined.

Public Utilities Code Section 21670 et. seq. provides general planning and procedural guidance while directing a land use commission to provide “for the orderly growth of each public airport and the area surrounding the airport,” and to “safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general.” Toward these ends, Sections 21675 and 21674 further enable the Commission to “develop height restrictions on buildings,” to specify the “use of land,” to determine “building standards, including sound-proofing,” and to “assist local agencies in ensuring compatible land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses.” The Commission is also empowered to “coordinate planning at the state, regional and local levels so as to provide for the orderly development of air transportation, while at the same time protecting the public health, safety, and welfare.”

The California Department of Transportation’s *California Airport Land Use Planning Handbook (Handbook)*, provides further guidelines, which the Commission is bound by law to utilize in the preparation of this AELUP. Similarly, legislation passed in 1994 requires that, when preparing an environmental impact report for any project situated within an airport influence area as defined in an ALUC compatibility plan (or, if a compatibility plan has not been adopted, within two nautical miles of a public-use airport), lead agencies shall utilize the *Handbook* as a technical resource with respect to airport noise and safety compatibility issues. (Public Resources Code, Section 21096)

In the formulation and amendment of this plan, the Commission has made every effort to study and to evaluate all available viewpoints regarding airport land use planning. Historically, the Commission has held formal public hearing to gather input in addition to its key reliance on the Caltrans *Handbook*.

### 2.1 Standards and Criteria

The following section describe the standards and criteria adopted by the Airport Land Use Commission for Orange County for establishing planning boundaries and the reasoning of the Commission in choosing them.

#### 2.1.1 Aircraft Noise

In adopting the Community Noise Equivalent Level Methodology, Resolution No. 75-1 executed January 9, 1975 of the Airport Land Use Commission for Orange County states that:

“ . . . aircraft noise emanating from airports may be incompatible with the general welfare of the inhabitants within the vicinity of an airport and in

order to measure the impact of aircraft noise on inhabitants within the vicinity of an airport, the Airport Land Use Commission for Orange County adopts the Community Noise Equivalent Level Methodology as specified in the Noise Standards for California Airports (Title 21, California Code of Regulations).”

Historically, the Commission investigated other aircraft noise description systems including Composite Noise Rating, Noise Exposure Forecast, Noise and Number Index, and Aircraft Sound Description System. The Commission discussed at length the variability of aircraft noise due to atmospheric conditions and aircraft operations and the inability of any sound measurement system to provide a completely accurate noise descriptions at all times.

The Community Noise Equivalent Level (CNEL) system was adopted by the Commission for the following reasons:

- (1) the system is set forth in the State Code of Regulations (Title 21, California Code of Regulations) and therefore is imbued with legal authority, and
- (2) the Noise Insulation Standards in the State Housing Law (Title 25, California Code of Regulations) specify the use of CNEL system to describe intrusive noise levels and prescribe soundproofing; and
- (3) the CNEL system most accurately describes those noise levels prescribed in the Noise Element of the Orange County General Plan.

The 60 dB CNEL contour line was chosen as a planning boundary by the Commission for the following reasons:

- (1) this level is prescribed in the California Noise Insulation Standards as the criterion for enforcing the use of sound insulation; and
- (2) the flexible nature of a CNEL contour requires that some leeway from the 65 dB level, prescribed in the Noise Standards for California Airports, be created in order to protect inhabitants of the airport environs from noise. The CNEL methodology has been adopted for, and generally applies to all airports in Orange County.

### 2.1.2 Safety

Accident Potential Zones (Military Airports) and Clear Zones

The 1994 AICUZ Study uses Department of Defense criteria for determining accident potential and clear zones at JFTB, Los Alamitos. U.S. Air Force Instruction 32-7063 authorizes exemption from standard Clear Zone criteria when there are less than ten (10) jet or twenty-five (25) propeller-driven aircraft

operations on a runway on an average busy day. Current and projected airfield operations at JFTB, Los Alamitos are consistent with this criteria.

Prior to the 1994 AICUZ Study, the Commission used an analysis of the ten year accident history and the operational characteristics of the JFTB, Los Alamitos, which revealed that only an Accident Potential Zone (APZ) “A” located within the boundaries of JFTB, Los Alamitos was justified. This analysis was conducted in accordance with the adopted AICUZ methodology. There are no APZs identified beyond the Clear Zones for JFTB, Los Alamitos. APZ “A” is now designated as “CZ” Clear Zone or “RPZ” Runway Protection Zone as shown on the Impact Zone Exhibit D3 of Appendix D.

### 2.1.3 Airspace Protection/Building Height Restrictions

In adopting criteria for building height restrictions and airspace protection in the vicinities of airports, the Commission considered only one standard and that was Federal Aviation Regulations Part 77 (FAR Part 77) entitled, “Objects Affecting Navigable Airspace.” These regulations are the only definitive standard available and the standard most generally used. In order to ensure that buildings which might affect the continued operations of airports are not built in their vicinities, the Commission has incorporated the standards for determining obstructions and FAR Part 77 definitions, of the “imaginary and notification surfaces” for airports, as the guidelines for height limits.

The “imaginary surfaces” are defined by means of elevations, heights and slopes in relation to individual airports, the spaces above which are reserved to air navigation. In addition to the “imaginary surfaces”, the Commission will use all of the FAR Part 77.23 standards along with the results of FAA aeronautical studies, or other studies deemed necessary by the Commission, in order to determine if a structure is an “obstruction.” See Exhibit D2 of Appendix D to view the Height Restriction Zone for JFTB, Los Alamitos. Building or structural heights are limited to the distance between the ground elevation of the site and an elevation that has been determined will not adversely affect an airport or aeronautical operations, nor navigational-aid siting criteria, including interference with navigational-aids or published flight paths and procedures. The FAA uses the 100:1 notification surface to help identify projects that may interfere with airport operations. A project exceeding the 100:1 notification surface is not necessarily incompatible, but rather requires that the FAA be notified so they can conduct an aeronautical study. Projects that penetrate the 100:1 notification surface must file form 7460-1 with the FAA. See Exhibit D1 of Appendix D to view the FAR Part 77 Notification Area for JFTB, Los Alamitos.

In its aeronautical studies, the FAA determines if a project is considered an Obstruction or a Hazard to Air Navigation. A Determination of No Hazard to Air Navigation does not automatically equate to a Consistency determination by the ALUC. The FAA may conclude in its aeronautical study that a project is an

Obstruction but not a Hazard to Air Navigation. The Commission may find a project Inconsistent based on an Obstruction determination. The Commission may utilize criteria for protecting airspace and aircraft traffic patterns at individual airports which may differ from those contained in FAR Part 77, should evidence of health, welfare, or air safety surface sufficient to justify such an action.

Commission review of individual cases will be guided by FAR Part 77, and by FAA Advisory Circular No. 150/5190-4A, as published on December 14, 1987 and entitled “A Model Zoning Ordinance to Limit Height of Objects Around Airports” (See Appendix E to view the summary web address for the ordinance). This document has been promulgated by the FAA expressly to guide local agencies in the preparation of specialized zoning regulations, and in the conduct of individual case reviews. The Advisory Circular complements FAR Part 77, and together they provide an overall means to protect the navigable airspace at local airports. In addition, per FAA Part 77, Section 77.11(a), notice to the FAA is required for any proposed structure more than 200 feet Above Ground Level (AGL) of its site. To coincide with this regulation, the ALUC also requires notification for such projects regardless of where within Orange County the project would be located. This may or may not result in referral of a project to the ALUC.

When determining the height of structures, it is important to consider all of their components, including elevator shafts, flag poles, and antennas that would extend above the roof level. Furthermore, proposed objects do not need to be permanent to require submittal of a notification to the FAA. Notice also must be provided for temporary objects such as construction cranes. Such objects are critically important to airspace protection in that they are often taller than the ultimate height of the structure.

The results of an aeronautical study conducted by the FAA pursuant to FAR Part 77.31 will be utilized to help determine if a structure will have an adverse effect on the airport or on aeronautical operations. If the proposed object is concluded to be a potential hazard to air navigation, the FAA may object to its construction, examine possible revision of the proposal to eliminate the problem, require that the object be appropriately marked and lighted as an airspace obstruction, and/or initiate changes to the aircraft flight procedures for the airport so as to account for the object. The ALUC considers projects that are a hazard to air navigation to be inconsistent with the *AELUP for JFTB, Los Alamitos*.

The Commission considers and recognizes the FAA as the single “Authority” for analyzing project impacts on airport or aeronautical operations, or navigational-aid siting, including interference with navigational-aids or published flight paths and procedures. The Commission also considers the FAA as the “Authority” for reporting the results of such studies and project analyses. The Commission will not consider the findings of reports or studies conducted by parties other than the FAA unless the FAA certifies and adopts such findings as true and correct.

The FAA aeronautical study is just one of many factors ALUC considers when reviewing projects for compatibility with an airport. These studies only address airspace issues. As stated in the *California Airport Land Use Planning Handbook*, simply because the FAA has issued a Determination of No Hazard indicating that it has no objection to a proposed construction does not mean that the proposal is compatible with the airport. Compatibility with regard to noise, the density or intensity of the land use, and other factors also must be considered. Height of the structure and its effect on airspace are only one part of the Commission's Consistency review.

In those portions of the height restriction planning areas that lie outside of the Clear or Accident Potential Zones and 60 dB CNEL Contours, or other areas of special concern as delineated by the FAA and adopted by the Commission, local agencies are required to submit only those matters which contemplate structures that would penetrate the imaginary surfaces as defined in FAR Part 77.9, 77.21 or 77.25 which have been designated for each individual airport for height restriction referral, or are 200' above ground level.

#### Wildlife Hazards

A variety of land uses, facilities, and structures on and near airport can create wildlife hazard attractants that pose a threat to aircraft operations, such as bird strikes. It is important to assess potential wildlife hazard attractants on and near airports and to avoid the establishment of non-compatible land uses.

The Commission recommends the evaluation and promotion of project designs that reduce/eliminate wildlife attractants within two nautical miles of JFTB, Los Alamitos, the training flight patterns and within the approach/departure corridors. The Commission will require that projects referred to ALUC, with the potential to create wildlife hazard attractants, notify JFTB, Los Alamitos to discuss project design options. Proposed projects within an airport's planning area should be reviewed on a case-by-case basis to determine their potential for attracting hazardous wildlife.

The FAA provides guidance on separation criteria for potential wildlife hazard attractants (non-compatible land uses and facilities) within FAA Advisory Circular 150/5200-33B, "Wildlife Hazard Attractants on and near Airports." The advisory circular is included in this AELUP as Appendix I.

#### 2.1.4 Overflight

An overflight means any distinctly visible and audible passage of an aircraft, but not necessarily one which is directly overhead. Many people are sensitive to the frequent presence of aircraft overhead even at low noise levels. These reactions can mostly be expressed in the form of annoyance.

The purpose of overflight compatibility policies is to help notify people about the presence of overflights near airports so that they can make informed decisions regarding acquisition or lease of property in the affected areas.

Overflight compatibility is particularly important with regard to residential land uses. As recommended in the California Airport Land Use Planning Handbook, the primary method to convey information related to property overflights is the buyer awareness measure, which, rather than applying direct restrictions on the types of land uses, seeks to inform the public of potential annoyances associated with overflight. State of California disclosure requirements address properties located within airport influence areas.

State Law Requirements Regarding Real Estate Transfer Disclosure:

Effective January 1, 2004, California state statutes (Business and Professional Code Section 11010 and Civil Code Sections 1102.6, 1103.4 and 1353) require that, as part of residential real estate transactions, information be disclosed regarding whether the property is situated within an airport influence area.

- a. These state requirements apply to the sale or lease of newly subdivided lands and condominium conversions and to the sale of existing residential property.
- b. The statutes define an airport influence area “the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission.” (Referred to in this AELUP as an airport planning area. See Figure 1 or Exhibit D1 of Appendix D).
- c. Where disclosure is required (if the property is located within an airport planning area), the state statutes dictate that the following statement shall be provided:

NOTICE OF AIRPORT IN VICINITY:

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibrations, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

- d. For the purposes of this Compatibility Plan:
  - i. The disclosure provisions of state law are deemed mandatory for new development and shall continue in effect as ALUC policy even if the state law is revised or rescinded.

- ii. Although not required by state law, the policy of the ALUC is that the above airport proximity disclosure should be provided as part of all real estate transactions involving private property within the airport influence area, especially any sale, lease, or rental of residential property.
- iii. City and county policy is that signs providing the above notice be prominently posted in the real estate sales office and/or other key locations at any new development within the airport influence area. Figure 7-3 within Appendix K is an exhibit from JFTB, Los Alamitos showing the helicopter traffic pattern around the base and current noise sensitive areas. Overflight over these noise sensitive areas should be avoided. And, conversely, new sensitive land uses under the helicopter traffic pattern should be avoided.

To mitigate the effects of aircraft noise, JFTB, Los Alamitos has implemented minimum flight altitudes and designated no-fly areas. JFTB, Los Alamitos also implements closed traffic pattern and specified inbound and outbound flight routes around JFTB, Los Alamitos. See Appendix K to view these exhibits. Overflight above these noise sensitive areas should be avoided. And, conversely, new sensitive land uses under the closed traffic pattern and flight routes should be avoided.

#### 2.1.5 Airports/Heliports/Helistops

The Commission is charged with reviewing and acting on proposed airport master plans, expansion of existing airports, and plans for construction of new airports and heliports within its jurisdiction and with making recommendations directly to the California Department of Transportation/Aeronautics Division, regarding the state airport/heliport permit under Section 21661.5 of the California Public Utilities Code. Heliports/helistops to be located at an existing airport do not require Commission review. Additionally, temporary heliport/helistop landing sites do not need to be submitted to the Commission. Policies, criteria and submittal information for heliports can be found in the ALUC's separate *Airport Environs Land Use Plan for Heliports*.

The Commission review of proposed projects for airports/heliports/helistops is initiated by the local agency's referral of the proponent's request for a development permit to construct and operate an airport/heliport/helistop. (Note that per Section 3534 (b) (5) of the California Code of Regulations, a referral for a heliport/helistop may also be submitted directly from that applicant/sponsor.) A finding by the Commission regarding consistency of the proposed project with this AELUP will be forwarded to the local jurisdiction for its consideration prior to a heliport referral to ALUC, the applicant must obtain an Airspace Analysis from the FAA. To obtain this analysis the applicant must file FAA form 7480-1 Notice of Landing Area Proposal (See Appendix B for sample FAA forms).

### 2.1.6 Airport Planning Areas

The designated planning area for JFTB, Los Alamitos is set forth in Section 2.2. (Also see Figure 1 and Exhibit D1 of Appendix D). The Commission evaluated the factors germane to its mandated duties and decided that the planning areas shall be based on the following criteria:

1. Areas that are within the FAA FAR Part 77 Notification Area and 60 dB CNEL contour, as specified in Section 2.2 of the AELUP.
2. Areas that are within the Clear Zones for JFTB, Los Alamitos, as specified in Section 2.2 of the AELUP.
3. Areas subject to building height restrictions, as specified in Section 2.2 of the AELUP.
4. In addition to the criteria listed above in items 1-3, the entire County shall be deemed within the Commission's planning area for development proposals (as defined in PUC Section 21676 (b)) which are:
  - a. Germane to air transportation i.e., sites of developments whose proposed populations are so large as to have an effect on air transportation.
  - b. Outside the height restriction planning area specified in Section 2.2 of the AELUP, but which are planned to be built to a height of more than 200 feet above ground level, and which in the opinion of the local agency, the FAA, or the Commission, may pose an adverse aeronautical effect, as generally defined in AELUP Section 3.2.1, must be submitted to the Commission.
  - c. Within 20,000 feet from the nearest point of the nearest runway of at least 3,200' in length at JFTB, Los Alamitos, which in the opinion of the local agency, the FAA, or the Commission would interfere with visual or electronic navigation systems or would threaten the operation of an airport or decrease its utility, by producing or causing excessive glare, light steam, smoke, dust, electronic interference, or by attracting birds, must be submitted to the Commission.

In those portions of the planning area that lie outside of the Clear Zones and 60 dB CNEL contours or other areas of special concern as specified in Items 4a, 4b, or 4c above, local agencies are required to submit only those matters which contemplate or permit structures that would penetrate the imaginary surfaces as defined in FAR Part 77.17, 77.21, or 77.23 which have been designated for height restriction referral. A local jurisdiction's legislative acts (general plan or specific plan amendments, including conventional zoning and Planned Communities, zoning

ordinances or building regulations and airport plans) shall be referred to the Commission pursuant to Public Utilities Code Section 21676 (b).

### 2.1.7 Planning Areas – New Airports

Public Utilities Code Section 21661.5 states that no application for the construction of a new airport may be submitted to any local, regional, state or federal agency unless that plan has been both:

1. Approved by the board of supervisors of the county, or the city council of the city in which the airport is to be located; and
2. Submitted to and acted upon by the Airport Land Use Commission.

During the process by the local land use authority and the FAA to certify/approve an EIR/EIS and a Master Plan for the development of a new airport, the Commission shall review the EIR/EIS and/or Master Plan for consistency with, and possible future inclusion in, Section 2.2 of the AELUP. The Commission will adopt the projected noise contours presented in the EIR/EIS and/or Master Plan based on the selected alternative runway alignment and future operational projections. Likewise, the Commission will adopt the Far Part 77 – height restriction criteria based on the selected alternative or Master Plan project. These will form the basis for the planning area for Commission referral until revised data can be generated based on an evaluation of actual operations. New or amended Accident Potential and Clear Zones/Runway Protection Zones may be considered for possible establishment as a planning area if called for as a mitigation in the EIR/EIS or included in the Master Plan. Other factors such as light and glare or smoke will also be considered if called for in the EIR/EIS and/or Master Plan.

### 2.2 Establishment of Planning Areas for Joint Forces Training Base, Los Alamitos

The following section details the considerations of the Commission in fixing the particular Planning Area contours and boundaries for JFTB, Los Alamitos.

**PLANNING AREAS** – The Commission has adopted and defined as its Planning Areas for JFTB, Los Alamitos all area within the 60 dB CNEL Contour and all area that lies above or penetrates the 100:1 Imaginary Notification Surface as defined in FAR Part 77.21.

Outside of the 60 dB CNEL Contour, or other areas of special concern as delineated by the FAA and adopted by the commission, local agencies are required to submit only those matters which contemplate or permit structures that would penetrate the 100:1 Imaginary Surface for notice to the FAA as defined in FAR Part 77.21 or are at an elevation of 200 feet or more above ground level.

CNEL CONTOURS – The Commission uses the CNEL contours depicted in the June 1, 1994 Final AICUZ Study for AFRC, (JFTB) Los Alamitos (Exhibit D3 of Appendix D). These contours are based on a 1987 determination made by the U.S. Army Environmental Hygiene Agency (USAEHA) using NOISEMAP 3.4 computer software.

A portion of Los Angeles County falls within the Airport Planning Area for JFTB, Los Alamitos. Projects in Los Angeles County that fall within the notification surface and trigger ALUC referral requirements should be submitted to ALUC for Orange County for consistency review with the AELUP for JFTB, Los Alamitos. (see Figure 1)

The NOISEMAP program was developed for the U.S. Air Force by Bolt, Beranek, and Newman in 1978. The USAEHA computer model uses an estimate of 55,000 annual aircraft operations based on current and projected airfield operations under non-emergency conditions.

In addition, noise characteristics of both rotary and fixed wing aircraft types operating at the airfield were considered in developing the noise contours.

In 1995, the Commission sought additional AICUZ data for augmenting the AELUP noise impact zone map to depict the outer boundary of Noise Impact Zone 2 (60 dB CNEL Contour Line), which surrounds JFTB, Los Alamitos. No relevant data being available from the AICUZ program, the Commission estimated the 60 dB CNEL Contour Line, by extrapolating from the adopted 65 dB Contour Line, using a logarithmic scaling method and professional acoustical-engineering judgment.

In 2016, the Commission received an Installation Compatible Use Zone (ICUZ) report prepared by California Army National Guard (CAARNG). The ICUZ study examined aircraft operations within the boundary of JFTB, Los Alamitos, but did not analyze aircraft operations to and from the Base that might impact surrounding land uses. The 2016 ICUZ is included in Appendix K for information. Because there is no new noise analysis for aircraft arriving and departing JFTB, Los Alamitos, the 60 CNEL and 65 CNEL contours used in the previous AELUP are still the approved noise contours for Planning Area purposes.

CLEAR ZONES – The Commission used the Clear Zones depicted in the June 1, 1994 Final AICUZ Study as are shown in Appendix D on the map entitled Joint Forces Training Base, Los Alamitos Impact Zones. This study identifies Clear Zones that are located entirely within the boundaries of JFTB, Los Alamitos; and presents Department of Defense criteria which exempts the AICUZ Study from depicting any off-base accident potential zones.

The 1994 AICUZ Study uses Department of Defense criteria for determining accident potential and clear zones at AFRC, Los Alamitos. U.S. Air Force

Instructions 32-7063 authorizes exemption from standard Clear Zone criteria when there are less than ten (10) jet or twenty-five (25) propeller-driven aircraft operations on a runway on an average busy day. Current and projected airfield operations at JFTB, Los Alamitos are consistent with this criteria.

Prior to the 1994 AICUZ Study, the Commission used an analysis of the ten year accident history and the operational characteristics of the JFTB, Los Alamitos which revealed that only an Accident Potential Zone (APZ) "A" located within the boundaries of JFTB, Los Alamitos was justified. This analysis was conducted in accordance with the adopted AICUZ methodology. There are no APZs identified beyond the Clear Zones for JFTB, Los Alamitos. APZ "A" is now designed as "CZ" Clear Zone or "RPZ" Runway Protection Zone as shown on the Noise Contour/Clear Zone Exhibit D3 in Appendix D.

**BUILDING HEIGHT RESTRICTIONS** – For JFTB, Los Alamitos, the Commission, by reference, has adopted Part 77, Objects Affecting Navigable Airspace, of the Federal Aviation Regulations as a guideline to describe the ultimate height of structures under the imaginary surfaces as defined in FAR Part 77. Structures should not exceed the elevations defined in FAR Part 77.21 unless, upon completion of an aeronautical analysis conducted by the FAA pursuant for FAR Part 77.31, the Commission finds that they will be consistent with the Policies of Section 3.2 of the AELUP. In addition to the imaginary surfaces, the Commission will use all of the FAR Part 77.17 standards for determining if a structure is an "obstruction." Structural height is limited to the distance between the ground elevation of the site and an elevation which the FAA has determined will not adversely affect this airport or its aeronautical operations, including interference with navigational-aids or published flight paths and procedures. If the FAA concludes that the proposed structure would be a potential hazard to air navigation, the FAA may object to its construction, examine possible revisions of the proposal to eliminate the problem, require that the object be appropriately marked and lighted as an airspace obstruction, and/or initiate changes to the aircraft flight procedures for the airport so as to account for the object.

The Commission may consider the utilization of criteria for protecting aircraft traffic patterns at this airport which may differ from those contained in FAR Part 77, should evidence of health, welfare, or air safety surface sufficient to justify such an action.

The Commission will utilize the results of an Aeronautical Study, conducted by the FAA pursuant to FAR Part 77.31, in order to determine if a structure will have an adverse effect on the airport or on aeronautical operations. The *California Airport Land Use Planning Handbook* emphasizes that the FAA aeronautical studies are concerned only with airspace hazards, not with hazards to people and property on the ground. An FAA determination of "no hazard" says nothing about whether proposed construction is compatible with airport activity in terms of safety and noise.

The Commission is aware that buildings that rise to the height of the Horizontal Surface (150 feet AGL) will violate the established approach criteria for the primary runway at the JFTB. Therefore, it is necessary to protect all other FAA standards such as the Terminal Procedures (TERPS). Structural height is limited to the distance between the ground elevation of the site and an elevation that, upon completion of an Aeronautical Study conducted by the FAA pursuant to FAR Part 77.31, the Commission finds will be consistent with the Policies of Section 3.2 of the AELUP.

TWENTY-YEAR FUTURE – The Commission assumes that JFTB, Los Alamitos, will continue to operate at its present level of operations for at least the next twenty years.

## SECTION 3.0 – LAND USE POLICIES

### 3.1 Concept

To fulfill the purpose of this plan, land use within the planning area boundaries of the AELUP must conform to noise, safety and height restriction standards. Section 3.0 sets forth both the General Policy and Specific Policies pertaining to land use. The General Policy outlines the land use standards for the planning areas. The Specific Policies clarify the General Policy. Impact areas are denoted either on maps (appended) or by reference to some standard source.

### 3.2 Land Use Policies

#### 3.2.1 General Policy

The General Land Use Policy of the Airport Land Use Commission for Orange County shall be:

Within the boundaries of the AELUP, any land use may be found to be Inconsistent with the AELUP which;

- (1) Places people so that they are affected adversely by aircraft noise,
- (2) Concentrates people in areas susceptible to aircraft accidents,
- (3) Permit structures of excessive height in areas which would adversely affect the continued operation of the airport, or
- (4) Permit activities or facilities that would adversely affect aeronautical operations.

Adverse effects of aircraft noise are defined by the “reasonable person” concept presented in the Noise Standards for California Airports, Title 21 of the California Code of Regulations (See Appendix G for web address). Adverse effects of aircraft noise include single event noise disturbances to which people near airports are subjected.

A concentration of people in an area susceptible to aircraft accidents is defined as a number of people situated on the ground so as to increase the potential magnitude of a major crash catastrophe (i.e., a larger number of fatalities or injuries that otherwise may occur).

Adverse effect of structure height refers to a structure of such height and/or location that its existence would threaten the continued operation of the airport, or would decrease the airport’s utility, such as by creating an obstacle in the flight paths or

other aircraft traffic patterns employed at the airport, or by interfering with visual or electronic navigation systems.

Adverse effect of activities or facilities refers to a land use that would hamper aeronautical operations within the boundaries of the AELUP of an airport by producing or causing excessive glare, light, steam, smoke, dust or electronic interference, or by attracting birds.

Any land use which is in conformance with this general policy shall be consistent with the AELUP. Any land use which is not in conformance with this general policy shall be inconsistent with the AELUP.

### 3.2.2 Specific Policies

Some proposed land uses as normally designed and constructed may be found to be inconsistent with the AELUP by the Commission on a case-by-case basis. Other land uses may be found to be consistent with the AELUP by the Commission provided that certain conditions, mitigations, or design measures as described in the following sections are utilized. Examples of limitations on land uses due to noise are set forth in Table 1.

TABLE 1

AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY  
 AIRPORT ENVIRONS LAND USE PLAN  
 LIMITATIONS ON LAND USE DUE TO NOISE  
 (Applicable to Aircraft Noise Sources)

LAND USE CATEGORY	COMMUNITY NOISE EQUIVALENT LEVEL dB					
	55	60	65	70	75	80
Residential (all types): Single and Multi-Family Residences						
Community Facilities: Churches, Libraries, Schools, Preschools, Day-Care Centers, Hospitals, Nursing/Convalescent Homes, & Other noise sensitive uses						
Commercial: Retail, Office						
Industrial:						



NORMALLY CONSISTENT

Conventional construction methods used. No special noise reduction requirements.



CONDITIONALLY CONSISTENT

Must use sound attenuation as required by the California Noise Insulation Standards, Title 25, California Code of Regulations. Residential use sound attenuation required to ensure that the interior CNEL does not exceed 45 dB. Commercial and industrial structures shall be sound attenuated to meet Noise Impact Zone “1” criteria (refer to Section 3.2.3).



NORMALLY INCONSISTENT

All residential units are inconsistent unless sound attenuated to ensure that the interior CNEL does not exceed 45 dB, and that all units are indoor oriented so as to preclude noise impingement on outdoor living areas.

3.2.3 Noise Impact Zone “1” – High Noise Impact (65 dB CNEL and above)

Noise impact in this zone is sufficient to warrant restrictions on residential uses and to require sound attenuation measures on other uses. The ALUC does not support residential development within the 65 dB CNEL noise contour. All residential units

are Inconsistent in this area unless it can be shown conclusively that such units are sufficiently sound attenuated for present and projected noise exposures, which shall be the energy sum of all noise impacting the project, so as not to exceed an interior standard of 45 dB CNEL, with an accompanying dedication of an avigation easement for noise to the airport proprietor applicable to single family residences, multi-family residences and mobile homes. Furthermore, all residential units are to be sufficiently indoor oriented so as to preclude noise impingement on outdoor living areas, as defined in Section 1.7.

Noise-sensitive Institutional uses such as schools, churches, hospitals, libraries, and other noise sensitive uses may also be Inconsistent in this zone. All noise-sensitive uses are Inconsistent in this area unless it can be shown conclusively that such units are sufficiently sound attenuated for present and projected noise exposures, which shall be the energy sum of all noise impacting the project, so as not to exceed an interior standard of 45 dB CNEL, and may require the dedication of an avigation easement for noise to the airport proprietor. Commercial, industrial, and recreational uses may be acceptable in this zone providing that commercial and industrial structures are sufficiently sound attenuated to allow normal work activities to be conducted. Said structures shall be sound attenuated against the combined input of all present and projected exterior noise to meet the following criteria:

<u>Typical Use</u>	<u>Level L (eq)*(12)**</u>
Private office <sup>1</sup> church sanctuary, board room, conference room, etc.	45dB(A)
General office <sup>2</sup> , reception, clerical etc.	50dB(A)
Bank Lobby, retail store, restaurant, etc.	55dB(A)
Manufacturing, kitchen, warehousing, etc.	65dB(A)

- \* L(eq) is the equivalent sound level for a specified time period in dB(A).
- \*\* Measured from 7:00 a.m. to 7:00 p.m. or other appropriate, approved time period.

In addition, it is recommended that all designated outdoor common or recreational areas within Noise Impact Zone 1 provide outdoor signage informing the public of the presence of operating aircraft.

---

<sup>1</sup> An enclosed office intended for use by an individual.  
<sup>2</sup> An open office intended to have more than one work station.

### 3.2.4 Noise Impact Zone “2” – Moderate Noise Impact (60 dB CNEL or greater, less than 65 dB CNEL)

Noise impact in this area is sufficient to require sound attenuation as set forth in the California Noise Insulation Standards, Title 25, California Code of Regulations. Single noise events in this area create serious disturbances to many inhabitants. Even though the Commission would not find residential units incompatible in this area, the Commission strongly recommends that residential units be limited or excluded from this area unless sufficiently sound attenuated. The residential use interior sound attenuation requirement shall be a CNEL value not exceeding an interior level of 45 dB. In addition, it is recommended that all designated outdoor common or recreational areas within Noise Impact Zone 2 provide outdoor signage informing the public of the presence of operating aircraft.

### 3.2.5 Clear Zone “CZ” Extreme Crash Hazard

The severe potential for loss of life and property due to accidents prohibits most land uses in this area. Also, the close proximity to aircraft operations limits land uses which endanger such operations. Only airport-related uses and open space uses, including agriculture and certain types of transportation and utility uses are permitted. No buildings intended for human habitation are permitted in the Clear Zone. Furthermore, because of the proximity to aeronautical operations, uses in this area must not attract birds nor emit excessive glare or light, nor produce or cause steam, smoke, dust, or electronic interference so as to interfere with, or endanger, aeronautical operations. Clear Zones for JFTB, Los Alamitos are shown on Exhibit D3 of Appendix D.

### 3.2.6 Height Restriction Zone

Any object, which by reason of its height or location would interfere with the established, or planned, airport flight procedures, patterns, or navigational systems, is unacceptable to the Commission. Similarly, any proposal which would cause a diminution in the utility of an airport is unacceptable to the Commission. The standards, criteria, and procedures promulgated by the FAA for the thorough evaluation of development projects are designed to ensure the safe and efficient use of navigable airspace. The application of these principles by the Commission will ensure the stability of local air transportation, as well as promote land uses that are compatible with the airport environs. However, any object which rises above the height of surrounding development, or which is located in close proximity to any of the various flight paths, must be clearly visible during hours of twilight or darkness and must not threaten, endanger, or interfere with aeronautical operations. Such objects, even if within the above height restrictions, are not acceptable to the Commission unless they are clearly marked or lighted according to FAA standards.

### 3.2.7 Airspace/Airport Inconsistency

In reviewing projects, the Commission will find any structure, either within or outside of the planning areas, Inconsistent with this AELUP if it:

1. Is determined to be a “Hazard” by the FAA;
2. Would raise the ceiling or visibility minimums at an airport for an existing or planned instrument procedure (i.e., a procedure consistent with the FAA-approved airport layout plan or a proposed procedure formally on file with the FAA);
3. Would result in a loss in airport utility, e.g. in a diminution of the established operational efficiency and capacity of the airport, such as by causing the usable length of the runway(s) to be reduced; or
4. Would conflict with the VFR air space used for the airport traffic pattern or enroute navigation to and from the airport.

### 3.2.8 Avigation Easements

The dedication of an avigation easement in favor of an airport proprietor is designated as a method which may be employed by airport proprietors for controlling and reducing noise problems surrounding airports, pursuant to Title 21, California Code of Regulations, Section 5037. (See Appendix G for web address for the Noise Standards for California Airports.)

Therefore, in recognition of Section 5037 the continuing policy of the Commission is that an avigation easement may be considered by the Commission if so requested by a local agency or project proponent as a factor which may render a land use, within the AELUP planning area set forth in Section 3.2.3 (Noise Impact Zone “1”) consistent with the AELUP. However, nothing in this section shall be deemed to confer upon the Commission the legal jurisdiction or authority to require, compel or mandate the dedication of an avigation easement as a condition of consistency; and the lack of an avigation easement shall not constitute the basis for a determination by the Commission that a project is inconsistent with the AELUP. This section is applicable only to projects submitted to the Commission by local agencies after the adoption of the revisions set forth herein and only to projects within the subject matter jurisdiction of the Commission.

## 3.3 Specific Policies for Consistency Determinations

- 3.3.1 As set forth in Public Utilities Code Sections 21676 and 21676.5 and as discussed in the *California Airport Land Use Planning Handbook*, a key responsibility of an airport land use commission is to review particular types of local actions for

compliance with the criteria and policies set forth in a commission's adopted compatibility plan.

- 3.3.2 Section 3.0 of the Airport Environs Land Use Plan sets forth the policies and criteria by which a local action can be reviewed, and a determination made of its Consistency/Inconsistency with the AELUP.
- 3.3.3 The ALUC may find a local action Consistent with the AELUP; or
- 3.3.4 The ALUC may find a local action Consistent with the AELUP with condition(s) attached if the local agency/project proponent offers such conditions. These conditions(s) serve to mitigate a project which would otherwise be found inconsistent with the AELUP; or
- 3.3.5 The ALUC may find an action Inconsistent with the AELUP.
- 3.3.6 Examples of conditions which may serve to mitigate a project/action and thus may permit the ALUC to make a finding of Consistency include the following:
- Requirement for the lighting of structures per FAA Standards as set forth in FAA Advisory Circular 70/7460-1K "Obstruction Marking and Lighting".
  - Specification of maximum density of residential development
  - Specification of maximum intensity of non-residential development
  - Appropriate written notification, (as set forth in the "Noise Disclosure" and "Notice of Airport in Vicinity" definitions), for residential and other noise sensitive land uses (as described in Table 1), of aircraft noise impact, to all initial and subsequent buyers, lessees, and renters within the AELUP Noise Impact Zones set forth in Sections 3.2.3 and 3.2.4, may on case-by-case basis be a condition/mitigation for a land use to be found consistent with this AELUP.
  - Inclusion of a statement on the Final Tract or Parcel Map and the Deed Disclosure Notice for property in Noise Impact Zone "1" or Zone "2", that the residential or other noise-sensitive land use property is subject to aircraft noise impact in substantially this form:

This property is in the vicinity of Joint Forces Training Base, Los Alamitos and as a result residents and occupants of buildings may experience inconvenience, annoyance or discomfort arising from the noise resulting from aircraft operating at the airport.

State law (Public Utilities Code Section 21670 et seq.) establishes the importance of public use airports for the protection of public interest of the people of the State of California. Residents and building occupants near a

public airport should therefore be prepared to accept such inconvenience, annoyance or discomfort from normal aircraft operations.

Any subsequent deed conveying parcels or lots shall contain a statement in substantially this form.

- Presentation of evidence that commercial and industrial structures are sufficiently sound attenuated to allow normal work activities to be conducted. The structures should be attenuated to at least meet the level specified in Section 3.2.3 (Noise Impact Zone “1”).
- If offered by a local agency or project proponent, dedication of an avigation easement in favor of an airport proprietor for residential and other noise sensitive uses as described in Table 1 under “Community Facilities” of this AELUP. A sample avigation easement is included in Appendix H.

The dedication of an avigation easement in favor of an airport proprietor is designated as a method which may be employed by airport proprietors for controlling and reducing noise problems surrounding airport, pursuant to Title 21, California Code of Regulations, Section 5037.

- The Commission may elect to mitigate a residential action/project within the airport influence area by including a condition based on Business and Professional Code 11010 that requires the following language on the Final Tract or Parcel Map and the Deed Disclosure Notice for the Property:

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

- Other condition(s) as determined by the Commission which would mitigate an action/project.

In order to apply the preceding Specific Policies in the most diligent manner, the Commission will consider all relevant data pertaining to the various airports within Orange County and the areas surrounding them. The Commission will consider current information, as it becomes available, whenever germane to the Commission’s deliberations. The integration of current and reliable information into this plan will be an ongoing goal of the Commission.

## SECTION 4.0 – IMPLEMENTATION

### 4.1 Statutes

The Public Utilities Code for the State of California, Sections 21670 through 21679.5 governs the activities and responsibilities of the Airport Land Use Commission. The web address for these Sections can be found in Appendix A of this document. Further discussion of these responsibilities can be found below. Generally, the Commission is required to make recommendations directly to the California Department of Transportation/Aeronautics Division regarding the required State permit for new airports and heliports/helistops. The Commission also makes findings regarding consistency of proposed land use plans/regulations/projects with this AELUP and forwards those findings to the appropriate local jurisdictions for their consideration.

### 4.2 General Plans and Specific Plans (Zoning)

Each local agency having jurisdiction over any area within the planning areas (as defined in Section 2.1.6) is required to submit its general or specific plans for that area to the Commission for a determination in accordance with the Government Code for the State of California, Section 65302.3 and Public Utilities Code Section 21676. The submittals highlight those areas which address the AELUP noise impact, safety impact, height restriction zones and overflight areas. The only requirement is that the submittals illustrate how local agencies will incorporate the performance standards outlined in this AELUP into their planning, zoning, and development processes. All agencies are encouraged to file their submittals at the earliest practical time. The agencies are encouraged further to include a statement or summary of those issues which are believed to be consistent, as well as inconsistent, with the standards of this AELUP.

### 4.3 Amendments to General Plans and Specific Plans (Zoning)

Within the AELUP planning areas (as defined in Section 2.1.6), any amendment to a General or Specific Plan (including conventional zoning and Planned Communities) must be submitted to the Commission for a determination prior to its adoption by the local agency. The submittal should be in the same manner as with Section 4.2 above.

### 4.4 Zoning Ordinances and Building Regulations

Within the AELUP planning areas (as defined in Section 2.1.6), any proposed changes to a zoning ordinance or building regulation must be submitted to the Commission for a determination prior to its adoption by the local agency. The submittal should be in the same manner as with Section 4.2 above.

#### 4.5 Airport Master Plans

Each public agency owning an airport within Orange County must submit any change to its Airport Master Plan to the Commission for a determination prior to its adoption pursuant to Section 21676 of the Public Utilities Code.

#### 4.6 Other Submittals

A project other than those described above, including but not limited to use permits and site plans, may be submitted voluntarily to the Commission for a recommendation prior to its adoption. See Section 4.12 for exception to “voluntary” submittal of projects such as use permits and site plans. The submittal should be in the same manner as with Section 4.2 above.

#### 4.7 Submittal Requirements

To file a project for a consistency determination with the Airport Land Use Commission, a letter from the local jurisdiction (city, county or special district) requesting the ALUC to review the project for consistency with the Airport Environs Land Use Plan and attachments as specified below are required.

1. Description of Project: General Plan Amendment (GPA); Specific Plan Amendment (or other zoning amendment); Zoning Ordinance; Building Regulations; Conditional Use Permit (CUP); etc.
2. Location of Project: Area Map; Site Plan, street address, etc.
3. Existing and proposed General Plan and zoning designations.
4. Existing and proposed uses on the site and adjacent properties (descriptive text and maps from an environmental document may be submitted to respond to this item).
5. Approval Schedule: Planning Commission, City Council or Board of Supervisors.
6. Is the project within the 60 CNEL Contour of the affected airport? Within the 65 CNEL Contour? What noise mitigation measures will be required to achieve interior standards?
7. Is the project within the Clear Zone/Runway Protection Zone (RPZ) of the affected airport? What are the planned lot coverage and building occupancy criteria?
8. Is the project within the Height Restriction Zone (FAR Part 77 Notification Area) of the affected airport? Has the project sponsor filed a 7460-1 Notice with the FAA? (Provide a copy of the FAA Determination to ALUC staff. If a 7460-1 Determination is necessary, the ALUC must have this Determination as part of the submittal before the project can be accepted for filing.)

9. Applicable sections of CEQA documentation.
10. Latitude and Longitude (accurate to within the nearest hundredth of a second if known).
11. Height of each of the proposed structures above ground level.
12. Elevation of the project site using North American Vertical Datum 1988 (NAVD88) or National Geodetic Vertical Datum of 1929 (NGVD29).
13. Local agency building height restrictions for the project area (Zoning Requirements).
14. Building heights of surrounding structures within 1000' radius of the proposed project area.
15. Project submittals should be sent to:

Airport Land Use Commission  
Attn: Executive Officer  
3160 Airway Avenue  
Costa Mesa, CA 92626

#### 4.8 Submittal Deadlines

The Commission requests that project referrals be submitted and agenda'd by the ALUC staff between the Local Agency's expected Planning Commission and City Council hearings. The ALUC meets on the third Thursday afternoon of each month so submittals must be received in the ALUC office by the first business day of the month to ensure sufficient time for review, analysis, and agenda'ding.

#### 4.9 Acceptance of Submittal

Matters referred to the Commission for review shall be deemed accepted upon the date when all materials and information necessary for processing a project have been confirmed as received by the Commission staff. Staff will inform the local jurisdiction, in writing within five working days after receipt of an item for consideration (with copy to applicant), whether more information as specified in Section 4.7 is necessary or if the item will then be deemed accepted and scheduled for formal review by the Commission. Necessary information as specified in Section 4.7 must include final plans, acoustical reports or FAA Aeronautical Studies when deemed necessary for Commission review by the Commission staff. This procedure does not apply to screen checks or Draft Environmental Impact Report responses which staff will respond to within the specified review period. If the local jurisdiction is not contacted by Commission staff by the sixth business day of the month, they should contact the Commission office to verify receipt of the original referral package. Upon receipt of a complete referral for Airport Land Use Commission review and

consideration, the Commission Secretary shall schedule and agendaize said referral for the next available Airport Land Use Commission meeting.

#### 4.10 Who May File

The implementation of this AELUP shall result generally from the interaction between the Commission and local agencies. Only local agencies may submit General and Specific Plans, Airport Master Plans, and amendments thereto.

#### 4.11 Commission Finding of Inconsistency

When the Commission determines that a submittal is inconsistent with the AELUP, the Commission shall promptly notify the affected local agency. The local agency may modify the submitted project so as to be consistent with the AELUP, and resubmit the project to the Commission for a determination of consistency; or the local agency may instead choose to overrule the Commission by following the procedure established in PUC Sections 21676 and 21676.5 (see Appendix A). This procedure requires the local agency to: hold a public hearing on the matter by its governing body (Board of Supervisors, City Council); make specific findings that the proposed overruling is consistent with the purposes stated in PUC Section 21670; and overrule the Commission by at least a two-thirds vote of the Board of Supervisors or City Council.

When such an overruling occurs, the PUC provides in Section 21678 that if the local agency does not operate the public airport in question, then the operator of that affected public airport shall be immune from liability for damages to property or personal injury caused by, or resulting directly or indirectly from, the local agency's decision to overrule the Commission's Determination of Inconsistency.

#### 4.12 Inconsistent Local Agency

If the Commission determines that a City or the County is an Inconsistent Local Agency and the local jurisdiction does not overrule that determination, the Commission may require that the jurisdiction submit all land use actions to the Commission for review and determination.

#### 4.13 Continuous Monitoring

It shall be the ongoing function of the Commission and its staff to monitor all development within the planning areas to ensure that the purposes of this AELUP are fulfilled.

#### 4.14 Periodic Review

The Commission shall review the substance and adequacy of this AELUP at a minimum of once every five years. AELUPs may not be amended more than once per calendar year.

#### 4.15 AELUP Amendments

Upon approving any amendment to this AELUP, the Commission will promptly inform all affected agencies of the action per Government Code Section 65302.3 as specified below:

- (a) The general plan, and any applicable specific plan prepared pursuant to Article 8 (commencing with Section 65450), shall be consistent with the airport land use compatibility plan (i.e., AELUP) adopted or amended pursuant to Section 21675 of the Public Utilities Code.
- (b) The general plan, and any applicable specific plan, shall be amended, as necessary, within 180 days of any amendment to the AELUP required under Section 21675 of the Public Utilities Code.
- (c) If the legislative body does not concur with any provision of the AELUP required under Section 21675 of the Public Utilities Code, it may satisfy the provisions of this section by adopting findings pursuant to Section 21676 of the Public Utilities Code.

## **APPENDIX A**

(Information in this appendix is provided as a reference source to assist the users of the AELUP.)

### **STATE AERONAUTICS ACT AND AIRPORT LAND USE COMMISSION LAW**

Current provisions of the California Public Utilities Code related to Airport Land Use Commission and land use planning around airports.

Readers should check the following website for up-to-date version:

[http://www.dot.ca.gov/hq/planning/aeronaut/documents/regulations/PUC\\_SAA.pdf](http://www.dot.ca.gov/hq/planning/aeronaut/documents/regulations/PUC_SAA.pdf)

## **APPENDIX B**

(Information in this appendix is provided as a reference source to assist the users of the AELUP.)

### **SUMMARY OF FEDERAL AVIATION REGULATIONS**

#### **PART 77 – “OBJECTS AFFECTING NAVIGABLE AIRSPACE”**

The Airport Land Use Commission has adopted the criteria contained in FAR Part 77 as standards for development in and around airports. The following describes the scope of that document:

- (a) Establishes standards for determining obstructions in navigable airspace;
- (b) Sets forth the requirements for notice to the Administrator of certain proposed construction or alteration;
- (c) Provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace;
- (d) Provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and
- (e) Provides for the establishment of antenna farm areas.

Included in this appendix are samples of the appropriate FAA Forms, 7460-1 and 7480-1, for the proper filing of proposed projects with the FAA Regional Office. FAA encourages these forms to be obtained and submitted online at <https://oeaaa.faa.gov/oeaaa/external/content/forms.jsp>

If you would like to obtain a copy, please contact one of the following:

U.S. Government Bookstore  
Arco Plaza, C Level  
505 South Flower Street  
Los Angeles, CA 90071  
(213) 239-9844

Federal Aviation Administration  
Public Affairs  
15000 Aviation Blvd.  
Hawthorne, CA 90261  
(310) 725-3580

## NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

### § 77.7 Form and time of notice.

(a) If you are required to file notice under §77.9, you must submit to the FAA a completed FAA Form 7460-1, Notice of Proposed Construction or Alteration. FAA Form 7460-1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460-1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

### § 77.9 Construction or alteration requiring notice.

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications;

(2) A military airport under construction, or an airport under construction that will be available for public use;

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation;

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

Mail Processing Center  
Federal Aviation Administration  
Southwest Regional Office  
Obstruction Evaluation Group  
2601 Meacham Boulevard  
Fort Worth, TX 76193  
Fax: (817) 321-7765  
Phone: (817) 321-7750

Website: <https://oeaaa.faa.gov>

## INSTRUCTIONS FOR COMPLETING FAA FORM 7460-1

PLEASE TYPE or PRINT

ITEM #1. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #2. Please include the name, address and phone number of a personal contact point as well as the company name.

ITEM #3. New Construction would be a structure that has not yet been built.

Alteration is a change to an existing structure such as the addition of a side mounted antenna, a change to the marking and lighting, a change to power and/or frequency, or a change to the height. The nature of the alteration shall be included in ITEM #21 "Complete Description of Proposal".

Existing would be a correction to the latitude and/or longitude, a correction to the height, or if filing on an existing structure which has never been studied by the FAA. The reason for the notice shall be included in ITEM #21 "Complete Description of Proposal".

ITEM #4. If Permanent, so indicate. If Temporary, such as a crane or drilling derrick, enters the estimated length of time the temporary structure will be up.

ITEM #5. Enter the date that construction is expected to start and the date that construction should be completed.

ITEM #6. Please indicate the type of structure. DO NOT LEAVE BLANK.

ITEM #7. In the event that obstruction marking and lighting is required, please indicate type desired. If no preference, check "other" and indicate "no preference" DO NOT LEAVE BLANK. NOTE: High Intensity lighting shall be used only for structures over 500' AGL. In the absence of high intensity lighting for structures over 500' AGL, marking is also required.

ITEM #8. If this is an existing tower that has been registered with the FCC, enter the FCC Antenna Structure Registration number here.

ITEM #9 and #10. Latitude and longitude must be geographic coordinates, accurate to within the nearest second or to the nearest hundredth of a second if known. Latitude and longitude derived solely from a hand-held G P S instrument is NOT acceptable. A hand-held GPS is only accurate to within 100 meters (328 feet) 95 percent of the time. This data, when plotted, should match the site depiction submitted under ITEM #20.

ITEM #11. NAD 83 is preferred; however, latitude and longitude may be submitted in NAD 27. Also, in some geographic areas where NAD 27 and NAD 83 are not available other datum may be used. It is important to know which datum is used. DO NOT LEAVE BLANK.

ITEM #12. Enter the name of the nearest city and state to the site. If the structure is or will be in a city, enter the name of that city and state.

ITEM #13. Enter the full name of the nearest public-use (not private-use) airport or heliport or military airport or heliport to the site.

ITEM #14. Enter the distance from the airport or heliport listed in #13 to the structure.

ITEM #15. Enter the direction from the airport or heliport listed in #13 to the structure.

ITEM #16. Enter the site elevation above mean sea level and expressed in whole feet rounded to the nearest foot (e.g. 17'3" rounds to 17', 17'6" rounds to 18'). This data should match the ground contour elevations for site depiction submitted under ITEM #20.

ITEM #17. Enter the total structure height above ground level in whole feet rounded to the next highest foot (e.g. 17'3" rounds to 18'). The total structure height shall include anything mounted on top of the structure, such as antennas, obstruction lights, lightning rods, etc.

ITEM #18. Enter the overall height above mean sea level and expressed in whole feet. This will be the total of ITEM #16 + ITEM #17.

ITEM #19. If an FAA aeronautical study was previously conducted, enter the previous study number.

ITEM #20. Enter the relationship of the structure to roads, airports, prominent terrain, existing structures, etc. Attach an 8-1/2" x 11" non-reduced copy of the appropriate 7.5 minute U.S. Geological Survey (USGS) Quadrangle Map MARKED WITH A PRECISE INDICATION OF THE SITE LOCATION. To obtain maps, contact USGS at 1-888-275-8747 or via internet at "<http://store.usgs.gov>". If available, attach a copy of a documented site survey with the surveyor's certification stating the amount of vertical and horizontal accuracy in feet.

ITEM #21.

- For transmitting stations, include maximum effective radiated power (ERP) and all frequencies.
- For antennas, include the type of antenna and center of radiation (Attach the antenna pattern, if available).
- For microwave, include azimuth relative to true north.
- For overhead wires or transmission lines, include size and configuration of wires and their supporting structures (Attach depiction).
- For each pole/support, include coordinates, site elevation, and structure height above ground level or water.
- For buildings, include site orientation, coordinates of each corner, dimensions, and construction materials.
- For alterations, explain the alteration thoroughly.
- For existing structures, thoroughly explain the reason for notifying the FAA (e.g. corrections, no record or previous study, etc.).

Filing this information with the FAA does not relieve the sponsor of this construction or alteration from complying with any other federal, state or local rules or regulations. If you are not sure what other rules or regulations apply to your proposal, contact local/state aviation's and zoning authorities.

**Paperwork Reduction Work Act Statement:** This information is collected to evaluate the effect of proposed construction or alteration on air navigation and is not confidential. Providing this information is mandatory or anyone proposing construction or alteration that meets or exceeds the criteria contained in 14 CFR, part 77. We estimate that the burden of this collection is an average 19 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information. A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB control number associated with this collection is 2120-0001. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.





U.S. Department  
Of Transportation  
**Federal Aviation  
Administration**

## **FAA Form 7480-1, Notice for Construction, Alteration and Deactivation of Airports**

### **Paperwork Reduction Act Burden Statement**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120-0036. Public reporting for this collection of information is estimated to be approximately 45 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information.

All responses to this collection of information are required if the proponent wishes to have the airport on file with the FAA, as required by Title 14 Code of Federal Regulations Part 157, and entered into the National Airspace System. No assurances of confidentiality are given. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, ASP-110.

### **When to File a Notice for Construction, Alteration and Deactivation of Airports**

Title 14 Code of Federal Regulations Part 157 requires all persons to notify the FAA at least 90 days before construction, alteration, activation, deactivation, or change to the status or use of a civil or joint-use (civil/military) airport.\*

Notice is not required for:

1. Establishment of a temporary airport at which operations will be conducted under visual flight rule (VFR) **and** will be used for less than 30 days with **no more than 10 operations per day**.
2. Intermittent use of a site that is not an established airport, which is used for less than one year **and** at which flight operations will be conducted only under VFR. (Intermittent use means the use of the site for no more than 3 days in any one week and for no more than 10 operations per day.)

\* As used herein, the term "Airport" means: Any Landing or Takeoff Area, e.g. Airport, Heliport, Vertiport, Gliderport, Seaplane Base, Ultralight Flightpark or Balloonport.

**Required notice will be submitted on this form from each person who intends to the any of the following:**

1. Construct or otherwise establish a new airport or activate an airport.
2. Construct, alter, realign, or activate any runway, or other aircraft landing or takeoff area of an airport.
3. Construct, alter realign, or activate a taxiway associated with a landing or takeoff area on a public-use airport.
4. Deactivate, discontinue using, or abandon an airport or any landing or takeoff area of an airport for a period of one year or more.
5. Deactivate, abandon, or discontinue using a taxiway associated with a landing or takeoff area on a public-use airport.
6. Change the status of an airport from private use (use by the owner or use by the owner and other person authorized by the owner) to an airport open to the public or from public-use to another status.

7. Change status from IFR (Instrument Flight Rules) to VFR or VFR to IFR.
8. Establish or change any traffic pattern or traffic pattern altitude or direction.

*Section 901 of the Federal Aviation Act of 1958, as amended, provides that any person who violates a rule, regulation, or order issued under Title III of this Act will be subject to a civil penalty not to exceed \$1,000 for each violation.*

## **General Instructions – Form Completion**

---

***Please contact the local ADO or Regional office for filing instructions.***

### **Section A – Complete this section.**

- Provide the name of the Airport Owner.
- Include contact information (phone number, email address, and mailing address) of the Airport Owner.
- Indicate if the Airport Owner owns the airport property,
- Indicate if the Airport Owner's address is the physical address of the airport. (If the Airport Owner's address is not the physical address of the airport, provide the physical address of the airport in box C.6. Description.)

### **Section B – Complete this section if the Airport Manager is not the same person listed in section A.**

- If the Airport Owner provided in Section A is the Airport Manager, write "SAME" in box B.1. Airport Manager.
- If the Airport Owner provided in Section A is not the Airport Manager, provide the name of the Airport Manager.
- Include contact information (phone number, email address, and mailing address) of the Airport Manager.
- Indicate if the Airport Manager owns the airport property.
- Indicate if the Airport Manager address is the physical address of the airport. (If the Airport Manager's address is not the physical address of the airport, provide the physical address of the airport in box C.6. Description.)

### **Section C – Provide the reason for notification by completing all applicable items in this section.**

*Report only one action per form*

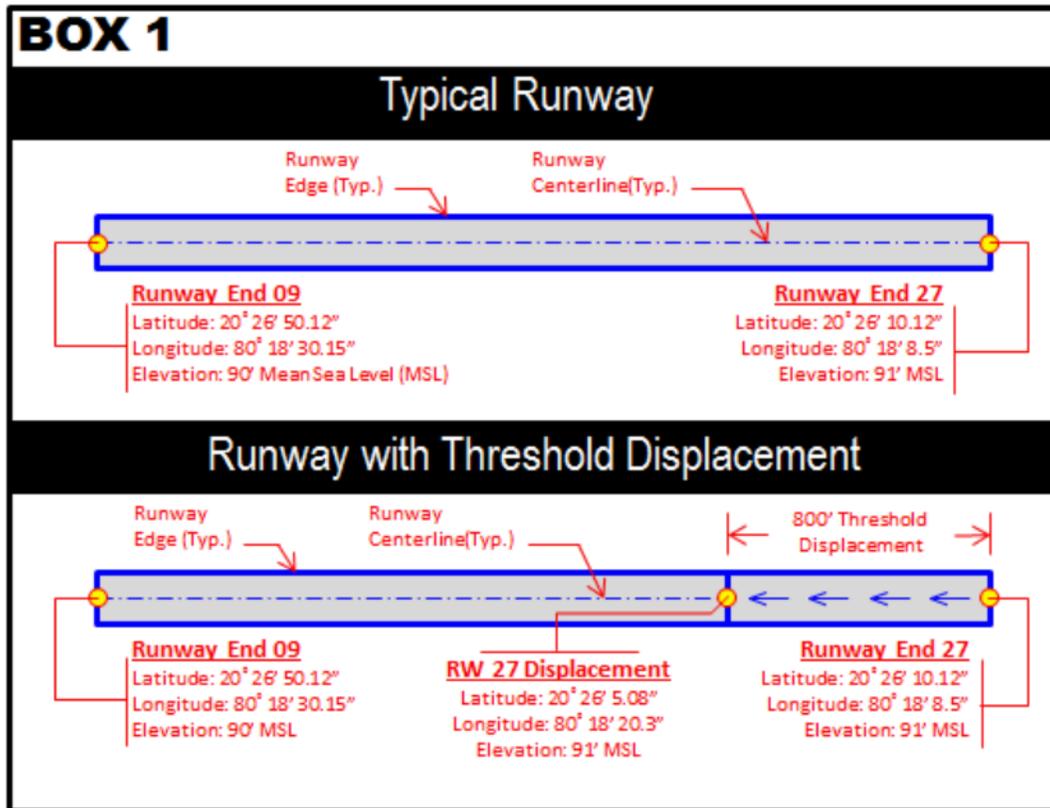
- Section C.1: Select one type of facility.
- Section C.2: Select one. For public-use taxiway, include information in box C.6. Description and depict taxiway layout on airport drawing or sketch.
- Section C.3: Select one. If change is from VFR to IFR, include anticipated IFR procedure in box 6. Description.
- Section C.4: Provide the information proposed for the changes and explain further in box 6. Description.
- Section C.5: Provide appropriate information and include abandonment date in box 6. Description.

### **Section D – Provide all applicable information.**

- Section D.1: Enter name of landing area.
- Section D.2: Enter the Location Identifier (Loc ID) for an existing Airport.
- Section D.3: Enter principle city or town that the airport serves and with which it is normally associated.
- Section D.4: Enter straight-line distance and direction, to the nearest nautical miles, from the Associated City (C.3. above) to the Airport.
- Section D.6: Enter the direction, to the nearest eighth compass point (i.e. E, SE, etc.) from the Associated City to the Airport.
- Section D.7, 8, and 9: Enter the Latitude, Longitude, of the Airport Reference Point and the Airport Elevation.
- Section D.10: Select one Current Use option.
- Section D.11: Select one Ownership option.
- Section D.12: Select Airport Type.

**Section E – Provide all applicable information.**

- Section E.1: Address each runway end independently, if applicable. Provide runway end coordinates and elevations; and runway threshold coordinates and elevations for runway threshold displacements, if applicable (see an example Box 1 below).



- Section E.2: If helipad is elevated, provide the elevated height above ground level (AGL) and do not add the AGL height to Above Mean Sea Level (AMSL). For Heliports, include the TLOF (Touchdown and Liftoff Area) and FATO (Final Approach and Take Off) dimensions.

**Section F – Provide all applicable information.**

**Section G – All information is required and must be complete.**

- For an Airport/Runway:** Provide a detailed drawing and/or imagery of the proposed landing area depicting latitude, longitude, length and width. The document(s) must show the runway orientation in relation to known roads, terrain etc. such that the FAA can locate the runway(s) accurately and efficiently. Notate any obstructions (buildings, high-line wires, roads, railroads, towers, etc.) within the vicinity of the runway. You must include runway end coordinates and the runway elevations on the runway centerline.
- For a Heliport:** Provide a detailed drawing, imagery or map identifying the exact location of the heliport in red. The document(s) must show the helipad(s) in relation to known roads, terrain etc. such that the FAA can locate the heliport accurately and efficiently. Provide site plan depicting the landing pad in relation to buildings and other obstacles (light poles, fences, trees, bollards, parking lots) in the vicinity of the landing area. Provide dimensions of the landing pad and the height of the buildings/obstacles and their distance from the helipad. Provide a heliport layout plan (in accordance with FAA Advisory Circular 150/5390-2, Heliport Design) identifying the proposed marking, lights, beacon location, windsock(s), the approach/departure paths (if room allows, the heliport layout plan may be shown on the site plan).

**Notification to the FAA does not waive the requirements of any other government agency.**

## Regional Office Addresses

---

Submit your completed form by mail to the appropriate regional office.

### **Alaskan Region**

**AK**

U.S. Department of Transportation  
Federal Aviation Administration  
Alaskan Region Airports Division, AAL-600  
222 W. 7th Ave, M/S #14  
Anchorage, AK 99513  
Tel: (907) 271-5438  
Fax: (907) 271-2851

### **Central Region**

**IA, KS, MO, NE**

U.S. Department of Transportation  
Federal Aviation Administration  
Central Region Airports Division, ACE-600  
901 Locust St., Room 364  
Kansas City, MO 64106-2325  
Tel: (816) 329-2600  
Fax: (816) 329-2610/2611

### **Eastern Region**

**DC, DE, MD, NJ, NY, PA, VA, WV**

U.S. Department of Transportation  
Federal Aviation Administration  
Eastern Region Airports Division, AEA-600  
1 Aviation Plaza  
Jamaica, NY 11434  
Tel: (718) 553-3330  
Fax: (718) 995-5694

### **Great Lakes Region**

**IL, IN, MI, MN, ND, OH, SD, WI**

U.S. Department of Transportation  
Federal Aviation Administration  
Great Lakes Region Airports Division, AGL-600  
2300 East Devon Avenue  
Des Plaines, IL 60018  
Tel: (847) 294-7272  
Fax: (847) 294-7272

### **New England Region**

**CT, ME, MA, NH, RI, VT**

U.S. Department of Transportation  
Federal Aviation Administration  
New England Region Airports Division, ANE-600  
12 New England Executive Park  
Burlington, MA 01803  
Tel: (781) 238-7600  
Fax: (781) 238-7608

### **Northwest Mountain Region**

**CO, ID, MT, OR, UT, WA, WY**

U.S. Department of Transportation  
Federal Aviation Administration  
Northwest Mountain Region Airports Division, ANM-600  
1601 Lind Avenue, SW, Suite 315  
Renton, WA 98057-3356  
Tel: (425) 227-2600  
Fax: (425) 227-1600

### **Southern Region**

**AL, FL, GA, KY, MS, NC, TN, SC, PR, VI**

U.S. Department of Transportation  
Federal Aviation Administration  
Southern Region Airports Division, ASO-600  
P.O. Box 20636  
Atlanta, GA 30320-0631  
Tel: (404) 305-6700  
Fax: (404) 305-6730

### **Southwest Region**

**AR, LA, NM, OK, TX**

U.S. Department of Transportation  
Federal Aviation Administration  
Southwest Region Airports Division,  
ASW-600  
10101 Hillwood Parkway  
Fort Worth, TX 76177  
Tel: (817) 222-5600  
Fax: (817) 222-5987

### **Western-Pacific Region**

**CA, NV, AZ, HI**

U.S. Department of Transportation  
Federal Aviation Administration  
Western-Pacific Region Airports Division, AWP-600  
P.O. Box 92007  
Los Angeles, CA 90009  
Tel: (310) 725-3600  
Fax: (310) 725-6847

## NOTICE FOR CONSTRUCTION, ALTERATION AND DEACTIVATION OF AIRPORTS

<b>A. Airport Owner</b> <input type="checkbox"/> Check if this is also the Property Owner		<b>B. Airport Manager</b> (Complete if different than the Airport Owner)		
1. Name and Address <input type="checkbox"/> Check if this is the Airport's Physical Address		1. Name and Address <input type="checkbox"/> Check if this is the Airport's Physical Address		
2. Phone	3. Email	2. Phone	3. Email	
<b>C. Purpose of Notification</b> (Answer all questions that apply)		<b>D. Name, Location, Use and Type of Landing Area</b>		
1. Construct or Establish an:	<input type="checkbox"/> Airport <input type="checkbox"/> Ultralight Flightpark <input type="checkbox"/> Balloonport <input type="checkbox"/> Heliport <input type="checkbox"/> Seaplane Base <input type="checkbox"/> Other	1. Name of Landing Area		
2. Construct, Alter or Realign a:	<input type="checkbox"/> Runway <input type="checkbox"/> Helipad(s) <input type="checkbox"/> Other <input type="checkbox"/> Taxiway (Public Use Airports only)	2. Loc ID (for existing)		
3. Change Status From/To:	<input type="checkbox"/> VFR to IFR <input type="checkbox"/> IFR to VFR <input type="checkbox"/> Private Use to Public Use <input type="checkbox"/> Public Use to Other	3. Associated City and State		
4. Change Traffic Pattern:	<input type="checkbox"/> Direction _____ <input type="checkbox"/> Altitude _____ <input type="checkbox"/> Other (Describe Below)	4. Distance from City (nm)		
5. Deactivate:	<input type="checkbox"/> Airport <input type="checkbox"/> RWY _____ <input type="checkbox"/> TWY _____	5. County (Physical Location)		
6. Description:		7. Latitude	8. Longitude	
		° ' "	° ' "	
		9. Elevation		
		10. Current Use: <input type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Private Use of Public Lands		
		11. Ownership: <input type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Military (Branch) _____		
		12. Airport Type: <input type="checkbox"/> Airport <input type="checkbox"/> Ultralight Flightpark <input type="checkbox"/> Balloonport <input type="checkbox"/> Heliport <input type="checkbox"/> Seaplane Base <input type="checkbox"/> Other		
<b>E. Landing Area Data</b> (List any Proposed, New or Unregistered Runways, Helipads etc.)				
1. Airport, Seaplane Base or Ultralight Flightpark (use second page if needed)		2. Heliport, Balloonport or other Landing Area (use second page if needed)		
RWY ID	/	/	Helipad ID	
Lat. & Long.	Show on attachment(s)	Show on attachment(s)	Lat. & Long.	
Surface Type			Surface Type	
Length (feet)			TLOF Dimensions	
Width (feet)			FATO Dimensions	
Lighting (if any)			Lighting (if any)	
Right Traffic (Y/N)	/	/	Ingress/Egress (Degrees)	
Elevation (AMSL)	Show on attachment(s)	Show on attachment(s)	Elevation (AMSL)	
VFR or IFR	/	/	Elevated Height (AGL)	
<b>F. Operational Data</b> (Indicate if the number provided is Actual or Estimated)				
	1. Number of Based Aircraft		2. Average Number of Monthly Landings	
	Present or Estimated	Estimated in 5 Years	Present or Estimated	Estimated in 5 Years
Single Engine				
Multi Engine				
Jet				
Helicopter				
Glider				
Military				
Ultralight				
3. What is the Most Demanding Aircraft that operates or will operate at the Airport? (Provide approach speed, rotor diameter, etc. if known)				
4. Are IFR Procedures for the Airport Anticipated? <input type="checkbox"/> Yes <input type="checkbox"/> No    if Yes, Within _____ Years				
<b>G. CERTIFICATION:</b> I hereby certify that all of the above statements made by me are true and complete to the best of my knowledge.				
1. Name, title of person filing this notice (type or print)		2. Signature (in ink):		
		3. Date	4. Phone	5. Email

## **APPENDIX C**

### **PERTINENT RESOLUTIONS OF THE AIRPORT LAND USE COMMISSION**



# AIRPORT LAND USE COMMISSION

FOR ORANGE COUNTY

3160 Airway Avenue Costa Mesa, CA 92626 (949) 252-5170 Fax (949) 252-6012

DATE: August 17, 2017

Agenda Item: 1

## RESOLUTION NO. 2017-1

A RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY APPROVING THE AIRPORT ENVIRONS LAND USE PLAN AMENDMENT FOR JOINT FORCES TRAINING BASE (JFTB) LOS ALAMITOS

On the motion of Commissioner Jeff Herdman, duly seconded and carried, the following Resolution was adopted.

WHEREAS, Section 21675 (a) of the Public Utilities Code of the State of California requires the Airport Land Use Commission for Orange County to formulate a Comprehensive Land Use Plan for the areas surrounding all public airports within its jurisdiction; and

WHEREAS, Section 21675 (a) of the Public Utilities Code of the State of California requires that said Comprehensive Land Use Plan shall provide for the orderly growth of the areas surrounding airports, and shall safeguard the general welfare of the inhabitants within the vicinity of airports and the public in general;

WHEREAS, Section 21675 (b) of the Public Utilities Code of the State of California permits the inclusion of the area within the jurisdiction of the Commission surrounding any federal military airport for all of the purposes specified in Section 21675 (a);

WHEREAS, the Airport Environs Land Use Plan requires this Commission to review periodically the substance and adequacy of said plan; and

WHEREAS, this Commission has held numerous meetings and workshops and has conducted a public hearing and has complied with State environmental procedures regarding this Airport Environs Land Use Plan Amendment;

NOW, THEREFORE, BE IT RESOLVED that the Commission finds that the proposed project is Exempt from CEQA per Article 12 - Special Situations, Section 15183 of the CEQA Guidelines.

BE IT FURTHER RESOLVED that the Airport Land Use Commission for Orange County hereby approves the amendments to the Airport Environs Land Use Plan for JFTB, Los Alamitos dated August 17, 2017. BE IT FURTHER RESOLVED that this Commission finds that pursuant to Section 711.4 of the California Fish and Game Code, this project is exempt from the required fees, as it has been determined that no adverse impacts to wildlife resources will result from the project.

BE IT FURTHER RESOLVED that this Commission finds that the proposed project will not have a significant unmitigated impact upon Coastal Sage Scrub habitat and, therefore, will not preclude the ability to prepare an effective Subregional Natural Communities Conservation Planning (NCCP) Program.

I HEREBY CERTIFY that the foregoing Resolution No. 2017-1 was adopted on August 17, 2017 by the Airport Land Use Commission by the following vote:

AYES: Gerald Bresnahan, Stephen Beverburg, Jeff Herdman, Brendan O'Reilly and Schelly Sustarsic

NOES:

ABSENT: Mark Monin, Jeff Mathews

(ABSTAIN):

A handwritten signature in blue ink that reads "Kari A. Rigoni". The signature is written in a cursive style and is positioned above a horizontal line.

Kari A. Rigoni, Executive Officer  
Airport Land Use Commission



# AIRPORT LAND USE COMMISSION

FOR ORANGE COUNTY

3160 Airway Avenue • Costa Mesa, California 92626 • 949.252.5170 fax: 949.252.6012

Date: July 21, 2005

Agenda Item: 1

## RESOLUTION NO. 2005-1

Date: July 21, 2005

**A RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY CONFIRMING THE NONAPPLICABILITY OF AIRPORT ENVIRONS LAND USE PLAN (1995) .**

**On the motion of Commissioner O'Malley, duly seconded and carried, the following Resolution was unanimously adopted.**

**WHEREAS, Section 21675 (a) of the Public Utilities Code requires the Airport Land Use Commission for Orange County to formulate an Airport Compatibility Land Use Plan (also known as an Airport Environs Land Use Plan (AELUP)) for the areas surrounding all civilian and military airports within its jurisdiction; and**

**WHEREAS, the Airport Environs Land Use Plan for Marine Corps Air Station (MCAS) El Toro was originally adopted on April 17, 1975 and subsequently amended on June 16, 1977, December 20, 1979, December 20, 1984, August 15, 1985, November 29, 1990 and November 16, 1995;**

**WHEREAS in January 2004 the City of Irvine annexed former MCAS El Toro and subsequently zoned it for mixed uses that do not include aviation;**

**WHEREAS, on February 16, 2005, the auction of former MCAS El Toro was concluded with the winning bidder being a private development company, Lennar Corporation;**

**WHEREAS, the sale and transfer of the property of the former MCAS El Toro has occurred;**

**WHEREAS, the new owner of the former MCAS El Toro property does not have the legal ability or the intent to construct or operate an airport on that property;**

**WHEREAS, under Public Utilities Code Section 21013 the former MCAS El Toro property no longer meets the definition of an "airport";**

**WHEREAS, the discretion for the ALUC to continue to maintain jurisdiction over the environs of MCAS El Toro no longer exists subsequent to the transfer of the property under the circumstances;**

**WHEREAS, this action is not a discretionary action and is not a project under CEQA;**

NOW, THEREFORE, BE IT RESOLVED that this Commission confirms that the Airport Environs Land Use Plan is no longer applicable to the MCAS El Toro property or its environs, and this AELUP no longer has any legal effect.

I HEREBY CERTIFY that the foregoing Resolution No. 2005-1 was adopted on July 21, 2005 by the Airport Land Use Commission by the following vote:

AYES: Tom O'Malley, Melody Carruth, Herman Beverburg, Patricia Campbell, Harry Dotson, Rod Propst and Don Webb

NOES:

ABSENT:

(ABSTAIN):

  
Joan S. Golding, Executive Officer  
Airport Land Use Commission



# AIRPORT LAND USE COMMISSION

---

FOR ORANGE COUNTY

---

3160 Airway Avenue • Costa Mesa, California 92626 • 949.252.5170 fax: 949.252.5176

## RESOLUTION NO. 2002-1

December 19, 2002

### **A RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY APPROVING THE AIRPORT ENVIRONS LAND USE PLAN AMENDMENT.**

On the motion of Commissioner Herman Beverburg, duly seconded and carried, the following Resolution was adopted.

**WHEREAS, Section 21675 (a) of the Public Utilities Code requires the Airport Land Use Commission for Orange County to formulate a Comprehensive Land Use Plan for the areas surrounding all public airports within its jurisdiction; and**

**WHEREAS, Section 21675 (a) of the Public Utilities Code requires that the Comprehensive Land Use Plan shall provide for the orderly growth of the areas surrounding airports, and shall safeguard the general welfare of the inhabitants within the vicinity of airports and the public in general;**

**WHEREAS, Section 21675 (b) of the Public Utilities Code permits the inclusion of the area within the jurisdiction of the Commission surrounding any federal military airport for all of the purposes specified in Section 21675 (a);**

**WHEREAS, the Airport Environs Land Use Plan requires this Commission to review periodically the substance and adequacy of the Comprehensive Land Use Plan; and**

**WHEREAS, this Commission has held numerous public meetings and workshops and has held a public hearing and has complied with State and local environmental procedures regarding this Airport Environs Land Use Plan Amendment;**

**WHEREAS, the Commission has received the Final Environmental Impact Statement (FEIS)/Final Environmental Impact Report (FEIR) for the Disposal and Reuse of Marine Corps Air Station (MCAS) Tustin which was certified by the City of Tustin and finds it to be adequate and complete under CEQA to disclose the environmental impacts of deleting the MCAS Tustin AELUP and concurs with the findings, statement of overriding considerations, and mitigation monitoring plan adopted by the City of Tustin.**

**If a court adjudicates, determines or finds that any provision of this Resolution is illegal or void, such adjudication shall not effect the validity or efficacy of the balance of this Resolution, and the balance of the Resolution is therefore severable.**

**NOW, THEREFORE, BE IT RESOLVED that in accordance with Section 21080 of the Public Utilities Code and CEQA Guidelines Section 15074, Negative Declaration IP 02-203, which**

reflects the independent judgment of the lead agency, satisfies the requirements of CEQA and is approved for the proposed project. The Negative Declaration was considered and found adequate in addressing the environmental impacts related to the project prior to its approval. The project will not have a significant effect on the environment.

BE IT FURTHER RESOLVED that the Airport Land Use Commission for Orange County hereby approves the amendments to the Airport Environs Land Use Plan dated November 16, 1995 for John Wayne Airport, Fullerton Municipal Airport, Joint Forces Training Base, Los Alamitos and for Heliports; such amendment creating a new and separate AELUP for each airport and for heliports.

BE IT FURTHER RESOLVED that the Airport Land Use Commission for Orange County hereby removes and deletes the Airport Environs Land Use Plan relating to and surrounding MCAS Tustin and cedes it jurisdiction pursuant to Public Utilities Code § 21675 (b) pertaining to land use planning surrounding MCAS Tustin.

BE IT FURTHER RESOLVED that the Airport Land Use Commission for Orange County takes no action with regard to amending the Airport Environs Land Use Plan dated November 16, 1995 relating to and surrounding MCAS El Toro; and directs staff to continue to monitor and review the status of the ongoing MCAS El Toro base closure process and return to the Commission at the appropriate time with its recommendations.

BE IT FURTHER RESOLVED that this Commission finds that pursuant to Section 711.4 of the California Fish and Game Code, this project is exempt from the required fees, as it has been determined that no adverse impacts to wildlife resources will result from the project.

BE IT FURTHER RESOLVED that this Commission finds that the proposed project will not have a significant unmitigated impact upon Coastal Sage Scrub habitat and, therefore, will not preclude the ability to prepare an effective Subregional Natural Communities Conservation Planning (NCCP) Program.

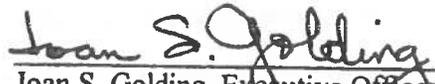
I HEREBY CERTIFY that the foregoing Resolution No. 2002-1 was adopted on December 19, 2002 by the Airport Land Use Commission by the following vote:

AYES: H. Beverburg, Naughton, Adams, Bresnahan, Campbell, and Houston (for Propst)

NOES: Harris

ABSENT: None

(ABSTAIN): None

  
Joan S. Golding, Executive Office  
Airport Land Use Commission



# AIRPORT LAND USE COMMISSION

FOR ORANGE COUNTY

3151 Airway Avenue, Building K-101  
Costa Mesa, Ca. 92626

Phone: (714) 252-5  
Fax: (714) 252-5

November 16, 1995

Agenda Item: 1

## RESOLUTION NO. 95-1

### A RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY ADOPTING THE AIRPORT ENVIRONS LAND USE PLAN AMENDMENT.

On the motion of Commissioner Erickson, duly seconded and carried, the following Resolution was adopted.

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires the Airport Land Use Commission for Orange County to formulate a Comprehensive Land Use Plan for the areas surrounding all public airports within its jurisdiction; and

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires that said Comprehensive Land Use Plan provide for the orderly growth of the area surrounding airports and safeguard the general welfare of the inhabitants within the vicinity of airports and the public in general; and

WHEREAS, Section 4.11 of the Airport Environs Land Use Plan requires this Commission to review periodically the substance and adequacy of said plan; and

WHEREAS, this Commission has conducted a public hearing and complied with State environmental procedures regarding this Airport Environs Land Use Plan Amendment.

NOW, THEREFORE, BE IT RESOLVED that in accordance with Section 21080(c) of the Public Resources Code and CEQA Guidelines Section 15074, Negative Declaration No. IP 95-215, which reflects the independent judgment of the lead agency, satisfies the requirements of CEQA and is approved for the proposed project. The Negative Declaration was considered and found adequate in addressing the environmental impacts related to the project prior to its approval. The project will not have a significant effect on the environment.

BE IT FURTHER RESOLVED that the Airport Land Use Commission for Orange County hereby adopts the Airport Environs Land Use Plan dated November 16, 1995.

BE IT FURTHER RESOLVED that this Commission finds that pursuant to Section 711.4 of the California Fish and Game Code, this project is exempt from the required fees as it has been determined that no adverse impacts to wild life resources will result from the project.

**BE IT FURTHER RESOLVED** that this Commission finds that the proposed project will not have a significant unmitigated impact upon Coastal Sage Scrub habitat and, therefore, will not preclude the ability to prepare an effective subregional Natural Communities Conservation Planning (NCCP) Program.

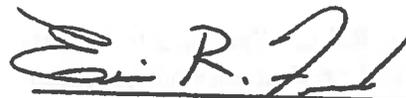
**I HEREBY CERTIFY** that the foregoing Resolution No 95-1 was adopted on November 16, 1995 by the Airport Land Use Commission by the following vote:

**AYES:** Chairman Tom Wall, Herman Beverburg, Alfred Brady for Gerald Bresnahan, Art Brown, and Joe Erickson

**NOES:** None

**ABSENT:** James Carlson, and Roland Elder

**(ABSTAIN:)**



---

**Eric R. Freed, Executive Officer  
Airport Land Use Commission**



# AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY

300 N. Flower St., Rm.356, Santa Ana, Ca 92702-4048  
Mailing Address: P.O.Box 4048, Santa Ana, Ca 92702-4048

Phone: (714) 834  
Fax: (714) 834

December 15, 1994  
Agenda Item: 2

## RESOLUTION NO. 94-1

A RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY ADOPTING THE AIRPORT ENVIRONS LAND USE PLAN AMENDMENT.

On motion of Commissioner Erickson, duly seconded and carried, the following Resolution was adopted.

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires the Airport Land Use Commission for Orange County to formulate a comprehensive Land Use Plan for the areas surrounding all public airports within its jurisdiction; and

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires that said Comprehensive Land Use Plans provide for the orderly growth of the area surrounding airports and safeguard the general welfare of the inhabitants within the vicinity of airports and the public in general; and

WHEREAS, Section 4.12 of the Airport Environs Land Use Plan requires this Commission to review periodically the substance and adequacy of said plan; and

WHEREAS, this Commission has conducted a public hearing and complied with State environmental procedures regarding this Airport Environs Land Use Plan Amendment.

NOW, THEREFORE, BE IT RESOLVED that in accordance with Section 21080(c) of the Public Resources Code and CEQA Guidelines Section 15074, Negative Declaration No. IP 94-194, which reflects the independent judgment of the lead agency, satisfies the requirements of CEQA and is approved for the proposed project. The Negative Declaration was considered and found adequate in addressing the environmental impacts related to the project prior to its approval. The project will not have a significant effect on the environment.

BE IT FURTHER RESOLVED that the Airport Land Use Commission for Orange County hereby adopts the Airport Environs Land Use Plan dated December 15, 1994.

BE IT FURTHER RESOLVED that this Commission finds that pursuant to Section 711.4 of the California Fish and Game Code, this project is exempt from the required fees as it has been determined that no adverse impacts to wild life resources will result from the project.

BE IT FURTHER RESOLVED that this Commission finds that the proposed project will not have a significant unmitigated impact upon Coastal Sage Scrub habitat and, therefore, will not preclude the ability to prepare an effective subregional Natural Communities Conservation Planning (NCCP) Program.

I HEREBY CERTIFY that the foregoing Resolution No. 94-1 was adopted on December 15, 1994 by the Airport Land Use Commission by the following vote:

AYES: Joe Erickson, Art Brown, Herman Beverburg, Al Brady for  
Gerald Bresnahan, Roland Elder, Tom Wall

NOES: None

ABSENT: James Carlson

(ABSTAIN:)

  
George Britton, Executive Officer  
Airport Land Use Commission

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

RESOLUTION OF THE BOARD OF SUPERVISORS OF  
ORANGE COUNTY, CALIFORNIA

May 9, 1984

On motion of Supervisor Riley, duly seconded and carried, the following Resolution was adopted:

WHEREAS, Section 21676 of the California Public Utilities Code requires that each local agency whose general plan includes areas covered by an airport land use commission plan submit a copy of its plan or specific plans to said commission and that the commission determine whether the plan or plans are consistent with the commission's plans; and

WHEREAS, pursuant to that requirement, County General and Specific Plans and the County Zoning Code were submitted for review by the County Airport Land Use Commission (ALUC) for consistency with that commission's Airport Environs Land Use Plan (AELUP); and

WHEREAS, the ALUC on August 19, 1983 determined that the County General Plan Safety Element was inconsistent with the ALUC-adopted and

WHEREAS, pursuant to the Planning and Zoning Law of the State of California, this Board has considered an amendment to the Safety Element and County Administrative Procedures to ensure consistency with the Airport Environs Land Use Plan; and

WHEREAS, in compliance with said laws, a public hearing was held on March 20, April 3, and April 9, 1984, by the Planning Commission on the proposal; and

//  
//

Resolution No. 84-704  
Hearing-Safety Element  
Amendment 84-1

RECEIVED

MAY 31 1984

JOHN WAYNE AIRPORT

COUNTY CLERK  
ORA

3/77

1 WHEREAS, Negative Declaration No. IP 84-012 was prepared for the  
2 proposal, granted on February 17, 1984, and became final on March 2,

3 NOW, THEREFORE, BE IT RESOLVED that Negative Declaration No. IP  
4 84-012 satisfies the requirements of CEQA for this project and is the  
5 fore approved. It was considered and found adequate in addressing the  
6 environmental impacts and mitigations for the project prior to its ap-  
7 proval. The project will not have a significant effect on the enviro-  
8 ment.

9 BE IT ALSO RESOLVED that the public interest, health, comfort,  
10 safety, order, and general welfare will be more adequately served by  
11 project.

12 BE IT FURTHER RESOLVED that amendment of the Safety Element and  
13 county administrative procedures, as set forth in the Environmental  
14 Management Agency Report of April 9, 1984, is hereby adopted.

16 AYES: SUPERVISORS THOMAS F. RILEY, BRUCE NESTANDE, ROGER R. STAN-  
17 RALPH B. CLARK, and HARRIETT M. WIEDER

18 NOES: SUPERVISORS NONE

19 ABSENT: SUPERVISORS NONE

20 STATE OF CALIFORNIA )  
21 COUNTY OF ORANGE ) ss.

22 I, LINDA D. ROBERTS, Clerk of the Board of Supervisors of Orang  
23 County, California, hereby certify that the above and foregoing  
24 Resolution was duly and regularly adopted by the said Board at a  
1984, and passed by a unanimous 9th day of May  
vote of said Board.

25 IN WITNESS WHEREOF, I have hereunto set my hand and seal this  
26 9th day of May, 1984.

28  
LINDA D. ROBERTS  
Clerk of the Board of Supervisors  
of Orange County, California



# AIRPORT LAND USE COMMISSION

FOR ORANGE COUNTY - 18741 Airport Way North, Santa Ana, Cal. 92707

Phone: 714 831-1111

June 30, 1983  
Agenda Item: #3

## RESOLUTION NO. 83-2

A RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY ADOPTING THE FIRST REVISION OF THE AIRPORT ENVIRONS LAND USE PLAN.

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires the Airport Land Use Commission for Orange County to formulate a Comprehensive Land Use Plan for the areas surrounding all public airports within its jurisdiction; and

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires that above said Comprehensive Land Use Plans provide for the orderly growth of the area surrounding airports and safeguard the general welfare of the inhabitants within the vicinity of airports and the public in general; and

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires the Airport Land Use Commission for Orange County to establish planning boundaries; and

WHEREAS, during the period of April 17 to August 7, 1975 the Airport Land Use Commission for Orange County duly adopted the several elements of the Airport Environs Land Use Plan; and

WHEREAS, Section 4.9 of the Airport Environs Land Use Plan requires this Commission to review periodically the substance and adequacy of said plan; and

WHEREAS, this Commission having done so, this Commission has prepared the First Revision of the Airport Environs Land Use Plan; and

WHEREAS; on the basis of an initial study, a Negative Declaration was prepared for this project; and

WHEREAS; the Airport Land Use Commission has received and approved the Negative Declaration;

NOW, THEREFORE, it is RESOLVED that the Airport Land Use Commission for Orange County hereby adopts the First Revision of the Airport Environs Land Use Plan; and it is hereby

RESOLVED, that the First Revision of the Airport Environs Land Use Plan shall be the primary instrument for the disposition of this Commission's mandated duties as long as the plan remains adequate to its purpose.

I, ALFRED W. BRADY Secretary to the Airport  
Land Use Commission for Orange County hereby certify  
and declare that the foregoing Resolution was duly  
adopted by said Commission on June 30, 1983.

Executed this 30th day of June, 1983.

  
SECRETARY



# AIRPORT LAND USE COMMISSION

FOR ORANGE COUNTY - 18741 Airport Way North, Santa Ana, Cal.

Phone: 714 831-1111

## RESOLUTION No. 83-1

RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY AMENDING THE AIRPORT ENVIRONS LAND USE PLAN FOR FULLERTON MUNICIPAL AIRPORT.

WHEREAS, Section 21675 of the Public Utilities Code of the State of California empowers the Airport Land Use Commission to adopt a comprehensive land use plan for the areas surrounding airports within the County of Orange; and

WHEREAS, The Airport Land Use Commission has adopted the Airport Environs Land Use Plan for Fullerton Municipal Airport; and

WHEREAS, the Airport Land Use Commission has researched, studied, and evaluated updated materials concerning the location of the 60 and 65 CNEL contours of the Airport Environs Land Use Plan for Fullerton Municipal Airport; and

WHEREAS, the Airport Land Use Commission has consulted with the two involved agencies and has held a public hearing on an Amendment to the Airport Environs Land Use Plan for Fullerton Municipal Airport; and

WHEREAS, the Airport Land Use Commission has established that the two involved agencies have each certified separate environmental impact reports which adequately and appropriately address the associated environmental impacts; and

WHEREAS, the adoption of the current 60 and 65 CNEL contours for Fullerton Municipal Airport will enhance the consistency of planning activities between the Airport Land Use Commission and the two involved agencies;

NOW, THEREFORE, the Airport Land Use Commission for Orange County amends the Airport Environs Land Use Plan for Fullerton Municipal Airport, finding:

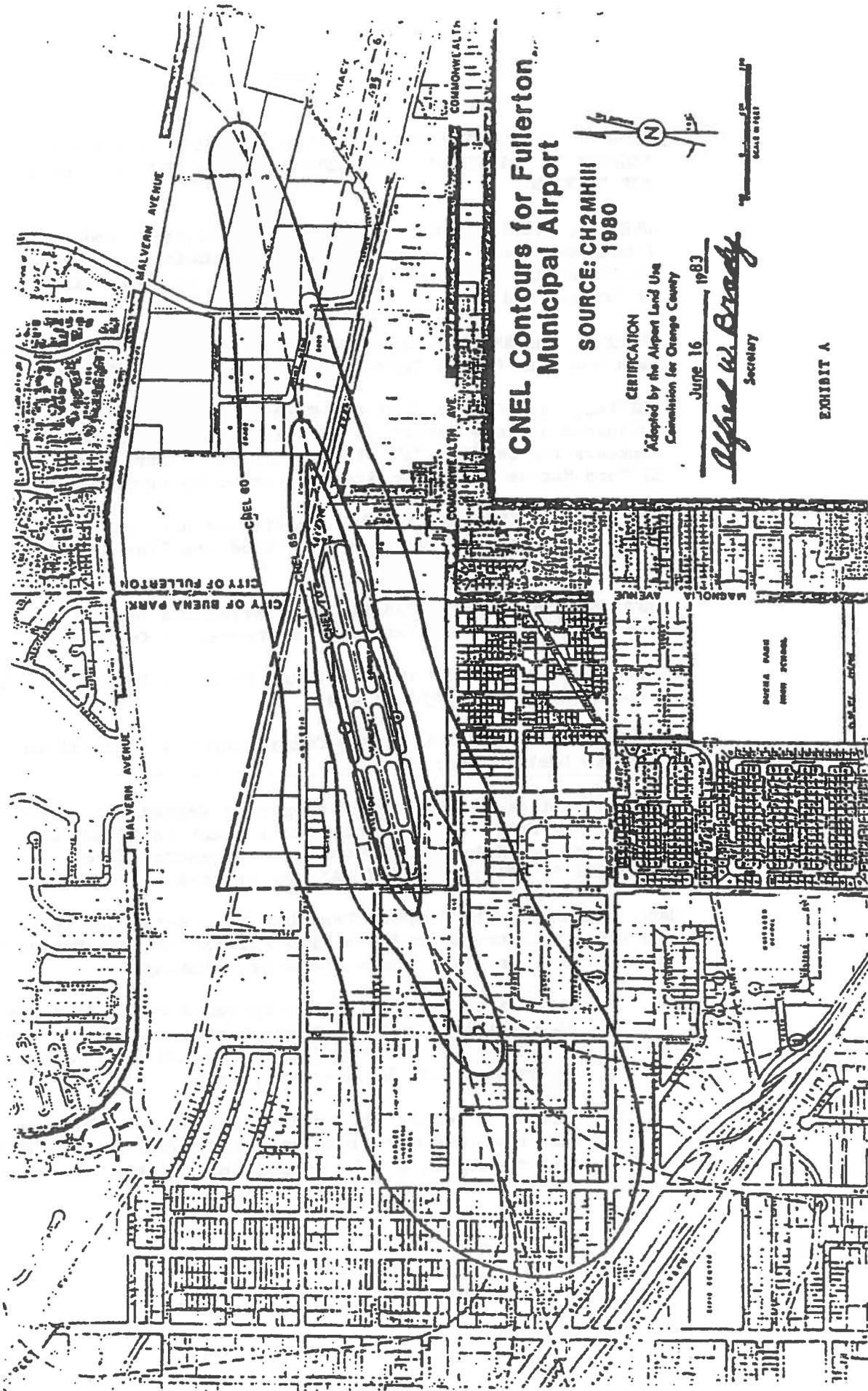
1. That as a result of the proposed Airport Environs Land Use Plan boundary modification, there will be no significant adverse environmental impacts and an Environmental Impact Report need not be prepared; and
2. That as a result of the proposed Airport Environs Land Use Plan boundary modification, there will be no significant adverse impact on the inhabitants within the vicinity of the airport; and
3. That as a result of the proposed Airport Environs Land Use Plan boundary modification, there will be no significant adverse impact on the operation of Fullerton Municipal Airport; and that it is hereby

RESOLVED, that the map for Fullerton Municipal Airport, appearing in Section 3.4 of the Airport Environs Land Use Plan and appearing in Appendix D of the proposed first revision thereof, be amended to show the 60 and 65 CNEL contours as appear on the map, "Exhibit A", attached hereto.

I, Alfred W. Brady Secretary to the Airport  
Land Use Commission for Orange County hereby certify and declare  
that the foregoing Resolution was duly adopted by said  
Commission on June 16, 1983.

Executed this 16th day of June 1983

Alfred W. Brady  
SECRETARY



**CNEL Contours for Fullerton Municipal Airport**

**SOURCE: CH2MHILL 1980**

**CERTIFICATION**  
 Adopted by the Airport Land Use  
 Commission for Orange County

June 16 1983  
*Alfred W. Brady*  
 Secretary

EXHIBIT A

RESOLUTION No. 79-1

RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY AMENDING SEGMENT "A" OF THE AIRPORT ENVIRONS LAND USE PLAN FOR EL TORO MARINE CORPS AIR STATION.

WHEREAS, Section 21675 of the Public Utilities Code of the State of California empowers the Airport Land Use Commission to adopt a comprehensive land use plan for the areas surrounding military airports within the County of Orange; and

WHEREAS, the Airport Land Use Commission has adopted the Airport Environs Land Use Plan for El Toro Marine Corps Air Station; and

WHEREAS, the Airport Land Use Commission has researched, studied, and evaluated updated materials concerning the location of the 60 and 65 CNEL contours for Segment "A" of the Airport Environs Land Use Plan for the El Toro Marine Corps Air Station, known as the Aliso Viejo property; and

WHEREAS, the Airport Land Use Commission has held a public hearing on an Amendment to the Airport Environs Land Use Plan for El Toro Marine Corps Air Station; and

WHEREAS, the Airport Land Use Commission has evaluated this project for compliance with the California Environmental Quality Act; and

WHEREAS, on the basis of an Initial Study, a Negative Declaration was prepared for this project; and

WHEREAS, the Airport Land Use Commission has received and approved the Negative Declaration; and

WHEREAS, notice of the preparation of a Negative Declaration was posted for a period of seven days at the County Clerk and Clerk of the Board Offices, as well as published in a newspaper of general circulation, Daily Pilot, on May 5 and 9, 1979; and WHEREAS, no written statements of opposition were received;

NOW, THEREFORE, the Airport Land Use Commission for Orange County amends the Airport Environs Land Use Plan for the El Toro Marine Corps Air Station, Segment "A," the Aliso Viejo property, finding:

1. That as a result of the proposed Airport Environs Land Use Plan boundary modification, there will be no significant adverse environmental impacts and an Environmental Impact Report need not be prepared; and
2. That as a result of the proposed Airport Environs Land Use Plan boundary modification, there will be no significant adverse impact on the inhabitants within the vicinity of the airport; and

3. That as a result of the proposed Airport Environs Land Use Plan boundary modification, there will be no significant adverse impact on the operation of the El Toro Marine Corps Air Station; and that it is hereby

RESOLVED, that the map for El Toro Marine Corps Air Station appearing in Section 3.4, page 13, of the Airport Environs Land Use Plan be amended to appear as the map, Exhibit A, hereto attached.

I, SHIRLI A. REITHARD Secretary to the Airport  
Land Use Commission for Orange County hereby certify and  
declare that the foregoing Resolution was duly adopted by  
said Commission on May 17, 1979.

Executed this 17th day of MAY 1979

Shirli A. Reithard  
SECRETARY

Resolution No. 79





# AIRPORT LAND USE COMMISSION

FOR ORANGE COUNTY - 18741 Airport Way North, Santa Ana, Cal. 9

Phone: 714 833

## RESOLUTION No. 79-2

RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY AMENDING SEGMENT "B" OF THE AIRPORT ENVIRONS LAND USE PLAN FOR EL TORO MARINE CORPS AIR STATION.

WHEREAS, Section 21675 of the Public Utilities Code of the State of California empowers the Airport Land Use Commission to adopt a comprehensive land use plan for the areas surrounding military airports within the County of Orange; and

WHEREAS, the Airport Land Use Commission has adopted the Airport Environs Land Use Plan for El Toro Marine Corps Air Station; and

WHEREAS, the Airport Land Use Commission has researched, studied, and evaluated updated materials concerning the location of the 60 and 65 CNEL contours for Segment "B" of the Airport Environs Land Use Plan for the El Toro Marine Corps Air Station; and

WHEREAS, the Airport Land Use Commission has held a public hearing on an Amendment to the Airport Environs Land Use Plan for El Toro Marine Corps Air Station; and

WHEREAS, the Airport Land Use Commission has evaluated this project for compliance with the California Environmental Quality Act; and

WHEREAS, on the basis of an Initial Study, a Negative Declaration was prepared for this project; and

WHEREAS, the Airport Land Use Commission has received and approved the Negative Declaration; and

WHEREAS, notice of the preparation of a Negative Declaration was posted for a period of seven days at the Clerk of the Board Office, as well as published in a newspaper of general circulation, Daily Pilot, on October 1 and 8, 1979; and WHEREAS, no written statements of opposition were received;

NOW, THEREFORE, the Airport Land Use Commission for Orange County amends the Airport Environs Land Use Plan for the El Toro Marine Corps Air Station, Segment "B" finding:

1. That as a result of the proposed Airport Environs Land Use Plan boundary modification, there will be no significant adverse environmental impacts and an Environmental Impact Report need not be prepared; and
2. That as a result of the proposed Airport Environs Land Use Plan boundary modification, there will be no significant adverse impact on the inhabitants within the vicinity of the airport; and

- 3. That as a result of the proposed Airport Environs Land Use Plan boundary modification, there will be no significant adverse impact on the operation of the El Toro Marine Corps Air Station; and that it is hereby

RESOLVED, that the map for El Toro Marine Corps Air Station appearing in Section 3.4, page 13, of the Airport Environs Land Use Plan be amended to appear as the map, Segment "B" hereto attached.

RESOLVED, that the Airport Land Use Commission for Orange County recommends that Orange County prohibit the construction of residential units within the 65 CNEL area.

RESOLVED, that the Airport Land Use Commission for Orange County recommends that Orange County limit the construction of hospitals, convalescent homes, churches, schools, and other noise sensitive uses within the 65 CNEL area.

RESOLVED, that the Airport Land Use Commission for Orange County recommends that Orange County continue "Noise Studies" within the 60-65 CNEL area for the purpose of determining sound attenuation requirements for development.

RESOLVED, that the Airport Land Use Commission for Orange County recommends that provisions be made for full disclosure of Noise Impact to initial and subsequent buyers of residential and other property in Noise Impacted areas.

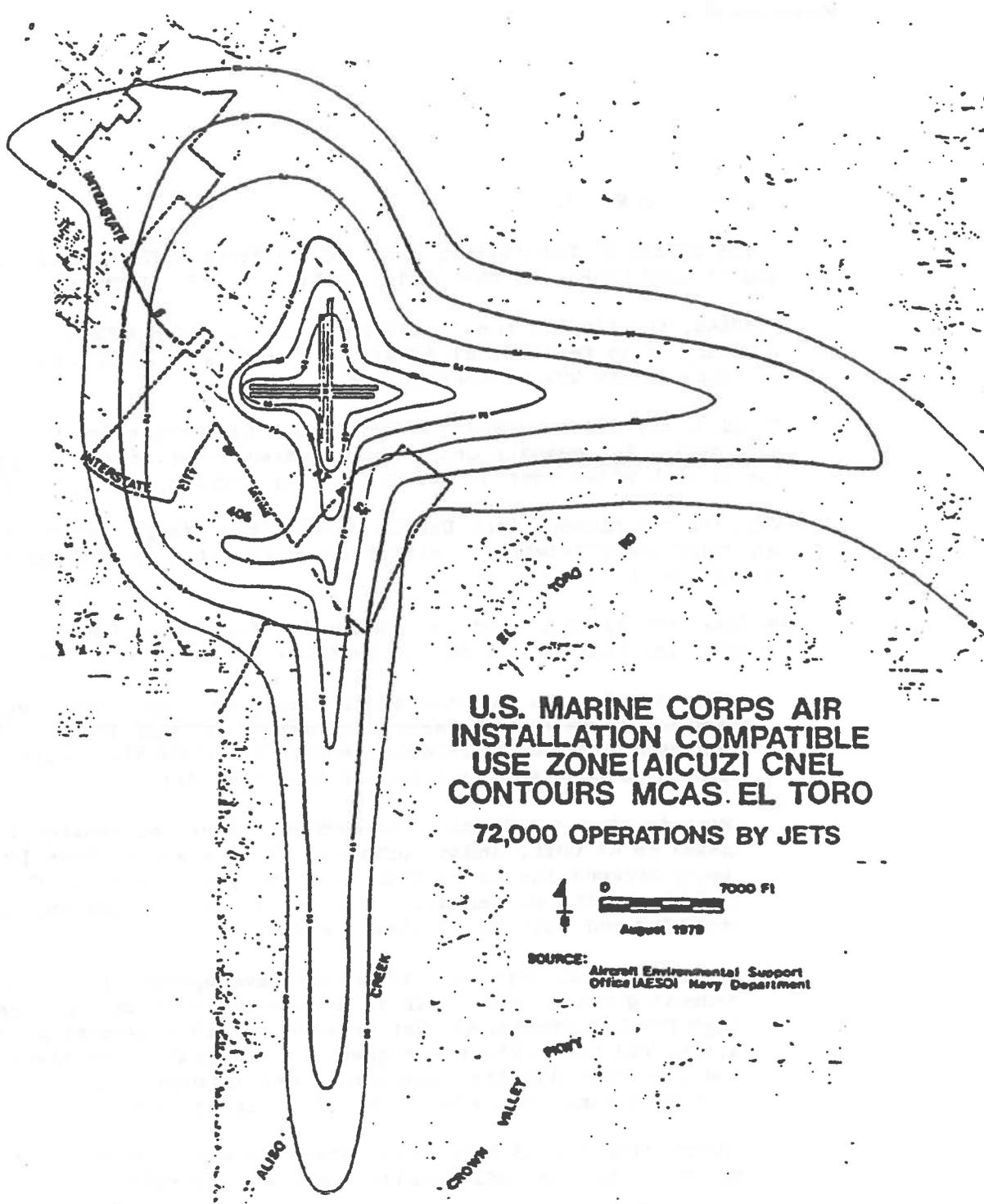
RESOLVED, that the Airport Land Use Commission for Orange County recommends continued and expanded use of "Noise Impacted Area" Sign Program.

RESOLVED, that the Airport Land Use Commission for Orange County recommends continued quest of Avigational Rights/Easements for all developments which are overflown by aircraft or are within the 65 CNEL area.

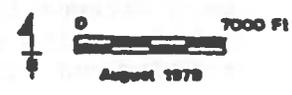
I, SHIRLI A. REITHARD Secretary to the Airport Land Use Commission for Orange County hereby certify and declare that the foregoing Resolution was duly adopted by said Commission on December 20, 1979

Executed this 21st day of December 1979

Shirli A. Reithard  
SECRETARY



**U.S. MARINE CORPS AIR  
INSTALLATION COMPATIBLE  
USE ZONE (AICUZ) CNEL  
CONTOURS MCAS. EL TORO  
72,000 OPERATIONS BY JETS**



**SOURCE:**  
Aircraft Environmental Support  
Office (AESOI) Navy Department

ALISO

CREEK

CROWN VALLEY  
PARK

PARK

EL TORO

INTERSTATE

INTERSTATE

515

105



# AIRPORT LAND USE COMMISSION

FOR ORANGE COUNTY - 18741 Airport Way North, Santa Ana, Cal. 927

Phone: 714 833-15

## RESOLUTION No. 78-1

A RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY CONCERNING THE USE OF LAND WITHIN 65 CNEL NOISE CONTOUR AREAS WITHIN ORANGE COUNTY.

WHEREAS, the Airport Land Use Commission for Orange County has previously adopted a policy of no residential development within 65 CNEL noise contour areas of airports within Orange County; and

WHEREAS, the Airport Land Use Commission for Orange County has previously adopted, as a mitigation measure only, the proposed construction of low-cost housing within the 65 CNEL noise contour for the Marine Corps Air Station, El Toro; and

WHEREAS, the Airport Land Use Commission for Orange County has researched, studied, and evaluated residential development within the 65 CNEL noise contours for airports within Orange County; and

WHEREAS, the Airport Land Use Commission for Orange County has considered and rejected the following land use controls for reasons stated:

High density residential development, as high density does not preclude outdoor recreational facilities unless so restricted to exclude the expected southern California amenities of barbecue areas, swimming pools, tennis courts, and/or other outdoor facilities; and

High density residential development, sound attenuated to limit intruding noise to 45 CNEL, indoor oriented without any outdoor living areas, as sound attenuation to 45 CNEL does not preclude high SENEL disruptions that interfere with conversation and social interaction and that affect the quantity and quality of sleep; and

Low and medium density residential development, sound attenuation to limit intruding noise to 45 CNEL as such sound attenuation does not preclude high SENEL disruptions that interfere with conversation and social interaction and that affect the quantity and quality of sleep and because low and/or medium density residential development usually implies space for outdoor living and recreational facilities; and

Restricting the 65 CNEL noise areas to rental units as at some later time these may become individually owned and thereby defeating the original intent; and

(Continued)

RESOLUTION No. 78-1

Restriction to "adult only" residential units as schools and playgrounds are incompatible uses within 65 CNEL noise areas because such restriction could create hardship for persons who could ill afford to move if children become part of a formerly childless household; and

Avigational easements that would protect the County but would not protect the buyer/renter of low-cost housing from harm arising from aircraft generated noise; and

Notice to potential buyers of residential units of severe noise impaction as the current terms of description are neither realistic nor understandable and because the use of CNEL, although applicable to regularly scheduled jet flights, when applied to military airport noise is misleading, as the scheduling of military jet flights is highly variable; and

Notice to potential buyers of residential units of severe aircraft generated vibrations that disrupt television and radio reception as the extent of such disruptions may not be realistically communicated; and

Agricultural zoning because it permits four-acre parcels for residential use and with variances, it permits one-half and/or one acre parcels for residential use. Hence, it does not preclude residential use within the 65 CNEL areas; and

WHEREAS, the Airport Land Use Commission for Orange County has considered the following health problems arising from aircraft noise impaction, particularly long-term noise impaction:

Data indicating that hearing damage in children may occur in a relatively short period of time; and

Noise sensitivity of individuals varies widely and sensitivity to noise may develop upon long-term exposure to high noise impact, and extremes of noise sensitivity may occur in one family to the hardship of those who are noise sensitive; and

WHEREAS, the Airport Land Use Commission for Orange County has considered the following social problems as related to aircraft noise impaction:

Low-cost housing within 65 CNEL noise areas as it would relegate the group least able to afford housing to the least desirable area from which it could be difficult to relocate as they have the fewest alternatives; and

The concept of low-cost housing within 65 CNEL noise areas because of the possibility of compounding existing social problems and because of its discriminatory implications; and

(Continued)

RESOLUTION No. 78-1

The buyer/renter expectation of outdoor living in Orange County as reasonable; and

The expectation of families with children of outdoor play areas in Orange County as reasonable; and

The quality of living as measured by expectations of outdoor living for residents of Orange County as reasonable; and

WHEREAS, the Airport Land Use Commission for Orange County has considered and rejected the following presumptions and found them wanting for reasons stated:

A renter is free to move if dissatisfied. There may not be a reasonable alternative due to the scarcity of low-cost units; and

Renters are likely to spend less time in their residences. Such persons may not have the physical and/or financial capacity to go elsewhere; and

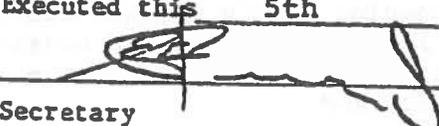
The less affluent are less noise sensitive than the more affluent. Affluence has not been found to be a determinative factor of noise sensitivity; and

Renters are less noise sensitive than owners. Renter/owner relationship has not been found to be a determinative factor of noise sensitivity; and

NOW, THEREFORE, it is RESOLVED, that the Airport Land Use Commission for Orange County recommends that no residential units, including low-cost or affordable, be constructed within the 65 CNEL noise contour areas of airports within Orange County.

I, George F. Perry, Secretary to the Airport Land Use Commission for Orange County hereby certify and declare that the foregoing resolution was duly adopted by said Commission on December 21, 1978

Executed this 5th day of January 1979

  
Secretary

RESOLUTION NO. 77-1

RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY ADOPTING AN AMENDMENT TO THE AIRPORT ENVIRONS LAND USE PLAN AND APPROVING THE ENVIRONMENTAL IMPACT REPORT FOR THAT AMENDMENT.

WHEREAS, Section 21675 of the Public Utilities Code of the State of California empowers the Airport Land Use Commission to adopt a comprehensive land use plan for the areas surrounding military airports within the County of Orange; and

WHEREAS, the Airport Land Use Commission has an adopted Airport Environs Land Use Plan for El Toro Marine Corps Air Station; and

WHEREAS, the Airport Land Use Commission has held public hearings on an Amendment to the Airport Environs Land Use Plan for El Toro Marine Corps Air Station; and

WHEREAS, this Amendment is a project in terms of the California Environmental Quality Act and an EIR was reviewed and considered by the Airport Land Use Commission;

NOW, THEREFORE, the Airport Land Use Commission for Orange County finds that the EIR is complete and adequately addresses the environmental impacts of the Amendment and that;

- a) Election of the No Project Option presented in the EIR would not adequately fulfill the spirit of the ALUC's legislative mandate. Inhabitants near the air station would not be adequately protected by local jurisdiction planning which allows residential construction in identified high noise impact areas as documented in the EIR;
- b) The ALUC has considered other noise disturbance criteria but has chosen the 65 CNEL standard for the reasons stated in the Commission's Airport Environs Land Use Plan;
- c) The Commission has chosen the 60 and 65 CNEL contours developed by Ultrasystems as the best estimates available;
- d) The Commission has not chosen to use alternative project designs (a), (b), (c), (d), or (e) as presented in the EIR because each of these would allow some number of persons to be adversely affected by aircraft noise;
- e) Substantial discretion is allowed to local jurisdictions to minimize the impacts of this project by (1) redesigning residential units to limit noise disturbance and (2) replanning areas to replace incompatible uses within the impact area with compatible uses from outside the impact area;

(Continued)

f) The following were identified in the EIR as significant effects:

1. The loss of available dwellings,
2. the economic impact to land owners,
3. the increase in the cost of housing,
4. the loss of low and moderate income dwellings,
5. the loss of employment in the building and trade industry,
6. the outflow of dollars from Orange County,
7. the shifting of population,
8. the increased vehicle emissions and,
9. the economic loss within utility assessment districts.

As to each of the above significant effects, the changes or alterations which could mitigate or avoid their impact are within the jurisdiction of other public agencies and such changes can be adopted by the other agencies, if other agencies take advantage of the provisions within the AELUP which allow for sound attenuated, indoor oriented residential construction. The land use guidelines within the AELUP allow apartment like structures with central air conditioning to be located within high noise impact areas. The Commission finds that the replacement of single family units with such multiple family units would eliminate many of the adverse impacts enumerated in the EIR.

g) The AELUP contains implementation procedures which minimize delays in processing. The prolongation of the planning and developing process which will result from the adoption of this Amendment to the AELUP is a necessary consequence of the fulfillment of the ALUC's legislative mandate to protect the airport and the inhabitants near the airport.

NOW, THEREFORE, BE IT RESOLVED THAT THE Airport Land Use Commission for Orange County amends Section 2.2.1 of the Airport Environs Land Use Plan to read as follows:

(Continued)

### 2.2.1 Marine Corps Air Station, El Toro

The original plan adopted on April 17, 1975 was amended by the Commission on June 16, 1977.

**CNEL CONTOURS** - The Commission utilized the average annual CNEL contours depicted in "An Update of the Noise Contours for El Toro Marine Corps Air Station" prepared by Ultrasystems, Inc., for the Board of Supervisors, County of Orange, dated May, 1976.

These contours were developed on the basis of 1975 and 1976 operations data and the latest available information concerning noise characteristics of military aircraft.\* Both the 60 CNEL and 65 CNEL contours depicted on the map in section 3 were the products of the Ultrasystems' report.

**ACCIDENT POTENTIAL ZONES** - An analysis of the ten year accident history and the operational characteristics of MCAS, El Toro, was conducted in accordance with the adopted AICUZ methodology. The analysis revealed no justification for extending the limits of Accident Potential Zone "B" farther than 10,000 feet from the runway ends. No Accident Potential Zone "A" was placed at the end of Runway 3/21 because it is not presently in use nor are there any plans for its use. The AICUZ methodology was strictly observed on all other runways. This analysis was based on the same operations data which appears in the Ultrasystems' noise contour report discussed above.

**PLANNING AREA** - The Commission expanded the planning area adopted April 17, 1975 to include all that area embraced by the Ultrasystems' 1976 average annual 60 CNEL contour.

**TWENTY YEAR FUTURE** - (This section will not be drafted until a statement is received from the Marine Corps regarding future plans for El Toro. However, it is assumed that a continuation of present operations is a reasonable requirement for adoption of this plan.)

---

\* Aerospace Medical Division, "Community Noise Exposure Resulting from Aircraft Operations: Acquisition and Analysis of Aircraft Noise and Performance Data," Wright-Patterson Air Force Base, Ohio, and Bolt Beranek and Newman, Inc., Canoga Park, California, AHRM-TR-73-107, August, 1975.

(Continued)

and that is hereby

RESOLVED, that the map for El Toro Marine Corps Air Station appearing in Section 3.4 of the Airport Environs Land Use Plan be amended to appear as the map hereto attached, and that it is hereby

RESOLVED, that for purposes of implementation of the amended Airport Environs Land Use Plan for El Toro Marine Corps Air Station, all that area within the City of Irvine which is regulated by the North Irvine (Northwood II) Planned Community Regulations adopted November 11, 1975 by the City Council of the City of Irvine be considered already devoted to incompatible uses by the Airport Land Use Commission.

AYES: Ablott, Beverburg, Doan, Dostal, Foringer, Hudson

NOES: Bresnahan

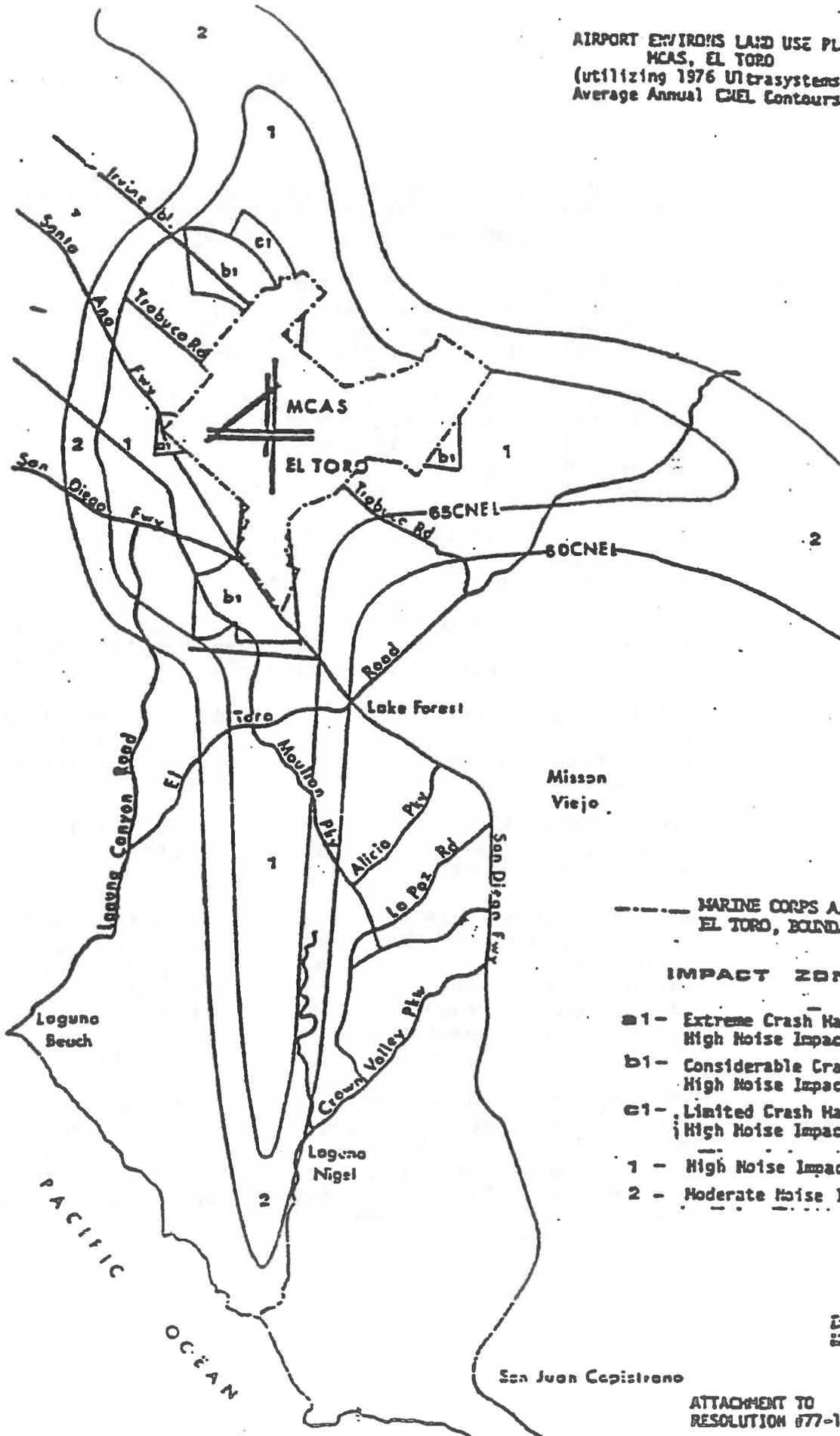
ABSTENTIONS: None

I, KENNETH J. DELIND, Secretary to the Airport Land Use Commission for Orange County hereby certify and declare that the foregoing resolution was duly adopted by said Commission on June 16, 1977.

Executed this 17th day of June 1977

  
SECRETARY

AIRPORT ENVIRONMENTAL USE PL  
 MCAS, EL TORO  
 (utilizing 1976 Ultrasonics  
 Average Annual CUEL Contours)



- MARINE CORPS AIRFIELD EL TORO, BOUNDARY
- IMPACT ZONE**
- a1 - Extreme Crash Hazard / High Noise Impact
- b1 - Considerable Crash Hazard / High Noise Impact
- c1 - Limited Crash Hazard / High Noise Impact
- 1 - High Noise Impact
- 2 - Moderate Noise Impact

RESOLUTION NO. 75-1

RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY ADOPTING STANDARDS AND CRITERIA FOR THE ESTABLISHMENT OF PLANNING BOUNDARIES FOR USE IN COMPREHENSIVE LAND USE PLANS.

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires the Airport Land Use Commission for Orange County to formulate a Comprehensive Land Use Plan for the areas surrounding all public airports within its jurisdiction; and

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires that above said Comprehensive Land Use Plans provide for the orderly growth of the area surrounding airports and safeguard the general welfare of the inhabitants within the vicinity of airports and the public in general; and

WHEREAS, Section 21675 of the Public Utilities Code of the State of California requires the Airport Land Use Commission for Orange County to establish planning boundaries; and

WHEREAS, the Airport Land Use Commission for Orange County has researched, studied, and evaluated available materials concerning guidelines for the establishment of above said planning boundaries; and

WHEREAS, the Airport Land Use Commission for Orange County held a public hearing and invited the participation of affected jurisdictions and persons in the process of determining standards and criteria for the establishment of planning boundaries;

NOW, THEREFORE, the Airport Land Use Commission for Orange County hereby adopts the following standards and criteria for establishing planning boundaries; and therefore it is hereby

RESOLVED, that aircraft noise emanating from airports may be incompatible with the general welfare of the inhabitants within the vicinity of an airport and in order to measure the impact of aircraft noise on the inhabitants within the vicinity of an airport, the Airport Land Use Commission for Orange County adopts the Community Noise Equivalent Level methodology as specified in the Noise Standards for California Airports (Title Four, California Administrative Code); and it is hereby

RESOLVED, that the potentiality of aircraft accidents outside the boundary of an airport may be incompatible with the general welfare of the inhabitants within the vicinity of an airport and in order to designate such accident potential zones near military airports the Airport Land Use Commission for Orange County adopts the Department of the Navy, Aircraft Installation Compatible Use Zone Program methodology as attached; and it is hereby

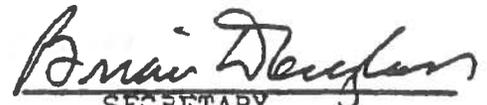
(Continued)

RESOLVED; that objects affecting navigable airspace within the vicinity of airports is incompatible with the safety of air navigation and in order to limit such obstructions, the Airport Land Use Commission for Orange County, adopts the regulations regarding Notices of Proposed Construction or Alteration as contained in Federal Aviation Regulation Part 77; and it is hereby

RESOLVED, that the delineation of the Planning Area of the Airport Land Use Commission for Orange County will generally include those areas embraced by the 60 dB CNEL contours and accident potential zones.

I, BRIAN DOUGLASS, Secretary to the Airport Land Use Commission for Orange County hereby certify and declare that the foregoing resolution was duly adopted by said Commission on JANUARY 9, 1975.

Executed this 9th day of January, 1975

  
SECRETARY

RESOLUTION #75-3

A RESOLUTION OF THE AIRPORT LAND USE COMMISSION FOR ORANGE COUNTY CONCERNING ACCIDENT  
POTENTIAL ZONES AROUND CIVIL AIRPORTS.

WHEREAS, the Airport Land Use Commission for Orange County has previously resolved the  
the potentiality of aircraft accidents outside the boundary of an airport may be incom-  
patible with the general welfare of the inhabitants within the vicinity of an airport;  
and

WHEREAS, the Airport Land Use Commission for Orange County has researched, studied, and  
evaluated accident data for civil aircraft operating in California; and

WHEREAS, the aircraft operations at the civil airports in Orange County are relatively  
typical of aircraft operations throughout California; and

WHEREAS, the Airport Land Use Commission for Orange County has studied and evaluated  
the aircraft accident data for civil airports within Orange County; and

WHEREAS, the data for civil aircraft accidents in California indicates that  
the locations of off-airport accidents are in no discernible pattern; and

WHEREAS, the accident data studied indicates that there is no relationship between  
overall accident locations and accident locations around individual airports;

NOW, THEREFORE, it is RESOLVED, that the Airport Land Use Commission for Orange County  
shall designate accident potential zones around civil airports on the basis of study  
and evaluation of each airport's accident history and operational characteristics.

I, Brian Douglas Secretary to the Airport Land Use Commission  
for Orange County hereby certify and declare that the foregoing resolution  
was duly adopted by said Commission on April 3 1975

Executed this 3 day of April, 1975

Brian Douglas  
SECRETARY

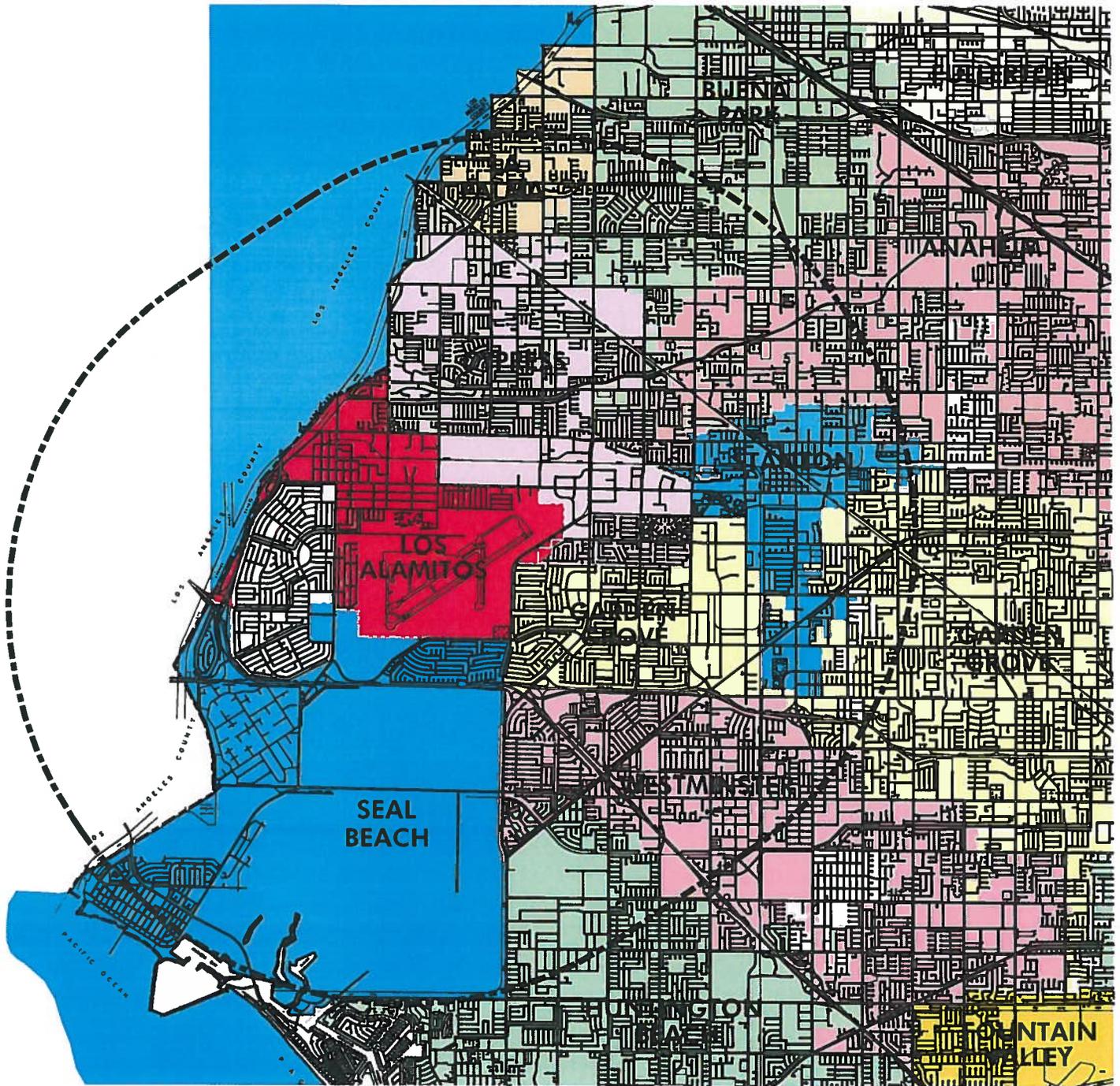
## **APPENDIX D**

Exhibit D1: Notification Area for JFTB, Los Alamitos

Exhibit D2: AELUP Height Restriction Zone for JFTB, Los Alamitos

Exhibit D3: Impact Zones for JFTB, Los Alamitos

# Notification Area for JFTB



Note: County Unincorporated areas are shown in white.

Exhibit D1

## AELUP and FAR PART 77

Notification Area for JFTB Los Alamitos: 20,000' Radius at 100:1 Slope

### LEGEND

- ..... 20,000' Radius
- CITY BOUNDARIES



### CERTIFICATION

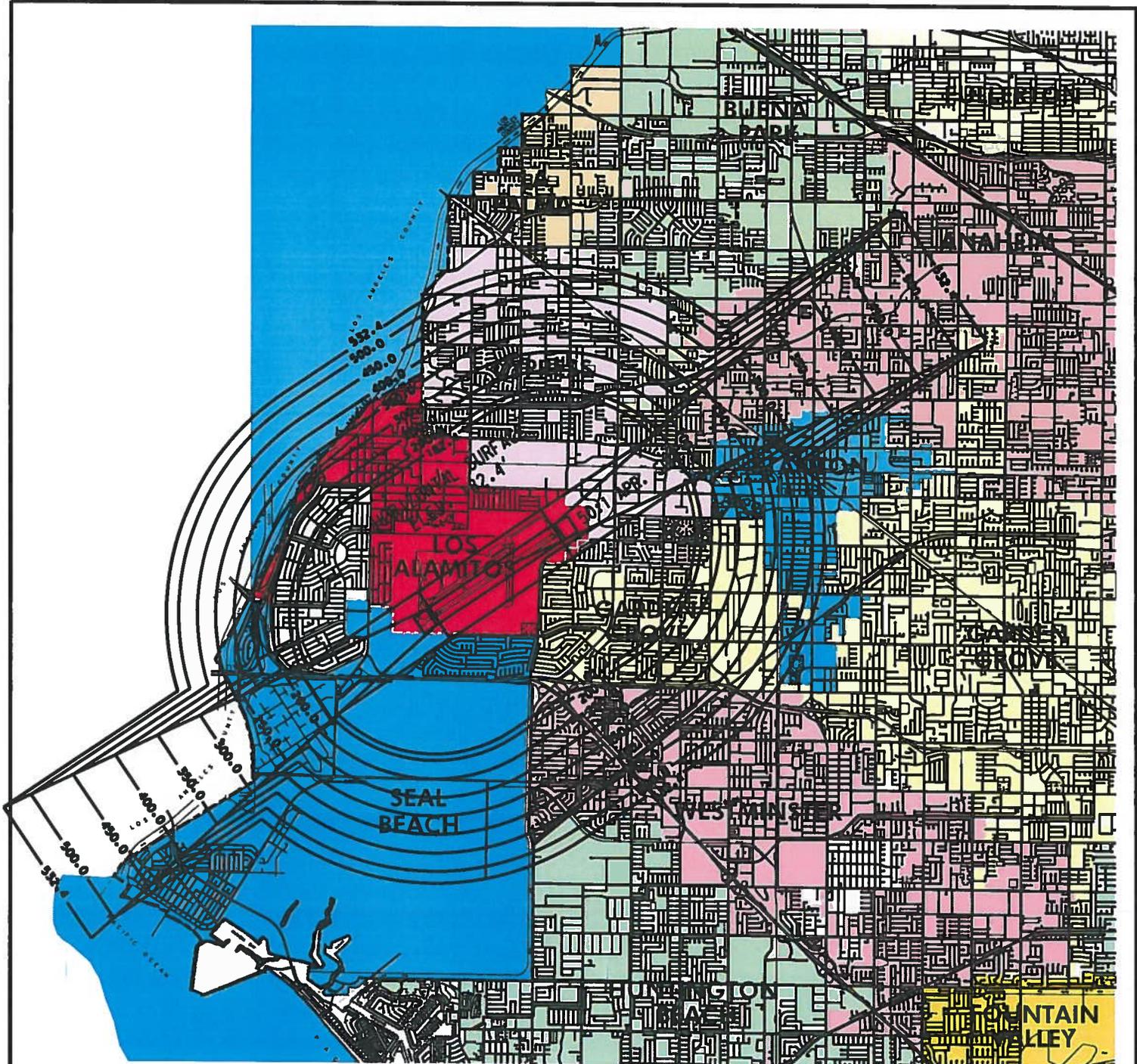
Adopted by the Airport Land Use Commission for Orange County

*Kari A. Rigoni*

Kari A Rigoni, Executive Officer

8/17/17  
Date

# AELUP Height Restriction Zone for JFTB, Los Alamitos



Note: County Unincorporated areas are shown in white.

## FAR PART 77

Exhibit D2

### JFTB, Los Alamitos Obstruction Imaginary Surfaces



**LEGEND**

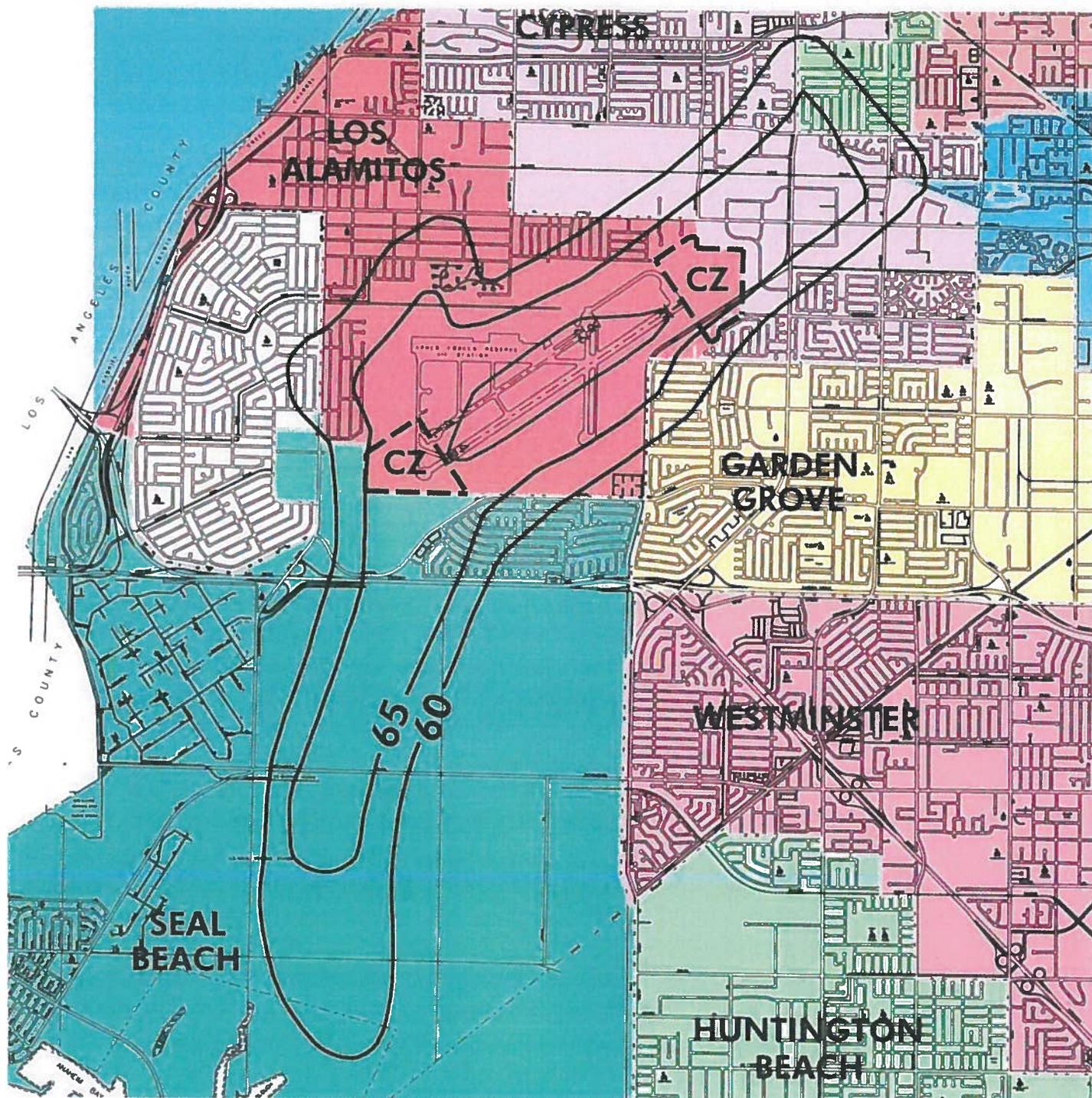
- 20,000' Radius
- CITY BOUNDARIES

**CERTIFICATION**

Adopted by the Airport Land Use Commission for Orange County

*Kari A. Rigoni*  
Kari A. Rigoni Executive Officer

8/17/17  
Date



Note: County Unincorporated areas are shown in white.

## Impact Zones Joint Forces Training Base Los Alamitos

**Exhibit D3**

Source: Final AICUZ Study for JFTB, Los Alamitos, June 1, 1994



**LEGEND**

- ~60/65~ CNEL CONTOUR
- — — CLEAR ZONE (CZ)
- · · · · CITY BOUNDARIES



**CERTIFICATION**

Adopted by the Airport Land Use Commission for Orange County

*Kari A. Rigoni*  
Kari A. Rigoni, Executive Officer

8/17/17  
Date

## **APPENDIX E**

(Information in this appendix is provided as a reference source to assist the users of the AELUP.)

### **FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR 150/5190-4A**

#### **A MODEL ZONING ORDINANCE**

The model ordinance defines and provides language governing the establishment of various zones in the vicinity of airports. It prescribes height limitations for each zone as required to prevent the creation or establishment of objects which would interfere with the operation of an airport. These zones will vary depending on the type, size, and layout of the runways. The model ordinance, therefore, leaves the specific zone measurements to be inserted by the political subdivision adopting the ordinance as appropriate for its particular airport.

If you would like to obtain a copy, please contact one of the following:

U.S. Government Bookstore  
Arco Plaza, C Level  
505 South Flower Street  
Los Angeles, CA 90071-2181  
(213) 239-9844  
(213) 239-9848 Fax

Federal Aviation Administration  
Western Pacific Region  
Public Affairs  
P. O. Box 92007 WPC  
Los Angeles, CA 90009  
(310) 725-3500

You may also obtain the document online at:

[http://www.faa.gov/documentLibrary/media/advisory\\_circular/150-5190-4A/150\\_5190\\_4A.PDF](http://www.faa.gov/documentLibrary/media/advisory_circular/150-5190-4A/150_5190_4A.PDF)



U.S. Department  
of Transportation  
Federal Aviation  
Administration

# Advisory Circular

---

<b>Subject:</b> A MODEL ZONING ORDINANCE TO LIMIT HEIGHT OF OBJECTS AROUND AIRPORTS	<b>Date:</b> 12/14/87 <b>Initiated by:</b> AAS-100	<b>AC No:</b> 150/5190-4A <b>Change:</b>
-------------------------------------------------------------------------------------------	-------------------------------------------------------	---------------------------------------------

---

## 1. PURPOSE.

a. This advisory circular provides a model zoning ordinance to be used as a guide to control the height of objects around airports.

b. This advisory circular has been editorially updated for reprint/stock purposes only. There were no changes made to the content of the advisory circular except to update the format and renumber the document to AC 150/5190-4A.

2. CANCELLATION. AC 150/5190-4, A Model Zoning Ordinance to Limit Height of Objects Around Airports, dated August 23, 1977.

## 3. FOCUS.

a. Aviation safety requires a minimum clear space (or buffer) between operating aircraft and other objects. When these other objects are structures (such as buildings), the buffer may be achieved by limiting aircraft operations, by limiting the location and height of these objects, or, by a combination of these factors. This advisory circular concerns itself with developing zoning ordinances to control the height of objects, based on the obstruction surfaces described in Subpart C of Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, current edition. It should be recognized, however, that not all obstructions (objects whose height exceeds an obstruction surface) are a hazard to air navigation.

b. The Federal Aviation Administration (FAA) conducts aeronautical studies on obstructions which examine their effect on such factors as: aircraft operational capabilities; electronic and procedural requirements; and, airport hazard standards. If an aeronautical study shows that an obstruction, when evaluated against these factors, has no substantial adverse effect upon the safe and efficient use of navigable airspace, then the obstruction is considered not to be a hazard to air navigation. Advisory Circular 150/5300-4, Utility Airports--Air Access to National Transportation, current edition, presents additional discussion on hazards to air navigation.

c. Airport zoning ordinances developed for height limitations do not in themselves ensure compatible land use surrounding the airport. Land use zoning, incorporating height limiting criteria, is an appropriate means for achieving this objective. Advisory Circular 150/5050-6, Airport-Land Use Compatibility Planning, current edition, presents generalized guidance for compatible land use planning in the vicinity of airports.

---

#### 4. BACKGROUND.

a. The purpose of zoning to limit the height of objects in the vicinity of airports is to prevent their interference with the safe and efficient operations of the airport.

b. Section 511 of the Airport and Airway Improvement Act of 1982, states, in part, the following: ". . . Sec. 511(a) SPONSORSHIP. As a condition precedent to approval of an airport development project contained in a project grant application submitted under this title, the Secretary shall receive assurances in writing, satisfactory to the Secretary that . . . (4) the aerial approaches to the airport will be adequately cleared and protected by removing, lowering, re-locating, marking, or lighting or mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards; (5) appropriate action, including the adoption of zoning laws has been or will be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff aircraft; . . . ." Conformity with this advisory circular will assist the responsible local government in complying with the Section 511 assurances with respect to the height of objects. However, this advisory circular does not address other land use compatibility criteria, such as noise compatibility, which may be required under Section 511.

c. This advisory circular is based on the obstruction surfaces described in Subpart C of FAR Part 77. Examples of zoning ordinances for a utility airport and for a larger than utility airport have been included in appendices 2 and 3.

#### 5. USE OF MODEL ZONING ORDINANCE.

a. Those responsible for drafting an airport zoning ordinance to limit height of objects are aware, of course, that it must conform to the prescribed authority of that particular airport zoning enabling act. Only terminology applicable to the airport named in the ordinance should be used.

b. The model ordinance included in this advisory circular defines and provides for the establishment of various zones and prescribes height limitations for each zone as required to prevent the creation or establishment of objects which would interfere with the operation of the airport. These zones will vary depending on the type, size, and layout of the runways. The model ordinance, therefore, leaves the specific zone measurements to be inserted by the political subdivision adopting the ordinance as appropriate for its particular airport.

c. The appendices also include examples of how the model ordinance may be used for various types of airports. Since much of the technical terminology and definitions are derived from Federal Aviation Regulations, technical procedural handbooks, and advisory circulars, care should be taken to ensure that language used in the ordinance drafted is consistent with terms used in the model ordinance.

d. Any height limitations imposed by a zoning ordinance must be "reasonable," meaning that the height limitations prescribed should not be so low at any point as to constitute a taking of property without compensations under local law. Therefore, the zoning ordinance should not purport to impose height limitations in any area so close to the ground that the application of criteria prescribed would result in unreasonable or unduly restrictive height limitations. This is provided for by provision 12, Excepted Height Limitations, of Section IV, Airport Zone Height Limitations, in the Model Zoning Ordinance.

e. The decision as to the excepted height limits should be made on the basis of local conditions and circumstances, including the uses being made of property in the vicinity of the airport. In making such a decision, the political subdivision should use the same procedures generally recognized as desirable in preparing comprehensive zoning ordinances, including necessary coordination with recognized state, regional, and local planning offices, where applicable.

f. Areas in the various zones where the height limitation is below the excepted height limit prescribed in the ordinance should be acquired to ensure the required protection. In the approach area, the minimum acquisition begins at the end of the primary surface defined in FAR Part 77, Section 77.25, and extends outward with the width of the approach surface defined in that section, to a point where the approach surface slope reaches a height of 50 feet above the ground elevation of the runway or terrain, whichever distance is the shorter. If easements are acquired, they should include the right of passage over the property by aircraft as well as the right to prevent creation of future obstructions.

g. Drafters of airport zoning ordinances should consult with Federal Aviation Administration (FAA) Airports personnel in regional or district offices when developing airport zoning regulations.

h. The standards contained in FAR Part 77, Subpart C, make it possible to determine, for any location on or adjacent to an airport, the height at which any structure or object of natural growth would constitute an obstruction. Section 77.13 of FAR Part 77, Subpart C sets forth the requirements for filing notice of proposed construction or alteration.

i. If the object exceeds a height or surface defined in Subpart C of FAR Part 77, it would be an obstruction and would be the subject of an aeronautical study by the FAA to determine its effect on navigable airspace. If the object is concluded to have a substantial adverse effect upon the safe and efficient utilization of such airspace, it would be determined to be a hazard to air navigation. The FAA cannot prevent its erection without local assistance. The enactment of this proposed model zoning ordinance will permit the local authorities to control the erection of hazards to air navigation and thus protect the community's investment in the airport.

j. The FAA aeronautical study will be made available to the local zoning authorities and will set forth the effects on aviation of any proposed object that would constitute an obstruction under Subpart C of FAR Part 77. This information can then be considered by the Board of Adjustment when processing applications for variances.

6. AIRPORT ZONING ORDINANCE MAP.

a. Attached to the airport zoning ordinance and made a part thereof is the airport zoning map. The airport zoning map is similar for all types of airports and heliports, and must be compiled from the criteria in Subpart C of FAR Part 77 as reflected in the Ordinance. A typical example of this zoning map was reduced in size for printing in this publication (see appendix 4).

b. The airport zoning map is of the area affected by the airport zoning ordinance and shows the layout of the runways, the airport boundaries, the airport elevation, and the area topography. The map should also set forth the various zones with the applicable height limitations for each as described in the body of the ordinance. The zoning map should contain a method of land identification, as typical in different areas of the country, such as section, township and range, block and lot, or metes and bounds. This map should also depict other identifying geographic objects such as streams, rivers, railroads, roads, and streets. By using a map with this amount of detail, in conjunction with the text of an ordinance, a property owner should, without undue difficulty, be able to determine not only the location of his property, but also the height limitations imposed thereon by the ordinance.

c. Adequate topographic maps may be available from local government sources. Standard topographic maps (quadrangle maps) are available from the U. S. Geological Survey. Maps should be ordered from the Distribution Branch, U. S. Geological Survey, P. O. Box 25286, Federal Center, Denver, Colorado 80225.

d. Many state agencies also make topographic maps available. In the absence of contour topographic data, land evaluation source data may be available from bench marks, railroads, highways, or local project surveys. Contour data on zoning maps should be shown to the extent reasonably available or required locally to support the ordinance.

7. BOARD OF ADJUSTMENT. The model ordinance provides for the creation of a Board of Adjustment to hear appeals, to hear and decide special exemptions, and to hear and decide special variances. Provision is also made for judicial review of decisions of the Board of Adjustment. Such review and appeal procedures are intended to conform to applicable constitutional requirements.

8. GENERAL INSTRUCTIONS FOR USING THE MODEL ZONING ORDINANCE.

a. The model zoning ordinance may be used as a guide for developing airport zoning ordinances to limit the height of objects that may interfere with the operation of a civil airport or heliport. The blank spaces should be filled in with appropriate data as noted.

b. It is not necessary that all material set forth in the model ordinance be used for all airport zoning ordinances. For example, if the airport to be zoned is a utility airport with no precision or nonprecision instrument runways existing or planned, those definitions and paragraphs referring to precision or nonprecision instrument runways or larger than utility runways may be omitted, (see appendix 2). However, if the airport changes to a larger than utility airport or receives instrument approach procedures, the ordinance should be amended to provide for the changes.

c. Section III should only include the airport zones applicable to the airport being zoned. An approach zone is applied to each end of each runway based upon the type of approach available or planned for that runway end. The most precise type of approach, existing or planned, for either end of the runway determines the primary surface width. Heliports do not have horizontal or conical zones. Other zones to accommodate the areas covered in FAR Par 77.23(a) (2) and (3) may be added.

d. Examples of several airport-type ordinances are included in the appendices for guidance.



LEONARD E. MUDD

Director, Office of Airport Standards



APPENDIX 1. MODEL ZONING ORDINANCE TO LIMIT HEIGHT  
OF OBJECTS AROUND AN AIRPORT 1/

AN ORDINANCE REGULATING AND RESTRICTING THE HEIGHT OF STRUCTURES AND OBJECTS OF NATURAL GROWTH, AND OTHERWISE REGULATING THE USE OF PROPERTY, IN THE VICINITY OF THE \_\_\_\_\_ 2/ BY CREATING THE APPROPRIATE ZONES AND ESTABLISHING THE BOUNDARIES THEREOF; PROVIDING FOR CHANGES IN THE RESTRICTIONS AND BOUNDARIES OF SUCH ZONES; DEFINING CERTAIN TERMS USED HEREIN; REFERRING TO THE \_\_\_\_\_ 2/ ZONING MAP WHICH IS INCORPORATED IN AND MADE A PART OF THIS ORDINANCE; PROVIDING FOR ENFORCEMENT; ESTABLISHING A BOARD OF ADJUSTMENT; AND IMPOSING PENALTIES. 1/.

This Ordinance is adopted pursuant to the authority conferred by \_\_\_\_\_ 3/. It is hereby found that an obstruction has the potential for endangering the lives and property of users of \_\_\_\_\_ 2/, and property or occupants of land in its vicinity; that an obstruction may affect existing and future instrument approach minimums of \_\_\_\_\_ 2/; and that an obstruction may reduce the size of areas available for the landing, takeoff, and maneuvering of aircraft, thus tending to destroy or impair the utility of \_\_\_\_\_ 2/ and the public investment therein. Accordingly, it is declared:

- (1) that the creation or establishment of an obstruction has the potential of being a public nuisance and may injure the region served by \_\_\_\_\_ 2/;
- (2) that it is necessary in the interest of the public health, public safety, and general welfare \_\_\_\_\_ 4/ that the creation or establishment of obstructions that are a hazard to air navigation be prevented; and
- (3) that the prevention of these obstructions should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.

---

1/ This title should be written to meet the usages and legal requirements of your state, and the political subdivision.

2/ Insert the name of the airport being zoned by the Ordinance.

3/ This citation should be made to conform to the usual method of citing your state laws.

4/ If other terms are commonly used by the courts of your state in defining the limits of police power, such as "convenience" or "prosperity," they should be added here.

It is further declared that the prevention of the creation or establishment of hazards to air navigation, the elimination, removal, alteration or mitigation of hazards to air navigation, or the marking and lighting of obstructions are public purposes for which a political subdivision may raise and expend public funds and acquire land or interests in land.

IT IS HEREBY ORDAINED BY \_\_\_\_\_ 5/ as follows:

SECTION I: SHORT TITLE

This Ordinance shall be known and may be cited as \_\_\_ 2/ Zoning Ordinance.

SECTION II: DEFINITIONS

As used in this Ordinance, unless the context otherwise requires:

1. AIRPORT - \_\_\_\_\_ 2/.
2. AIRPORT ELEVATION - The highest point of an airport's usable landing area measured in feet from sea level.
3. APPROACH SURFACE - A surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in Section IV of this Ordinance. In plan the perimeter of the approach surface coincides with the perimeter of the approach zone.
4. APPROACH, TRANSITIONAL, HORIZONTAL, AND CONICAL ZONES - These zones are set forth in Section III of this Ordinance.
5. BOARD OF ADJUSTMENT - A Board consisting of \_\_\_\_\_ 6/ members appointed by the \_\_\_\_\_ 6/ as provided in \_\_\_\_\_ 6/.
6. CONICAL SURFACE - A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.
7. HAZARD TO AIR NAVIGATION - An obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.

---

5/ A form of enacting clause commonly used by the political subdivision in adopting ordinances should be followed.

6/ Insert the number of members appointed to the Board of Adjustment, the appointing body, and the enabling legislation authorizing same.

8. HEIGHT - For the purpose of determining the height limits in all zones set forth in this Ordinance and shown on the zoning map, the datum shall be mean sea level elevation unless otherwise specified.
9. HELIPORT PRIMARY SURFACE - The area of the primary surface coincides in size and shape with the designated takeoff and landing area of a heliport. This surface is a horizontal plane at the elevation of the established heliport elevation.
10. HORIZONTAL SURFACE - A horizontal plane 150 feet above the established airport elevation, the perimeter of which in plan coincides with the perimeter of the horizontal zone.
11. LARGER THAN UTILITY RUNWAY - A runway that is constructed for and intended to be used by propeller driven aircraft of greater than 12,500 pounds maximum gross weight and jet powered aircraft.
12. NONCONFORMING USE - Any pre-existing structure, object of natural growth, or use of land which is inconsistent with the provisions of this Ordinance or an amendment thereto.
13. NONPRECISION INSTRUMENT RUNWAY - A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in nonprecision instrument approach procedure has been approved or planned.
14. OBSTRUCTION - Any structure, growth, or other object, including a mobile object, which exceeds a limiting height set forth in Section IV of this Ordinance.
15. PERSON - An individual, firm, partnership, corporation, company, association, joint stock association, or governmental entity; includes a trustee, a receiver, an assignee, or a similar representative of any of them.
16. PRECISION INSTRUMENT RUNWAY - A runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS) or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated on an approved airport layout plan or any other planning document.
17. PRIMARY SURFACE - A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; for military runways or when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface is set forth in Section III of this Ordinance. The elevation of any point on the primary surface

is the same as the elevation of the nearest point on the runway centerline.

18. RUNWAY - A defined area on an airport prepared for landing and take-off of aircraft along its length.
19. STRUCTURE - An object, including a mobile object, constructed or installed by man, including but without limitation, buildings, towers, cranes, smokestacks, earth formation, and overhead transmission lines.
20. TRANSITIONAL SURFACES - These surfaces extend outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces, which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at 90 degree angles to the extended runway centerline.
21. TREE - Any object of natural growth.
22. UTILITY RUNWAY - A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.
23. VISUAL RUNWAY - A runway intended solely for the operation of aircraft using visual approach procedures.

### SECTION III: AIRPORT ZONES

In order to carry out the provisions of this Ordinance, there are hereby created and established certain zones which include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces, and conical surfaces as they apply to      2/. Such zones are shown on      2/ Zoning map consisting of      sheets, prepared by     , and dated      19     , which is attached to this Ordinance and made a part hereof. An area located in more than one (1) of the following zones is considered to be only in the zone with the more restrictive height limitation. The various zones are hereby established and defined as follows:

1. Utility Runway Visual Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is      7/ feet wide. The approach zone expands outward uniformly to a width of 1,250 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.

---

7/ Insert dimension as set forth in FAR Part 77. Where more than one dimension is applicable, insert dimension identified to the appropriate runway involved.

2. Utility Runway Nonprecision Instrument Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 2,000 feet at a horizontal distance 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
3. Runway Larger Than Utility Visual Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is \_\_\_\_\_ 7/ feet wide. The approach zone expands outward uniformly to a width of 1,500 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
4. Runway Larger Than Utility With A Visibility Minimum Greater Than 3/4 Mile Nonprecision Instrument Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is \_\_\_\_\_ 7/ feet wide. The approach zone expands outward uniformly to a width of 3,500 feet at a horizontal distance of 10,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
5. Runway Larger Than Utility With A Visibility Minimum As Low As 3/4 Mile Nonprecision Instrument Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 1,000 feet wide. The approach zone expands outward uniformly to a width of 4,000 feet at a horizontal distance of 10,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
6. Precision Instrument Runway Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 1,000 feet wide. The approach zone expands outward uniformly to a width of 16,000 feet at a horizontal distance of 50,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
7. Heliport Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is \_\_\_\_\_ 8/ feet wide. The approach zone expands outward uniformly to a width of 500 feet at a horizontal distance of 4,000 feet from the primary surface.
8. Transitional Zones - The transitional zones are the areas beneath the transitional surfaces.

---

8/ The size of the heliport primary surface must be based on present and future heliport operations.

9. Heliport Transitional Zones - These zones extend outward from the sides of the primary surface and the heliport approach zones a horizontal distance of 250 feet from the primary surface centerline and the heliport approach zone centerline.
10. Horizontal Zone - The horizontal zone is established by swinging arcs of 9/ feet radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones.
11. Conical Zone - The conical zone is established as the area that commences at the periphery of the horizontal zone and extends outward therefrom a horizontal distance of 4,000 feet.

#### SECTION IV: AIRPORT ZONE HEIGHT LIMITATIONS

Except as otherwise provided in this Ordinance, no structure shall be erected, altered, or maintained, and no tree shall be allowed to grow in any zone created by this Ordinance to a height in excess of the applicable height limit herein established for such zone. Such applicable height limitations are hereby established for each of the zones in question as follows:

1. Utility Runway Visual Approach Zone - Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
2. Utility Runway Nonprecision Instrument Approach Zone - Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
3. Runway Larger Than Utility Visual Approach Zone - Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
4. Runway Larger Than Utility With A Visibility Minimum Greater Than 3/4 Mile Nonprecision Instrument Approach Zone - Slopes thirty-four (34) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline.

- 
- 9/ The radius of arc is:
- a) 5,000 feet for all runways designated utility or visual,
  - b) 10,000 feet for all others.
- The radius of the arcs for each end of the runway shall be the same.  
The radius used shall be the longest determined for either end.

5. Runway Larger Than Utility With A Visibility Minimum As Low As 3/4 Mile Nonprecision Instrument Approach Zone - Slopes thirty-four (34) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline.
6. Precision Instrument Runway Approach Zone - Slopes fifty (50) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline; thence slopes upward forty (40) feet horizontally for each foot vertically to an additional horizontal distance of 40,000 feet along the extended runway centerline.
7. Heliport Approach Zone - Slopes eight (8) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a distance of 4,000 feet along the heliport approach zone centerline.
8. Transitional Zones - Slope seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation which is \_\_\_ feet above mean sea level. In addition to the foregoing, there are established height limits sloping seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending to where they intersect the conical surface. Where the precision instrument runway approach zone projects beyond the conical zone, there are established height limits sloping seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending a horizontal distance of 5,000 feet measured at 90 degree angles to the extended runway centerline.
9. Heliport Transitional Zones - Slope two (2) feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the heliport approach zones and extending a distance of 250 feet measured horizontally from and at 90 degree angles to the primary surface centerline and heliport approach zones centerline.
10. Horizontal Zone - Established at 150 feet above the airport elevation or at a height of \_\_\_ feet above mean sea level.
11. Conical Zone - Slopes twenty (20) feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.

12. Excepted Height Limitations - Nothing in this Ordinance shall be construed as prohibiting the construction or maintenance of any structure, or growth of any tree to a height up to \_\_\_\_\_ 10/ feet above the surface of the land.

SECTION V: USE RESTRICTIONS

Notwithstanding any other provisions of this Ordinance, no use may be made of land or water within any zone established by this Ordinance in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, takeoff, or maneuvering of aircraft intending to use the airport.

SECTION VI: NONCONFORMING USES

1. Regulations Not Retroactive - The regulations prescribed by this Ordinance shall not be construed to require the removal, lowering, or other change or alteration of any structure or tree not conforming to the regulations as of the effective date of this Ordinance, or otherwise interfere with the continuance of nonconforming use. Nothing contained herein shall require any change in the construction, alteration, or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this Ordinance, and is diligently prosecuted.
2. Marking and Lighting - Notwithstanding the preceding provision of this Section, the owner of any existing nonconforming structure or tree is hereby required to permit the installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by the \_\_\_ 11/ to indicate to the operators of aircraft in the vicinity of the airport the presence of such airport obstruction. Such markers and lights shall be installed, operated, and maintained at the expense of the \_\_\_ 12/.

---

10/ The adoption of height limits should be reasonable and based on land use considerations in the vicinity of the airport and the nature of the area to be zoned. The adoption of height limits should not be so low as to constitute a taking of private property without due process of law.

11/ Insert the title of the appropriate official who has been charged with the responsibility for determining the necessity for marking and lighting.

12/ Insert the name of the appropriate political body or subdivision.

## SECTION VII: PERMITS

1. Future Uses - Except as specifically provided in a, b, and c hereunder, no material change shall be made in the use of land, no structure shall be erected or otherwise established, and no tree shall be planted in any zone hereby created unless a permit therefor shall have been applied for and granted. Each application for a permit shall indicate the purpose for which the permit is desired, with sufficient particularity to permit it to be determined whether the resulting use, structure, or tree would conform to the regulations herein prescribed. If such determination is in the affirmative, the permit shall be granted. No permit for a use inconsistent with the provisions of this Ordinance shall be granted unless a variance has been approved in accordance with Section VII, 4.
  - a. In the area lying within the limits of the horizontal zone and conical zone, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when, because of terrain, land contour, or topographic features, such tree or structure would extend above the height limits prescribed for such zones.
  - b. In areas lying within the limits of the approach zones, but at a horizontal distance of not less than 4,200 feet from each end of the runway, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when such tree or structure would extend above the height limit prescribed for such approach zones.
  - c. In the areas lying within the limits of the transition zones beyond the perimeter of the horizontal zone, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when such tree or structure, because of terrain, land contour, or topographic features, would extend above the height limit prescribed for such transition zones.

Nothing contained in any of the foregoing exceptions shall be construed as permitting or intending to permit any construction, or alteration of any structure, or growth of any tree in excess of any of the height limits established by this Ordinance except as set forth in Section IV, 12.

2. Existing Uses - No permit shall be granted that would allow the establishment or creation of an obstruction or permit a nonconforming use, structure, or tree to become a greater hazard to air navigation than it was on the effective date of this Ordinance or any amendments thereto or than it is when the application for a permit is made. Except as indicated, all applications for such a permit shall be granted.

3. Nonconforming Uses Abandoned or Destroyed - Whenever the 13/ determines that a nonconforming tree or structure has been abandoned or more than 80 percent torn down, physically deteriorated, or decayed, no permit shall be granted that would allow such structure or tree to exceed the applicable height limit or otherwise deviate from the zoning regulations.
  
4. Variances - Any person desiring to erect or increase the height of any structure, or permit the growth of any tree, or use property, not in accordance with the regulations prescribed in this Ordinance, may apply to the Board of Adjustment for a variance from such regulations. The application for variance shall be accompanied by a determination from the Federal Aviation Administration as to the effect of the proposal on the operation of air navigation facilities and the safe, efficient use of navigable airspace. Such variances shall be allowed where it is duly found that a literal application or enforcement of the regulations will result in unnecessary hardship and relief granted, will not be contrary to the public interest, will not create a hazard to air navigation, will do substantial justice, and will be in accordance with the spirit of this Ordinance. Additionally, no application for variance to the requirements of this Ordinance may be considered by the Board of Adjustment unless a copy of the application has been furnished to the 14/ for advice as to the aeronautical effects of the variance. If the 14/ does not respond to the application within fifteen (15) days after receipt, the Board of Adjustment may act on its own to grant or deny said application.
  
5. Obstruction Marking and Lighting - Any permit or variance granted may, if such action is deemed advisable to effectuate the purpose of this Ordinance and be reasonable in the circumstances, be so conditioned as to require the owner of the structure or tree in question to install, operate, and maintain, at the owner's expense, such markings and lights as may be necessary. If deemed proper by the Board of Adjustment, this condition may be modified to require the owner to permit the 12/ at its own expense, to install, operate, and maintain the necessary markings and lights.

---

13/ Insert here the title of the appropriate official charged with making this determination.

14/ Insert here the official or body responsible for operation and maintenance of the airport to be zoned.

## SECTION VIII: ENFORCEMENT

It shall be the duty of the \_\_\_ 15/ to administer and enforce the regulations prescribed herein. Applications for permits and variances shall be made to the \_\_\_ 15/ upon a form published for that purpose. Applications required by this Ordinance to be submitted to the \_\_\_ 15/ shall be promptly considered and granted or denied. Application for action by the Board of Adjustment shall be forthwith transmitted by the \_\_\_ 15/.

## SECTION IX: BOARD OF ADJUSTMENT

1. There is hereby created a Board of Adjustment to have and exercise the following powers: (1) to hear and decide appeals from any order, requirement, decision, or determination made by the \_\_\_ 15/ in the enforcement of this Ordinance; (2) to hear and decide special exceptions to the terms of this Ordinance upon which such Board of Adjustment under such regulations may be required to pass; and (3) to hear and decide specific variances.
2. The Board of Adjustment shall consist of \_\_\_ members appointed by the \_\_\_ 12/ and each shall serve for a term of \_\_\_ years until a successor is duly appointed and qualified. Of the members first appointed, one shall be appointed for a term of \_\_\_ year, \_\_\_ for a term of \_\_\_ years, and \_\_\_ for a term of \_\_\_ years. Members shall be removable by the appointing authority for cause, upon written charges, after a public hearing.
3. The Board of Adjustment shall adopt rules for its governance and in harmony with the provisions of this Ordinance. Meetings of the Board of Adjustment shall be held at the call of the Chairperson and at such other times as the Board of Adjustment may determine. The Chairperson or, in the absence of the Chairperson, the Acting Chairperson may administer oaths and compel the attendance of witnesses. All hearings of the Board of Adjustment shall be public. The Board of Adjustment shall keep minutes of its proceedings showing the vote of each member upon each question; or if absent or failing to vote, indicating such fact, and shall keep records of its examinations and other official actions, all of which shall immediately be filed in the office of \_\_\_ 15/ and on due cause shown.
4. The Board of Adjustment shall make written findings of facts and conclusions of law giving the facts upon which it acted and its legal conclusions from such facts in reversing, affirming, or modifying any order, requirement, decision, or determination which comes before it under the provisions of this Ordinance.

---

15/ Insert here the title of the appropriate official, such as Director, Department of Public Works, etc.

5. The concurring vote of a majority of the members of the Board of Adjustment shall be sufficient to reverse any order, requirement, decision, or determination of the \_\_\_ 15/ or decide in favor of the applicant on any matter upon which it is required to pass under this Ordinance, or to effect variation to this Ordinance.

SECTION X: APPEALS

1. Any person aggrieved, or any taxpayer affected, by any decision of the \_\_\_ 15/ made in the administration of the Ordinance, may appeal to the Board of Adjustment.
2. All appeals hereunder must be taken within a reasonable time as provided by the rules of the Board of Adjustment, by filing with the \_\_\_ 15/ a notice of appeal specifying the grounds thereof. The \_\_\_ 15/ shall forthwith transmit to the Board of Adjustment all the papers constituting the record upon which the action appealed from was taken.
3. An appeal shall stay all proceedings in furtherance of the action appealed from unless the \_\_\_ 15/ certifies to the Board of Adjustment, after the notice of appeal has been filed with it, that by reason of the facts stated in the certificate a stay would in the opinion of \_\_\_ 15/ cause imminent peril to life or property. In such case, proceedings shall not be stayed except by the order of the Board of Adjustment on notice to the \_\_\_ 15/ and on due cause shown.
4. The Board of Adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon the hearing, any party may appear in person or by agent or by attorney.
5. The Board of Adjustment may, in conformity with the provisions of this Ordinance, reverse or affirm, in whole or in part, or modify the order, requirement, decision, or determination appealed from and may make such order, requirement, decision, or determination as may be appropriate under the circumstances.

SECTION XI: JUDICIAL REVIEW

Any person aggrieved, or any taxpayer affected, by any decision of the Board of Adjustment, may appeal to the Court of \_\_\_ as provided in Section \_\_\_ of Chapter \_\_\_ of the Public Laws of \_\_\_ 16/.

---

16/ Insert the jurisdiction. Consideration should be given the desirability of setting forth this procedure here, or as an alternative attaching to all copies of this Ordinance, a copy of excerpts from the statute cited.

## SECTION XII: PENALTIES

Each violation of this Ordinance or of any regulation, order, or ruling promulgated hereunder shall constitute a misdemeanor and shall be punishable by a fine of not more than \_\_\_\_\_ dollars or imprisonment for not more than \_\_\_\_\_ days or both; and each day a violation continues to exist shall constitute a separate offense.

## SECTION XIII: CONFLICTING REGULATIONS

Where there exists a conflict between any of the regulations or limitations prescribed in this Ordinance and any other regulations applicable to the same area, whether the conflict be with respect to the height of structures or trees, and the use of land, or any other matter, the more stringent limitation or requirement shall govern and prevail.

## SECTION XIV: SEVERABILITY

If any of the provisions of this Ordinance or the application thereof to any person or circumstances are held invalid, such invalidity shall not affect other provisions or applications of the Ordinance which can be given effect without the invalid provision or application, and to this end, the provisions of this Ordinance are declared to be severable.

## SECTION XV: EFFECTIVE DATE

WHEREAS, the immediate operation of the provisions of this Ordinance is necessary for the preservation of the public health, public safety, and general welfare, an EMERGENCY is hereby declared to exist, and this Ordinance shall be in full force and effect from and after its passage by the \_\_\_ and publication and posting as required by law.  
Adopted by the \_\_\_\_\_ this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_.



APPENDIX 2. SAMPLE ORDINANCE FOR UTILITY-TYPE  
AIRPORT WITHOUT INSTRUMENT PROCEDURES

ZONING ORDINANCE TO LIMIT HEIGHT OF OBJECTS AROUND AIRVILLE AIRPORT

AN ORDINANCE REGULATING AND RESTRICTING THE HEIGHT OF STRUCTURES AND OBJECTS OF NATURAL GROWTH, AND OTHERWISE REGULATING THE USE OF PROPERTY, IN THE VICINITY OF THE AIRVILLE AIRPORT BY CREATING THE APPROPRIATE ZONES AND ESTABLISHING THE BOUNDARIES THEREOF; PROVIDING FOR CHANGES IN THE RESTRICTIONS AND BOUNDARIES OF SUCH ZONES; DEFINING CERTAIN TERMS USED HEREIN; REFERRING TO THE AIRVILLE AIRPORT ZONING MAP WHICH IS INCORPORATED IN AND MADE A PART OF THIS ORDINANCE; PROVIDING FOR ENFORCEMENT; ESTABLISHING A BOARD OF ADJUSTMENT; AND IMPOSING PENALTIES.

This Ordinance is adopted pursuant to the authority conferred by Chapter 333 of the Laws of the State of xxxxx. It is hereby found that an obstruction has the potential for endangering the lives and property of users of Airville Airport, and property or occupants of land in its vicinity; that an obstruction may affect existing and future instrument approach minimums of Airville Airport; and that an obstruction may reduce the size of areas available for the landing, takeoff, and maneuvering of aircraft, thus tending to destroy or impair the utility of Airville Airport and the public investment therein. Accordingly, it is declared:

- (1) that the creation or establishment of an obstruction has the potential of being a public nuisance and may injure the region served by Airville Airport;
- (2) that it is necessary in the interest of the public health, public safety, and general welfare that the creation or establishment of obstructions that are a hazard to air navigation be prevented; and
- (3) that the prevention of these obstructions should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.

It is further declared that the prevention of the creation or establishment of hazards to air navigation, the elimination, removal, alteration or mitigation of hazards to air navigation, or marking and lighting of obstructions are public purposes for which a political subdivision may raise and expend public funds and acquire land or interests in land.

IT IS HEREBY ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF INDIAN COUNTY, XXXX, AS FOLLOWS:

SECTION I: SHORT TITLE

This Ordinance shall be known and may be cited as Airville Airport Zoning Ordinance.

SECTION II: DEFINITIONS

As used in this Ordinance, unless the context otherwise requires:

1. AIRPORT - Means Airville Airport.
2. AIRPORT ELEVATION - 100 feet above mean sea level.
3. APPROACH SURFACE - A surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in Section IV of this Ordinance. In plan the perimeter of the approach surface coincides with the perimeter of the approach zone.
4. APPROACH, TRANSITIONAL, HORIZONTAL, AND CONICAL ZONES - These zones are set forth in Section III of this Ordinance.
5. BOARD OF ADJUSTMENT - A board consisting of 3 members appointed by the Board of County Commissioners of Indian County as provided for in Chapter 33 of the Laws of the State of xxxxx.
6. CONICAL SURFACE - A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.
7. HAZARD TO AIR NAVIGATION - An obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.
8. HEIGHT - For the purpose of determining the height limits in all zones set forth in this Ordinance and shown on the zoning map, the datum shall be mean sea level elevation unless otherwise specified.
9. HORIZONTAL SURFACE - A horizontal plane 150 feet above the established airport elevation, the perimeter of which in plan coincides with the perimeter of the horizontal zone.
10. NONCONFORMING USE - Any pre-existing structure, object of natural growth, or use of land which is inconsistent with the provisions of this Ordinance or an amendment thereto.
11. OBSTRUCTION - Any structure, growth, or other object, including a mobile object, which exceeds a limiting height set forth in Section IV of this Ordinance.

12. PERSON - An individual, firm, partnership, corporation, company, association, joint stock association, or governmental entity; includes a trustee, a receiver, an assignee, or a similar representative of any of them.
13. PRIMARY SURFACE - A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface is set forth in Section III of this Ordinance. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.
14. RUNWAY - A defined area on an airport prepared for landing and take-off of aircraft along its length.
15. STRUCTURE - An object, including a mobile object, constructed or installed by man, including but without limitation, buildings, towers, cranes, smokestacks, earth formation, and overhead transmission lines.
16. TRANSITIONAL SURFACES - These surfaces extend outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces
17. TREE - Any object of natural growth.
18. UTILITY RUNWAY - A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.
19. VISUAL RUNWAY - A runway intended solely for the operation of aircraft using visual approach procedures.

### SECTION III: AIRPORT ZONES

In order to carry out the provisions of this Ordinance, there are hereby created and established certain zones which include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces, and conical surfaces as they apply to the Airville Airport. Such zones are shown on the Airville Airport Zoning Map consisting of one sheet, prepared by the Department of Public Works and dated August 1, 1975, which

is attached to this Ordinance and made a part hereof. An area located in more than one (1) of the following zones is considered to be only in the zone with the more restrictive height limitation. The various zones are hereby established and defined as follows:

1. Utility Runway Visual Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 250 feet wide. The approach zone expands outward uniformly to a width of 1,250 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
2. Transitional Zones - The transitional zones are the areas beneath the transitional surfaces.
3. Horizontal Zone - The horizontal zone is established by swinging arcs of 5,000 feet radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones.
4. Conical Zone - The conical zone is established as the area that commences at the periphery of the horizontal zone and extends outward therefrom a horizontal distance of 4,000 feet.

#### SECTION IV: AIRPORT ZONE HEIGHT LIMITATIONS

Except as otherwise provided in this Ordinance, no structure shall be erected, altered, or maintained, and no tree shall be allowed to grow in any zone created by this Ordinance to a height in excess of the applicable height limit herein established for such zone. Such applicable height limitations are hereby established for each of the zones in question as follows:

1. Utility Runway Visual Approach Zone - Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
2. Transitional Zones - Slope seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation which is 100 feet above mean sea level. In addition to the foregoing, there are established height limits sloping seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending to where they intersect the conical surface.
3. Horizontal Zone - Established at 150 feet above the airport elevation or at a height of 250 feet above mean sea level.

4. Conical Zone - Slopes 20 feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.
5. Excepted Height Limitations - Nothing in this Ordinance shall be construed as prohibiting the construction or maintenance of any structure, or growth of any tree to a height up to 50 feet above the surface of the land.

#### SECTION V: USE RESTRICTIONS

Notwithstanding any other provisions of this Ordinance, no use may be made of land or water within any zone established by this Ordinance in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, takeoff, or maneuvering of aircraft intending to use the airport.

#### SECTION VI: NONCONFORMING USES

1. Regulations Not Retroactive - The regulations prescribed by this Ordinance shall not be construed to require the removal, lowering, or other change or alteration of any structure or tree not conforming to the regulations as of the effective date of this Ordinance, or otherwise interfere with the continuance of a nonconforming use. Nothing contained herein shall require any change in the construction, alteration, or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this Ordinance, and is diligently prosecuted.
2. Marking and Lighting - Notwithstanding the preceding provision of this Section, the owner of any existing nonconforming structure or tree is hereby required to permit the installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by the Director, Department of Public Works, to indicate to the operators of aircraft in the vicinity of the airport the presence of such airport obstruction. Such markers and lights shall be installed, operated, and maintained at the expense of the Indian County Department of Public Works.

#### SECTION VII: PERMITS

1. Future Uses - Except as specifically provided in a, b, and c hereunder, no material change shall be made in the use of land, no structure shall be erected or otherwise established, and no tree shall be planted in any zone hereby created unless a permit therefor shall have been applied for

and granted. Each application for a permit shall indicate the purpose for which the permit is desired, with sufficient particularity to permit it to be determined whether the resulting use, structure, or tree would conform to the regulations herein prescribed. If such determination is in the affirmative, the permit shall be granted. No permit for a use inconsistent with the provisions of this Ordinance shall be granted unless a variance has been approved in accordance with Section VII, 4.

- a. In the area lying within the limits of the horizontal zone and conical zone, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when, because of terrain, land contour, or topographic features, such tree or structure would extend above the height limits prescribed for such zones.
- b. In areas lying within the limits of the approach zones, but at a horizontal distance of not less than 4,200 feet from each end of the runway, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when such tree or structure would extend above the height limit prescribed for such approach zones.
- c. In the areas lying within the limits of the transition zones beyond the perimeter of the horizontal zone, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when such tree or structure, because of terrain, land contour, or topographic features, would extend above the height limit prescribed for such transition zones.

Nothing contained in any of the foregoing exceptions shall be construed as permitting or intending to permit any construction, or alteration of any structure, or growth of any tree in excess of any of the height limits established by this Ordinance except as set forth in Section IV,5.

2. Existing Uses - No permit shall be granted that would allow the establishment or creation of an obstruction or permit a nonconforming use, structure, or tree to become a greater hazard to air navigation than it was on the effective date of this Ordinance or any amendments thereto or than it is when the application for a permit is made. Except as indicated, all applications for such a permit shall be granted.
3. Nonconforming Uses Abandoned or Destroyed - Whenever the Director, Department of Public Works, determines that a nonconforming tree or structure has been abandoned or more than 80 percent torn down, physically deteriorated, or decayed, no permit shall be granted that would allow such structure or tree to exceed the applicable height limit or otherwise deviate from the zoning regulations.

4. Variances - Any person desiring to erect or increase the height of any structure, or permit the growth of any tree, or use property, not in accordance with the regulations prescribed in this Ordinance, may apply to the Board of Adjustment for a variance from such regulations. The application for variance shall be accompanied by a determination from the Federal Aviation Administration as to the effect of the proposal on the operation of air navigation facilities and the safe, efficient use of navigable airspace. Such variances shall be allowed where it is duly found that a literal application or enforcement of the regulations will result in unnecessary hardship and relief granted, will not be contrary to the public interest, will not create a hazard to air navigation, will do substantial justice, and will be in accordance with the spirit of this Ordinance. Additionally, no application for variance to the requirements of this Ordinance may be considered by the Board of Adjustment unless a copy of the application has been furnished to the Airport Manager for advice as to the aeronautical effects of the variance. If the Airport Manager does not respond to the application within 15 days after receipt, the Board of Adjustment may act on its own to grant or deny said application.
5. Obstruction Marking and Lighting - Any permit or variance granted may, if such action is deemed advisable to effectuate the purpose of this Ordinance and be reasonable in the circumstances, be so conditioned as to require the owner of the structure or tree in question to install, operate, and maintain, at the owner's expense, such markings and lights as may be necessary. If deemed proper by the Board of Adjustment, this condition may be modified to require the owner to permit the Indian County Department of Public Works, at its own expense, to install, operate, and maintain the necessary markings and lights.

#### SECTION VIII: ENFORCEMENT

It shall be the duty of the Director, Department of Public Works, to administer and enforce the regulations prescribed herein. Applications for permits and variances shall be made to the Director, Department of Public Works upon a form published for that purpose. Applications required by this Ordinance to be submitted to the Director, Department of Public Works, shall be promptly considered and granted or denied. Application for action by the Board of Adjustment shall be forthwith transmitted by the Director, Department of Public Works.

#### SECTION IX: BOARD OF ADJUSTMENT

1. There is hereby created a Board of Adjustment to have and exercise the following powers: (1) to hear and decide appeals from any order, requirement, decision, or determination made by the Director, Department of Public Works, in the enforcement of this Ordinance; (2) to hear and decide special exceptions to the terms of this Ordinance upon which such Board of Adjustment under such regulations may be required to pass; and (3) to hear and decide specific variances.

2. The Board of Adjustment shall consist of three members appointed by the Board of County Commissioners and each shall serve for a term of three years until a successor is duly appointed and qualified. Of the members first appointed, one shall be appointed for a term of one year, one for a term of two years, and one for a term of three years. Members shall be removable by the appointing authority for cause, upon written charges, after a public hearing.
3. The Board of Adjustment shall adopt rules for its governance and in harmony with the provisions of this Ordinance. Meetings of the Board of Adjustment shall be held at the call of the Chairperson and at such other times as the Board of Adjustment may determine. The Chairperson or, in the absence of the Chairperson, the Acting Chairperson may administer oaths and compel the attendance of witnesses. All hearings of the Board of Adjustment shall be public. The Board of Adjustment shall keep minutes of its proceedings showing the vote of each member upon each question; or if absent or failing to vote, indicating such fact, and shall keep records of its examinations and other official action, all of which shall immediately be filed in the office of County Clerk and on due cause shown.
4. The Board of Adjustment shall make written findings of facts and conclusions of law giving the facts upon which it acted and its legal conclusions from such facts in reversing, affirming, or modifying any order, requirement, decision, or determination which comes before it under the provisions of this Ordinance.
5. The concurring vote of a majority of the members of the Board of Adjustment shall be sufficient to reverse any order, requirement, decision, or determination of the Director, Department of Public Works, or to decide in favor of the applicant on any matter upon which it is required to pass under this Ordinance, or to effect variation to this Ordinance.

#### SECTION X: APPEALS

1. Any person aggrieved, or any taxpayer affected, by any decision of the Director, Department of Public Works, made in the administration of the Ordinance, may appeal to the Board of Adjustment.
2. All appeals hereunder must be taken within a reasonable time as provided by the rules of the Board of Adjustment, by filing with the Director, Department of Public Works, a notice of appeal specifying the grounds thereof. The Director, Department of Public Works, shall forthwith transmit to the Board of Adjustment all the papers constituting the record upon which the action appealed from was taken.
3. An appeal shall stay all proceedings in furtherance of the action appealed from unless the Director, Department of Public Works, certifies to the Board of Adjustment, after the notice of appeal has been filed with it, that by reason of the facts stated in the certificate a stay

would in the opinion of the Director, Department of Public Works cause imminent peril to life or property. In such case, proceedings shall not be stayed except by order of the Board of Adjustment or notice to the Director, Department of Public Works, and on due cause shown.

4. The Board of Adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon the hearing, any party may appear in person or by agent or by attorney.
5. The Board of Adjustment may, in conformity with the provisions of this Ordinance, reverse or affirm, in whole or in part, or modify the order, requirement, decision, or determination appealed from and may make such order, requirement, decision, or determination as may be appropriate under the circumstances.

#### SECTION XI: JUDICIAL REVIEW

Any person aggrieved, or any taxpayer affected, by any decision of the Board of Adjustment, may appeal to the Circuit Court as provided in Section 333.111 of Chapter 333 of the Public Laws of the State of xxxxx.

#### SECTION XII: PENALTIES

Each violation of this Ordinance or of any regulation, order, or ruling promulgated hereunder shall constitute a misdemeanor and be punishable by a fine of not more than 500 dollars or imprisonment for not more than 180 days or both; and each day a violation continues to exist shall constitute a separate offense.

#### SECTION XIII: CONFLICTING REGULATIONS

Where there exists a conflict between any of the regulations or limitations prescribed in this Ordinance and any other regulations applicable to the same area, whether the conflict be with respect to the height of structures or trees, and the use of land, or any other matter, the more stringent limitation or requirement shall govern and prevail.

#### SECTION XIV: SEVERABILITY

If any of the provisions of this Ordinance or the application thereof to any person or circumstances are held invalid, such invalidity shall not affect other provisions or applications of the Ordinance which can be given effect without the invalid provision or application, and to this end, the provisions of this Ordinance are declared to be severable.

SECTION XV: EFFECTIVE DATE

WHEREAS, the immediate operation of the provisions of this Ordinance is necessary for the preservation of the public health, public safety, and general welfare, an EMERGENCY is hereby declared to exist, and this Ordinance shall be in full force and effect from and after its passage by the Indian County Board of Commissioners and publication and posting as required by law. Adopted by the Indian County Board of Commissioners this 12th day of October, 1975.

APPENDIX 3. SAMPLE ORDINANCE FOR LARGER THAN UTILITY  
TYPE AIRPORT WITH INSTRUMENT APPROACHES

## ZONING ORDINANCE TO LIMIT HEIGHT OF OBJECTS AROUND AIRVILLE AIRPORT

AN ORDINANCE REGULATING AND RESTRICTING THE HEIGHT OF STRUCTURES AND OBJECTS OF NATURAL GROWTH, AND OTHERWISE REGULATING THE USE OF PROPERTY, IN THE VICINITY OF THE AIRVILLE AIRPORT BY CREATING THE APPROPRIATE ZONES AND ESTABLISHING THE BOUNDARIES THEREOF; PROVIDING FOR CHANGES IN THE RESTRICTIONS AND BOUNDARIES OF SUCH ZONES; DEFINING CERTAIN TERMS USED HEREIN; REFERRING TO THE AIRVILLE AIRPORT ZONING MAP WHICH IS INCORPORATED IN AND MADE A PART OF THIS ORDINANCE; PROVIDING FOR ENFORCEMENT; ESTABLISHING A BOARD OF ADJUSTMENT; AND IMPOSING PENALTIES.

This Ordinance is adopted pursuant to the authority conferred by Chapter 49 of Statutes of the State of xxxxx. It is hereby found that an obstruction has the potential for endangering the lives and property of users of Airville Airport, and property or occupants of land in its vicinity; that an obstruction may affect existing and future instrument approach minimums of Airville Airport; and that an obstruction may reduce the size of areas available for the landing, takeoff, and maneuvering of aircraft, thus tending to destroy or impair the utility of Airville Airport and the public investment therein. Accordingly, it is declared:

- (1) that the creation or establishment of an obstruction has the potential of being a public nuisance and may injure the region served by Airville Airport;
- (2) that it is necessary in the interest of the public health, public safety, and general welfare that the creation or establishment of obstructions that are a hazard to air navigation be prevented; and
- (3) that the prevention of these obstructions should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.

It is further declared that the prevention of the creation or establishment of hazards to air navigation, the elimination, removal, alteration or mitigation of hazards to air navigation, or marking and lighting of obstructions are public purposes for which a political subdivision may raise and expend public funds and acquire land or interests in land.

IT IS HEREBY ORDAINED BY THE CITY COUNCIL OR AIRVILLE, XXXXX, AS FOLLOWS:

## SECTION I: SHORT TITLE

This Ordinance shall be known and may be cited as Airville Airport Zoning Ordinance.

SECTION II: DEFINITIONS

As used in this Ordinance, unless the context otherwise requires:

1. AIRPORT - Means Airville Airport.
2. AIRPORT ELEVATION - 100 feet above mean sea level.
3. APPROACH SURFACE - A surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in Section IV of this Ordinance. In plan the perimeter of the approach surface coincides with the perimeter of the approach zone.
4. APPROACH, TRANSITIONAL, HORIZONTAL, AND CONICAL ZONES - These zones are set forth in Section III of this Ordinance.
5. BOARD OF ADJUSTMENT - A board consisting of 3 members appointed by the City Council as provided in Chapter 12 of the Laws of the State of xxxxx.
6. CONICAL SURFACE - A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.
7. HAZARD TO AIR NAVIGATION - An obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.
8. HEIGHT - For the purpose of determining the height limits in all zones set forth in this Ordinance and shown on the zoning map, the datum shall be mean sea level elevation unless otherwise specified.
9. HORIZONTAL SURFACE - A horizontal plane 150 feet above the established airport elevation, the perimeter of which in plan coincides with the perimeter of the horizontal zone.
10. LARGER THAN UTILITY RUNWAY - A runway that is constructed for and intended to be used by propeller driven aircraft of greater than 12,500 pounds maximum gross weight and jet powered aircraft.
11. NONCONFORMING USE - Any pre-existing structure, object of natural growth, or use of land which is inconsistent with the provisions of this Ordinance or an amendment thereto.

12. NONPRECISION INSTRUMENT RUNWAY - A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in nonprecision instrument approach procedure has been approved or planned.
13. OBSTRUCTION - Any structure, growth, or other object, including a mobile object, which exceeds a limiting height set forth in Section IV of this Ordinance.
14. PERSON - An individual, firm, partnership, corporation, company, association, joint stock association or government entity; includes a trustee, a receiver, an assignee, or a similar representative of any of them.
15. PRECISION INSTRUMENT RUNWAY - A runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS) or a Precision Approach Radar (FAR). It also means a runway for which a precision approach system is planned and is so indicated on an approved airport layout plan or any other planning document.
16. PRIMARY SURFACE - A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; for military runways or when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface is set forth in Section III of this Ordinance. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.
17. RUNWAY - A defined area on an airport prepared for landing and take-off of aircraft along its length.
18. STRUCTURE - An object, including a mobile object, constructed or installed by man, including but without limitation, buildings, towers, cranes, smokestacks, earth formation, and overhead transmission lines.
19. TRANSITIONAL SURFACES - These surfaces extend outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces, which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at 90 degree angles to the extended runway centerline.
20. TREE - Any object of natural growth.

21. UTILITY RUNWAY - A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.
22. VISUAL RUNWAY - A runway intended solely for the operation of aircraft using visual approach procedures.

### SECTION III: AIRPORT ZONES

In order to carry out the provisions of this Ordinance, there are hereby created and established certain zones which include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces, and conical surfaces as they apply to Airville Airport. Such zones are shown on Airville Airport Zoning Map consisting of one sheet, prepared by the Department of Public Works, dated September 1, 1975, which is attached to this Ordinance and made a part hereof. An area located in more than one of the following zones is considered to be only in the zone with the more restrictive height limitation. The various zones are hereby established and defined as follows:

1. Utility Runway Visual Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 250 feet wide. The approach zone expands outward uniformly to a width of 1,250 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
2. Utility Runway Nonprecision Instrument Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 2,000 feet at a horizontal distance 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
3. Runway Larger Than Utility Visual Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 1,500 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
4. Runway Larger Than Utility With A Visibility Minimum Greater Than 3/4 Mile Nonprecision Instrument Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 3,500 feet at a horizontal distance of 10,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.

5. Runway Larger Than Utility With A Visibility Minimum As Low As 3/4 Mile Nonprecision Instrument Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 1,000 feet wide. The approach zone expands outward uniformly to a width of 4,000 feet at a horizontal distance of 10,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
6. Precision Instrument Runway Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 1,000 feet wide. The approach zone expands outward uniformly to a width of 16,000 feet at a horizontal distance of 50,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
7. Transitional Zones - The transitional zones are the areas beneath the transitional surfaces.
8. Horizontal Zone - The horizontal zone is established by swinging arcs of 5,000 feet radii for all runways designated utility or visual and 10,000 feet for all others from the center of each end of the primary surface of each runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones.
9. Conical Zone - The conical zone is established as the area that commences at the periphery of the horizontal zone and extends outward therefrom a horizontal distance of 4,000 feet.

#### SECTION IV: AIRPORT ZONE HEIGHT LIMITATIONS

Except as otherwise provided in this Ordinance, no structure shall be erected, altered, or maintained, and no tree shall be allowed to grow in any zone created by this Ordinance to a height in excess of the applicable height herein established for such zone. Such applicable height limitations are hereby established for each of the zones in question as follows:

1. Utility Runway Visual Approach Zone - Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
2. Utility Runway Nonprecision Instrument Approach Zone - Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
3. Runway Larger Than Utility Visual Approach Zone - Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.

4. Runway Larger Than Utility With A Visibility Minimum Greater Than 3/4 Mile Nonprecision Instrument Approach Zone - Slopes thirty-four (34) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline.
5. Runway Larger Than Utility With A Visibility Minimum As Low As 3/4 Mile Nonprecision Instrument Approach Zone - Slopes thirty-four (34) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline.
6. Precision Instrument Runway Approach Zone - Slopes fifty (50) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline; thence slopes upward forty (40) feet horizontally for each foot vertically to an additional horizontal distance of 40,000 feet along the extended runway centerline.
7. Transitional Zones - Slope seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation which is 100 feet above mean sea level. In addition to the foregoing, there are established height limits sloping seven (7) feet outward for each foot upward beginning at the sides of and the same elevation as the approach surface, and extending to where they intersect the conical surface. Where the precision instrument runway approach zone projects beyond the conical zone, there are established height limits sloping seven (7) feet outward for each foot upward beginning at the sides of and the same elevation as the approach surface, and extending a horizontal distance of 5,000 feet measured at 90 degree angles to the extended runway centerline.
8. Horizontal Zone - Established at 150 feet above the airport elevation or at a height of 250 feet above mean sea level.
9. Conical Zone - Slopes twenty (20) feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.
10. Excepted Height Limitations - Nothing in this Ordinance shall be construed as prohibiting the construction or maintenance of any structure, or growth of any tree to a height up to 50 feet above the surface of the land.

## SECTION V: USE RESTRICTION

Notwithstanding any other provisions of this Ordinance, no use may be made of land or water within any zone established by this Ordinance in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, takeoff, or maneuvering of aircraft intending to use the airport.

## SECTION VI: NONCONFORMING USES

1. Regulations Not Retroactive - The regulations prescribed in this Ordinance shall not be construed to require the removal, lowering, or other change or alteration of any structure or tree not conforming to the regulations as the effective date of this Ordinance, or otherwise interfere with the continuance of a nonconforming use. Nothing contained herein shall require any change in the construction, alteration, or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this Ordinance, and is diligently prosecuted.
2. Marking and Lighting - Notwithstanding the preceding provision of this Section, the owner of any existing nonconforming structure or tree is hereby required to permit the installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by the City Manager to indicate to the operators of aircraft in the vicinity of the airport the presence of such airport obstruction. Such markers and lights shall be installed, operated, and maintained at the expense of the City of Airville.

## SECTION VII: PERMITS

1. Future Uses - Except as specifically provided in a, b, and c hereunder, no material change shall be made in the use of land, no structure shall be erected or otherwise established, and no tree shall be planted in any zone hereby created unless a permit therefor shall have been applied for and granted. Each application for a permit shall indicate the purpose for which the permit is desired, with sufficient particularity to permit it to be determined whether the resulting use, structure, or tree would conform to the regulations herein prescribed. If such determination is in the affirmative, the permit shall be granted. No permit for a use inconsistent with the provisions of this ordinance shall be granted unless a variance has been approved in accordance with Section VII, 4.

- a. In the area lying within the limits of the horizontal zone and conical zone, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when, because of terrain, land contour, or topographic features, such tree or structure would extend above the height limits prescribed for such zones.
- b. In areas lying within the limits of the approach zones but at a horizontal distance of not less than 4,200 feet from each end of the runway, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when such tree or structure would extend above the height limit prescribed for such approach zones.
- c. In the areas lying within the limits of the transition zones beyond the perimeter of the horizontal zone, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when such tree or structure, because of terrain, land contour, or topographic features, would extend above the height limit prescribed for such transition zones.

Nothing contained in any of the foregoing exceptions shall be construed as permitting or intending to permit any construction, or alteration of any structure, or growth of any tree in excess of any of the height limits established by this Ordinance except as set forth in Section IV, 10.

2. Existing Uses - No permit shall be granted that would allow the establishment or creation of an obstruction or permit a nonconforming use, structure, or tree to become a greater hazard to air navigation, than it was on the effective date of this Ordinance or any amendments thereto or than it is when the application for a permit is made. Except as indicated, all applications for such a permit shall be granted.
3. Nonconforming Uses Abandoned or Destroyed - Whenever the City Manager determines that a nonconforming tree or structure has been abandoned or more than 80 percent torn down, physically deteriorated, or decayed, no permit shall be granted that would allow such structure or tree to exceed the applicable height limit or otherwise deviate from the zoning regulations.
4. Variances - Any person desiring to erect or increase the height of any structure, or permit the growth of any tree, or use property, not in accordance with the regulations prescribed in this Ordinance, may apply to the Board of Adjustment for a variance from such regulations. The application for variance shall be accompanied by a determination from the Federal Aviation Administration as to the effect of the proposal on the operation of air navigation facilities and the safe, efficient use of navigable airspace. Such variances shall be allowed where it is fully found that a literal application or enforcement of the regulations will

result in unnecessary hardship and relief granted, will not be contrary to the public interest, will not create a hazard to air navigation, will do substantial justice, and will be in accordance with the spirit of this Ordinance. Additionally, no application for variance to the requirements of this Ordinance may be considered by the Board of Adjustment unless a copy of the application has been furnished to the Airport Manager for advice as to the aeronautical effects of the variance. If the Airport Manager does not respond to the application within 15 days after receipt, the Board of Adjustment may act on its own to grant or deny said application.

5. Obstruction Marking and Lighting - Any permit or variance granted may, if such action is deemed advisable to effectuate the purpose of this Ordinance and be reasonable in the circumstances, be so conditioned as to require the owner of the structure or tree in question to install, operate, and maintain, at the owner's expense, such markings and lights as may be necessary. If deemed proper by the Board of Adjustment, this condition may be modified to require the owner to permit the City of Airville, at its own expense, to install, operate, and maintain the necessary markings and lights.

#### SECTION VIII: ENFORCEMENT

It shall be the duty of the City Manager to administer and enforce the regulations prescribed herein. Applications for permits and variances shall be made to the City Manager upon a form published for that purpose. Applications required by this Ordinance to be submitted to the City Manager shall be promptly considered and granted or denied. Application for action by the Board of Adjustment shall be forthwith transmitted by the City Manager.

#### SECTION IX: BOARD OF ADJUSTMENT

1. There is hereby created a Board of Adjustment to have and exercise the following powers: (1) to hear and decide appeals from any order, requirement, decision, or determination made by the City Manager in the enforcement of this Ordinance; (2) to hear and decide special exceptions to the terms of this Ordinance upon which such Board of Adjustment under such regulations may be required to pass; and (3) to hear and decide specific variances.
2. The Board of Adjustment shall consist of three members appointed by the City Council and each shall serve for a term of three years until a successor is duly appointed and qualified. Of the members first appointed, one shall be appointed for a term of one year, one for a term of two years, and one for a term of three years. Members shall be removable by the appointing authority for cause, upon written charges, after a public hearing.

3. The Board of Adjustment shall adopt rules for its governance and in harmony with the provisions of this Ordinance. Meetings of the Board of Adjustment shall be held at the call of the Chairperson and at such other times as the Board of Adjustment may determine. The Chairperson or, in the absence of the Chairperson, the Acting Chairperson may administer oaths and compel the attendance of witnesses. All hearings of the Board of Adjustment shall be public. The Board of Adjustment shall keep minutes of its proceedings showing the vote of each member upon each question; or if absent or failing to vote, indicating such fact, and shall keep records of its examinations and other official actions, all of which shall immediately be filed in the office of the City Clerk and on due cause shown.
4. The Board of Adjustment shall make written findings of facts and conclusions of law giving the facts upon which it acted and its legal conclusions from such facts in reversing, affirming, or modifying any order, requirement, decision, or determination which comes before it under the provisions of this Ordinance.
5. The concurring vote of a majority of the members of the Board of Adjustment shall be sufficient to reverse any order, requirement, decision, or determination of the City Manager or decide in favor of the applicant on any matter upon which it is required to pass under this Ordinance, or to effect variation to this Ordinance.

#### SECTION X: APPEALS

1. Any person aggrieved, or any taxpayer affected, by any decision of the City Manager, made in the administration of the Ordinance, may appeal to the Board of Adjustment.
2. All appeals hereunder must be taken within a reasonable time as provided by the rules of the Board of Adjustment, by filing with the City Manager a notice of appeal specifying the grounds thereof. The City Manager shall forthwith transmit to the Board of Adjustment all the papers constituting the record upon which the action appealed from was taken.
3. An appeal shall stay all proceedings in furtherance of the action appealed from unless the City Manager certifies to the Board of Adjustment, after the notice of appeal has been filed with it, that by reason of the facts stated in the certificate a stay would in the opinion of the City Manager cause imminent peril to life or property. In such case, proceedings shall not be stayed except by order of the Board of Adjustment or notice to the City Manager and on due cause shown.

4. The Board of Adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon the hearing, any party may appear in person or by agent or by attorney.
5. The Board of Adjustment may, in conformity with the provisions of this Ordinance, reverse or affirm, in whole or in part, or modify the order, requirement, decision, or determination appealed from and may make such order, requirement, decision, or determination as may be appropriate under the circumstances.

#### SECTION XI: JUDICIAL REVIEW

Any person aggrieved, or any taxpayer affected, by any decision of the Board of Adjustment, may appeal to the Circuit Court as provided in Section III of Chapter 12 of the Public Laws of the State of xxxxx.

#### SECTION XII: PENALTIES

Each violation of this Ordinance or of any regulation, order, or ruling promulgated hereunder shall constitute a misdemeanor and be punishable by a fine of not more than 500 dollars or imprisonment for not more than 180 days or both; and each day a violation continues to exist shall constitute a separate offense.

#### SECTION XIII: CONFLICTING REGULATIONS

Where there exists a conflict between any of the regulations or limitations prescribed in this Ordinance and any other regulations applicable to the same area, whether the conflict be with respect to the height of structures or trees, and the use of land, or any other matter, the more stringent limitation or requirement shall govern and prevail.

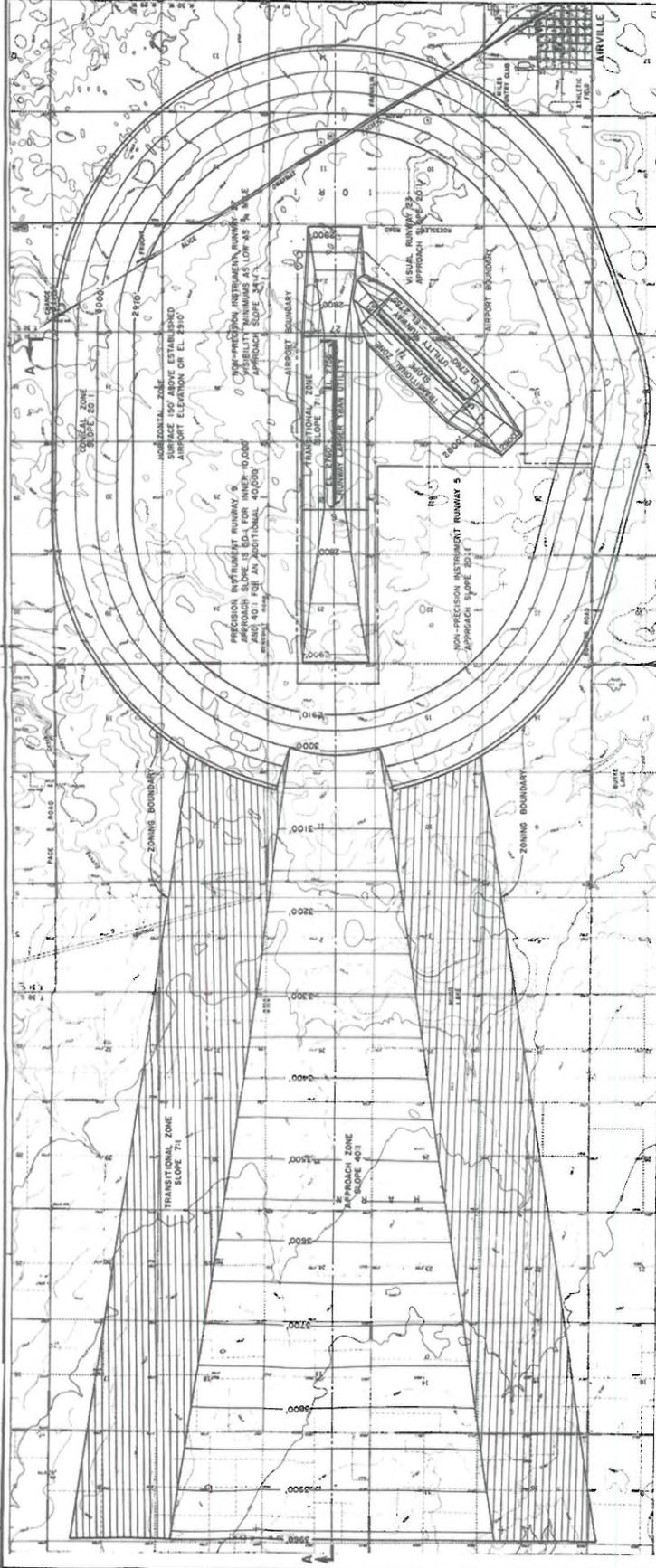
#### SECTION XIV: SEVERABILITY

If any of the provisions of this Ordinance or the application thereof to any person or circumstances are held invalid, such invalidity shall not affect other provisions or applications of the Ordinance which can be given effect without the invalid provision or application, and to this end, the provisions of this Ordinance are declared to be severable.

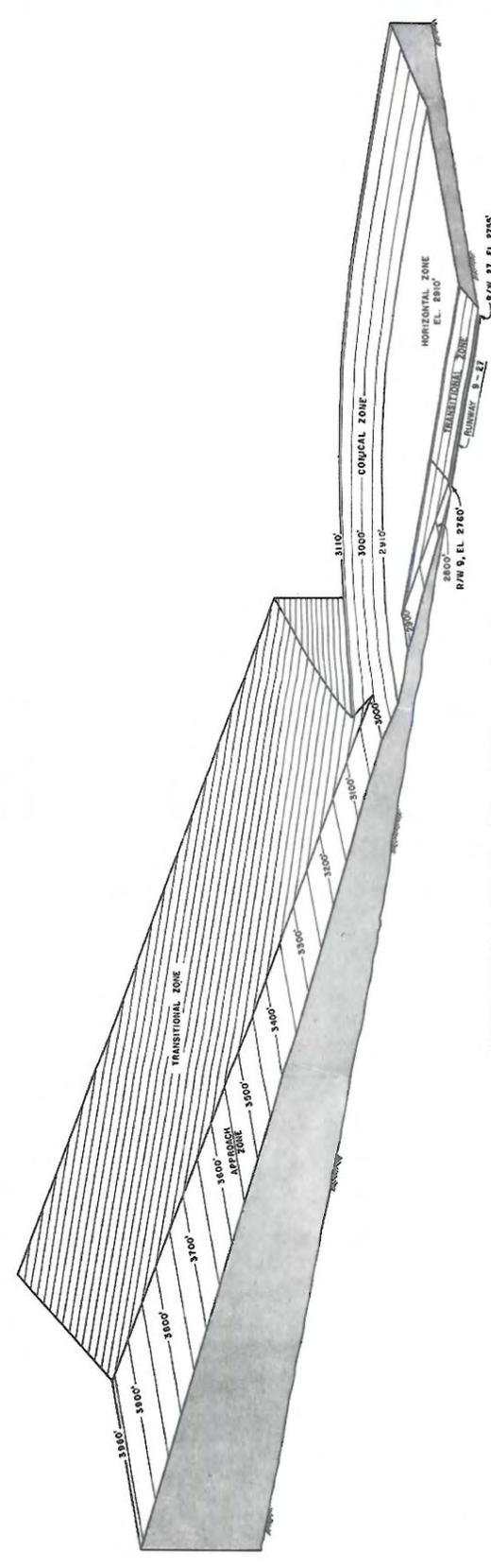
#### SECTION XV: EFFECTIVE DATE

WHEREAS, the immediate operation of the provisions of this Ordinance is necessary for the preservation of the public health, public safety, and general welfare, an EMERGENCY is hereby declared to exist, and this Ordinance shall be in full force and effect from and after its passage by the City Council and publication and posting as required by law. Adopted by the City Council this 12th day of October, 1975.

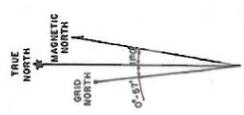




ZONING PLAN



ISOMETRIC VIEW OF SECTION A-A

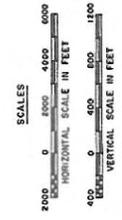


NORTH CENTRAL AIR STATE GRID  
AND TYPE MAGNETIC NORTH DECLINATION

- LEGEND**
- ULTIMATE RUNWAY
  - AIRPORT BOUNDARY
  - ZONE BOUNDARIES
  - TOPOGRAPHIC CONTOURS
  - AERIAL CONTOURS
  - MEDIUM DUTY ROAD
  - LIGHT-DUTY ROAD
  - UNIMPROVED DIRT ROAD

**NOTES**

- 1 THE AERIAL CONTOURS ILLUSTRATE THE HEIGHT LIMITATIONS WITHIN EACH ZONE.
- 2 A SLOPE, SUCH AS 20:1 EXPRESSES THE HORIZONTAL DISTANCE OF 20 FEET TO THE VERTICAL DISTANCE OF 1 FOOT.
- 3 EXISTING TOPOGRAPHIC SYMBOLS ARE THOSE USED BY THE U.S. GEOLOGICAL SURVEY.
- 4 THE NORTH CENTRAL AIR STATE GRID SYSTEM IS USED.



CITY & COUNTY OF AIRVILLE	
JOINT ZONING BOARD	
AIRVILLE MUNICIPAL	
AIRPORT ZONING MAP	
ZONING ORDINANCE ADOPTED (DATE)	
REVISION	APPROVED
REVIEWED	CHECKED
DATE	SHEET
DRAWN BY	DWG. NO.

## **APPENDIX F**

(Information in this appendix is provided as a reference source to assist the users of the AELUP.)

### **AIRPORT AND HELIPORT REGULATIONS** **CALIFORNIA CODE OF REGULATIONS**

The attached regulations may be obtained online:

<http://www.dot.ca.gov/hq/planning/aeronaut>

Search for Title 21 Sections 3525 through 3560

## **APPENDIX G**

Information in this appendix is provided as a reference source to assist the users of the AELUP and may be obtained online at:

<http://www.dot.ca.gov/hq/planning/aeronaut/documents/regulations/statenoisestnds.pdf>

### **NOISE STANDARDS FOR CALIFORNIA AIRPORTS**

#### **California Code of Regulations**

**Title 21(Div.2.5, Ch. 6) Sections 5000 through 5090**

## SUBCHAPTER 6. NOISE STANDARDS

### Article 1. General

#### **5000. Preamble.**

The following rules and regulations are promulgated in accordance with Article 3, Chapter 4, Part 1, Division 9, Public Utilities Code (Regulation of Airports) to provide noise standards governing the operation of aircraft and aircraft engines for all airports operating under a valid permit issued by the Department of Transportation. These standards are based upon two separate legal grounds: (1) the power of airport proprietors to impose noise ceilings and other limitations on the use of the airport, and (2) the power of the state to act to an extent not prohibited by federal law. The regulations are designed to cause the airport proprietor, aircraft operator, local governments, pilots, and the department to work cooperatively to diminish noise problems. The regulations accomplish these ends by controlling and reducing the noise impact area in communities in the vicinity of airports.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

#### **5001. Definitions.**

The definitions in the following subsections apply to this subchapter.

(a) **Air Carrier:** Air carrier is any aircraft operating pursuant to a federal certificate of public convenience and necessity, including any certificate issued pursuant to 49 U.S.C. Section 1371 and any permit issued pursuant to 49 U.S.C. Section 1371.

(b) **Aircraft Operator:** Aircraft operator means the legal or beneficial owner of the aircraft with authority to control the aircraft utilization except where the aircraft is leased, the lessee is the operator.

(c) **Airport Proprietor:** Airport proprietor means the holder of an airport permit issued by the department pursuant to Article 3, Chapter 4, Part 1, Division 9, Public Utilities Code.

(d) **Annual CNEL:** The annual CNEL, in decibels, is the average (on an energy basis) of the daily CNEL over a 12-month period. The annual CNEL is calculated in accordance with the following:

$$\text{Annual CNEL} = 10 \log_{10} [(1/365) \sum \text{Antilog (CNEL(i)/10)}]$$

where CNEL(i) = the daily CNEL for each day in a continuous 12-month period, and  $\sum$  means summation.

When the annual CNEL is approximated by measurements on a statistical basis, as specified in Section 5034, the number 365 is replaced by the number of days for which measurements are obtained.

(e) **County:** County, as used herein, shall mean the county board of supervisors or its designee authorized to exercise the powers and duties herein specified.

(f) Daily Community Noise Equivalent Level (CNEL): Community noise equivalent level, in decibels, represents the average daytime noise level during a 24-hour day, adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and night time periods relative to the daytime period. Community noise equivalent level is calculated from the hourly noise levels by the following:

$$\text{CNEL} = 10 \log (1/24) [\sum \text{antilog} (\text{HNLD}/10) + 3 \sum \text{antilog} (\text{HNLE}/10) + 10 \sum \text{antilog} (\text{HNLN}/10)]$$

Where

HNLD are the hourly noise levels for the period 0700-1900 hours;

HNLE are the hourly noise levels for the period 1900-2200 hours;

HNLN are the hourly noise levels for the period 2200-0700 hours; and  $\sum$  means summation.

(g) Department: Department means the Department of Transportation of the State of California.

(h) General Aviation: General aviation aircraft are all aircraft other than air carrier aircraft and military aircraft.

(i) Hourly Noise Level (HNL): The hourly noise level, in decibels, is the average (on an energy basis) noise level during a particular hour. Hourly noise level is determined by subtracting 35.6 decibels (equal to  $10 \log_{10} 3600$ ) from the noise exposure level measured during the particular hour, integrating for those periods during which the noise level exceeds a threshold noise level.

For implementation in this subchapter of these regulations, the threshold noise level shall be a noise level which is 10 decibels below the numerical value of the appropriate Community Noise Equivalent Level (CNEL) standard specified in Section 5012. At some microphone locations, sources of noise other than aircraft may contribute to the CNEL. Where the airport proprietor can demonstrate that the accuracy of the CNEL measurement will remain within the required tolerance specified in Section 5070, the department may grant a waiver to increase the threshold noise level.

(j) Noise Exposure Level (NEL): The noise exposure level is the level of noise accumulated during a given event, with reference to a duration of one second. More specifically, noise exposure level, in decibels, is the level of the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on the reference pressure of 20 micronewtons per square meter and reference duration of one second.

(k) Noise Impact Area: Noise impact area is the area within the noise impact boundary that is composed of incompatible land use.

(l) Noise Impact Boundary: Noise impact boundary is the locus of points around an airport for which the annual CNEL is equal to the airport noise standard established in Section 5012. The concepts of noise impact boundary and noise impact area are illustrated in Figure 1.

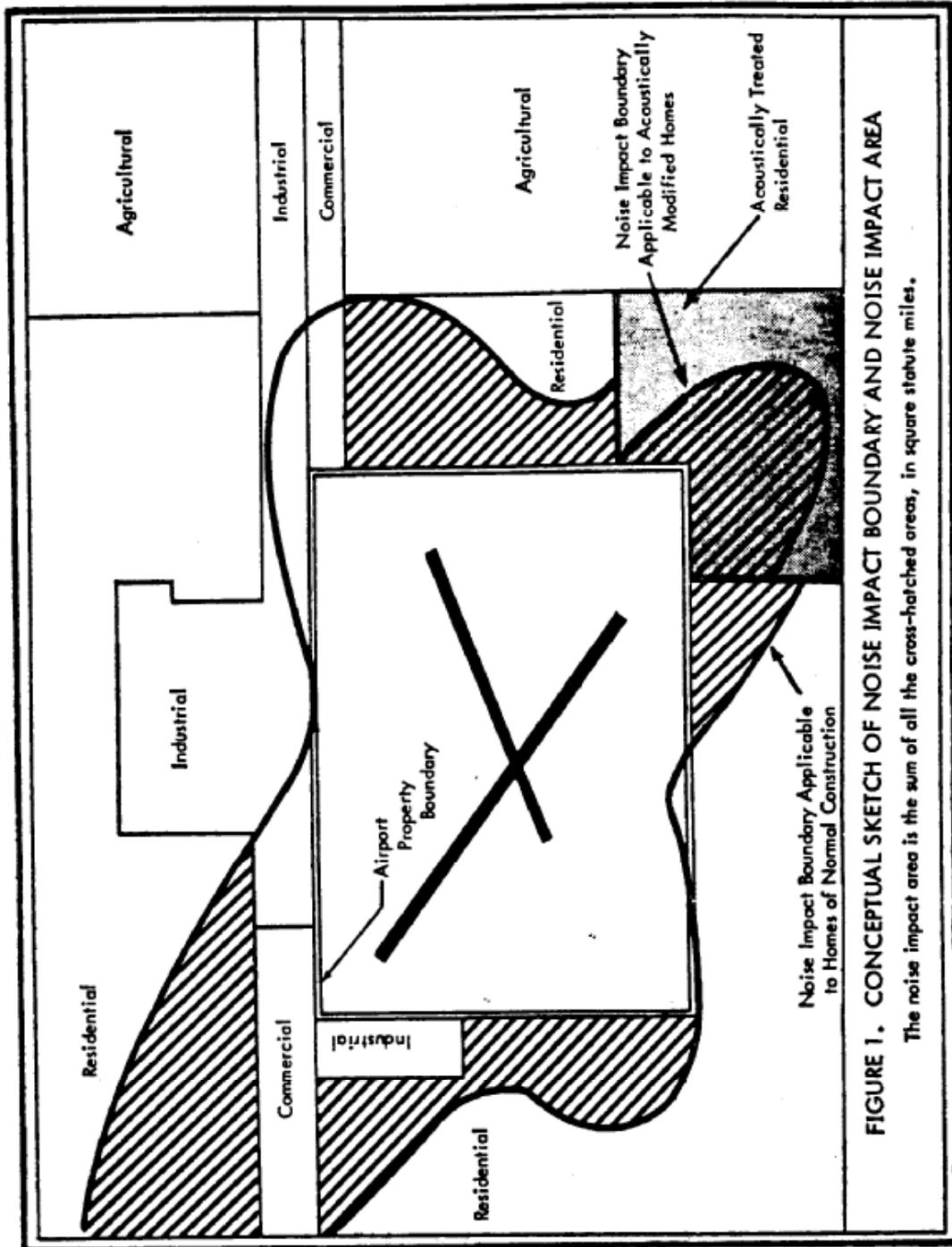


Figure 1. Conceptual Sketch of Noise Impact Boundary and Noise Impact Area

(m) Noise Level (NL): Noise level is the measure in decibels of an A-weighted sound pressure level as measured using the slow dynamic characteristic for sound level meters specified in American National Standard Specification for Sound Level Meters, (ANSI S1.4-1983 as revised by ANSI S1.4A-1985) which is hereby incorporated by reference. The A-weighting characteristic modifies the frequency response of the measuring instrument to account approximately for the frequency characteristics of the human ear. The reference pressure is 20 micronewtons/square meter ( $2 \times 10^{-4}$  microbar).

(n) Noise Problem Airport: "Noise problem airport" is an airport that the county in which the airport is located has declared to have a noise problem under section 5020.

(o) Single Event Noise Exposure Level (SENEL): The single event noise exposure level, in decibels, is the noise exposure level of a single event, such as an aircraft flyby, measured over the time interval between the initial and final times for which the noise level of a single event exceeds a predetermined threshold noise level.

(p) Sound Pressure Level (SPL): The sound pressure level, in decibels (dB), of a sound is 20 times the logarithm to the base 10 of the ratio of the pressure of that sound to the reference pressure 20 micronewtons/square meter ( $2 \times 10^{-4}$  microbar).

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5001 to Section 5002, and renumbering and amendment of former Section 5006 to Section 5001 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5002. Liberal Construction.**

This subchapter shall be liberally construed and applied to promote its underlying purposes which are to protect the public from noise and to resolve incompatibilities between airports and their surrounding neighbors.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering of former Section 5002 to Section 5003, and renumbering of Section 5001 to Section 5002 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5003. Constitutionality.**

If any provision of this subchapter or the application thereof to any person or circumstance is held to be unconstitutional, the remainder of the subchapter and the application of such provision to other persons or circumstances shall not be affected thereby.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering of former Section 5003 to Section 5004, and renumbering of former Section 5002 to Section 5003 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5004. Provisions Not Exclusive.**

The provisions of this subchapter are not exclusive, and the remedies provided for in this subchapter shall be in addition to any other remedies provided for in any other law or available under common law. It is not the intent of these regulations to preempt the field of aircraft noise limitation in the state. The noise limits specified herein are not intended to prevent any local government to the extent not prohibited by federal law or any airport proprietor from setting more stringent standards.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5004 to Section 5005, and renumbering of former Section 5003 to Section 5004 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5005. Applicability.**

These regulations establish to the extent not prohibited by Federal law a mandatory procedure which is applicable to all airports in California that are required to operate under a valid permit issued by the department. These regulations are applicable (to the extent not prohibited by Federal law) to all operations of aircraft and aircraft engines which produce noise.

The regulations established by this subchapter are not intended to set noise levels applicable in litigation arising out of claims for damages occasioned by noise. Nothing herein contained in these regulations shall be construed to prescribe a duty of care in favor of, or to create any evidentiary presumption for use by, any person or entity other than the State of California, counties and airport proprietors in the enforcement of these regulations.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5005 to Section 5006, and renumbering and amendment of former Section 5004 to Section 5005 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5006. Findings.**

Citizens residing in the vicinity of airports are exposed to the noise of aircraft operations. There have been numerous instances wherein individual citizens or organized citizen groups have complained about airport noise to various authorities. The severity of these complaints has ranged from a few telephone calls to organized legal action. Many of these cases have been studied by acoustics research workers under sponsorship of governmental and private organizations. These studies have generally shown that the severity of the complaint is principally associated with a combination of the following factors:

- (a) Magnitude and duration of the noise from aircraft operations;
- (b) Number of aircraft operations; and
- (c) Time of occurrence during the day (daytime, evening or night).

There are many reasons given by residents for their complaints; however, those most often cited are interference with speech communication, TV, and sleep. Numerous studies have been made related to speech interference and hearing damage, and some studies have been made related to sleep disturbance and other physiological effects. These studies provide substantial evidence for the relationship between noise level and its interference with speech communication and its effect relative to hearing loss. Significantly less information is available from the results of sleep and physiological studies.

In order to provide a systematic method for evaluating and eventually reducing noise incompatibilities in the vicinity of airports, it is necessary to quantify the noise problem. For this purpose, these regulations establish a procedure for defining a noise impact area surrounding an individual airport. The criteria and noise levels utilized to define the boundaries of the noise impact area have been based on existing evidence from studies of community noise reaction, noise interference with speech and sleep, and noise induced hearing loss.

One of the fundamental philosophies underlying the procedures in these regulations is that any noise quantity specified by these regulations be measurable by relatively simple means. Therefore, these regulations utilize as their basic measure the A-weighted noise level, which is the most commonly accepted simple measure. To insure consistency between criteria and measurement, the units for the criteria are also based on the A-weighted sound level rather than one of the several more complex perceived noise levels.

The level of noise acceptable to a reasonable person residing in the vicinity of an airport is established as a community noise equivalent level (CNEL) value of 65 dB for purposes of these regulations. This criterion level has been chosen for reasonable persons residing in urban residential areas where houses are of typical California construction and may have windows partially open. It has been selected with reference to speech, sleep and community reaction.

It is recognized that there is a considerable individual variability in the reaction to noise. Further, there are several factors that undoubtedly influence this variability and which are not thoroughly understood. Therefore, this criterion level does not have a degree of precision which is often associated with engineering criteria for a physical phenomenon (e.g., the strength of a bridge, building, et cetera). For this reason, the state will review the criterion periodically, taking into account any new information that might become available.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Renumbering and amendment of former Section 5006 to Section 5001, and renumbering and amendment of former Section 5005 to Section 5006 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5010. Purpose.**

The purpose of these regulations is to provide a positive basis to accomplish resolution of existing noise problems in communities surrounding airports and to prevent the development of new noise problems. To accomplish this purpose, these regulations establish a quantitative framework within which the various interested parties (i.e., airport proprietors, aircraft operators, local communities, counties and the state) can work together cooperatively to reduce and prevent airport noise problems.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5011. Methodology for Controlling and Reducing Noise Problems.**

HISTORY:

1. Renumbering and amendment of former Section 5011 to Section 5037 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5012. Airport Noise Standard.**

The standard for the acceptable level of aircraft noise for persons living in the vicinity of airports is hereby established to be a community noise equivalent level of 65 decibels. This standard forms the basis for the following limitation.

No airport proprietor of a noise problem airport shall operate an airport with a noise impact area based on the standard of 65 dB CNEL unless the operator has applied for or received a variance as prescribed in Article 5 of this subchapter.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Repealer of former Section 5012, and renumbering and amendment of former Section 5062 to Section 5012 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5013. Noise Impact Boundary.**

HISTORY:

1. Repealer filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5014. Incompatible Land Uses Within the Noise Impact Boundary.**

For the purpose of determining the size of the noise impact area, the following land uses are incompatible:

(a) Residences, including but not limited to, detached single-family dwellings, multi-family dwellings, high-rise apartments or condominiums, and mobile homes, unless:

(1) an avigation easement for aircraft noise has been acquired by the airport proprietor, or

(2) the dwelling unit was in existence at the same location prior to January 1, 1989, and has adequate acoustic insulation to ensure an interior CNEL due to aircraft noise of 45 dB or less in all habitable rooms. However, acoustic treatment alone does not convert residences having an exterior CNEL of 75 dB or greater due to aircraft noise to a compatible land use if the residence has an exterior normally occupiable private habitable area such as a backyard, patio, or balcony. Or,

(3) the residence is a high rise apartment or condominium having an interior CNEL of 45 dB or less in all habitable rooms due to aircraft noise, and an air circulation or air conditioning system as appropriate, or

(4) the airport proprietor has made a genuine effort as determined by the department in accordance with adopted land use compatibility plans and appropriate laws and regulations to acoustically treat residences exposed to an exterior CNEL less than 80 dB (75 dB if the residence has an exterior normally occupiable private habitable area such as a backyard, patio, or balcony) or acquire avigation easements, or both, for the residences involved, but the property owners have refused to take part in the program, or

(5) the residence is owned by the airport proprietor.

(b) Public and private schools of standard construction for which an avigation easement for noise has not been acquired by the airport proprietor, or that do not have adequate acoustic performance to ensure an interior CNEL of 45 dB or less in all classrooms due to aircraft noise;

(c) hospitals and convalescent homes for which an avigation easement for noise has not been acquired by the airport proprietor, or that do not have adequate acoustic performance to provide an interior CNEL of 45 dB or less due to aircraft noise in all rooms used for patient care;

(d) churches, synagogues, temples, and other places of worship for which an avigation easement for noise has not been acquired by the airport proprietor, or that do not have adequate acoustic performance to ensure an interior CNEL of 45 dB or less due to aircraft noise.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal 1975) 389 F.Supp. 58.

HISTORY:

1. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Registers 79, No. 21 and 78, No. 38.

### **5015. Changes in Airport Ownership or Control.**

NOTE: Authority cited: Section 21243, Public Utilities Code. Reference: Sections 21669-21669.5, Public Utilities Code.

HISTORY:

1. New section filed 5-30-78 as an emergency, effective upon filing (Register 78, No. 22).
2. Certificate of Compliance filed 9-22-78 (Register 78, No. 38).
3. Renumbering and amendment of former Section 5015 to Section 5090 filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

## Article 2. Implementation by Counties

### **5020. Designating Noise Problem Airport.**

Any county may, at any time, in accordance with the procedure herein, declare any airport within its boundaries to have a noise problem, by adopting a resolution to this effect and forwarding it to this department. In making the determination, the county shall:

(a) Review relevant information, including but not limited to, the record of complaints made, and litigation filed, by residents of the area regarding airport related aircraft noise.

(b) Investigate the possible existence of a noise impact area.

(c) Coordinate with and give due consideration to the recommendations of the applicable airport land use commission established under section 21670 of the Public Utilities Code.

(d) For an airport with joint use by both military and civilian aircraft operations, base its finding only on civilian operations.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5020 to Section 5032, and new Section 5020 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

### **5021. Review of Finding**

Any person or government agency shown, by the results of an investigation conducted under section 5020(b) or by independent competent evidence, to own, reside in, or have jurisdiction over any area within the 65 dB CNEL boundary of any airport may seek review of the finding of the county under section 5020 solely on the issue of substantial evidence by filing a petition to this effect with the department within 10 days of adoption of the finding.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Repealer and new section filed 2-2-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

**5022. County Enforcement.**

The county wherein a noise problem airport is situated shall enforce this subchapter.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5022 to Section 5034, and new Section 5022 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

**5023. Noise Monitoring.**

The county shall require the airport proprietor for each airport within its jurisdiction determined to have a noise problem, for which the estimated location of the noise impact boundary extends into incompatible land uses, to establish a program of noise monitoring to validate the location of the noise impact boundary in accordance with a monitoring plan approved by the department.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Repealer and new section filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

**5024. Audit.**

For each noise problem airport, the county shall review and audit noise monitoring data supplied by the airport proprietor for the purpose of ensuring that the data were produced in accordance with the monitoring system plan approved by the department and that the information presented by the airport proprietor is certified as being true and correct by the person in charge of operating the noise monitoring system. Duplicative monitoring by the county is not required.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering of former Section 5024 to Section 5047, and new Section 5024 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

**5025. County Report.**

The county shall submit quarterly to the department for each noise problem airport within 75 days after the end of each calendar quarter, a report containing at least the following information:

(a) A map illustrating the location of the noise impact boundary, as validated by measurement, and the location of measurement points, in the four preceding calendar quarters;

(b) The annual noise impact area as obtained from the preceding four calendar quarterly reports, an estimate of the number of dwelling units, and the number of people residing therein;

(c) The daily CNEL measurement, together with identification of the date on which each measurement was made, number of total aircraft operations during the calendar quarter, estimated number of operations of the highest noise level aircraft type (as defined in the 14th Code of Federal Regulations, Part 1, for the certification of airmen) in the calendar quarter, and any other data pertinent to the activity. The Hourly Noise Level (HNL) data shall be retained for at least 3 years, and made available to the department upon request.

(d) The quarterly report shall include use of a standard information format provided by the department (form DOA 617, dated 10/89). The standard form provides a listing for certain summary information including size of noise impact area and the aircraft operational data specified in paragraph (c) above.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5025 to Section 5049, and new Section 5025 filed 2-20-90; operative 2-20-90 (Register 90, No. 10). For prior history, see Register 78, No. 22.

### Article 3. Implementation by Airport Proprietors

#### **5030. Cooperation with County.**

(a) Each airport proprietors shall cooperate with the county in the county's investigations to determine the existence of a noise problem and shall furnish data it may have concerning the location of the 65 and 70 dB CNEL contours upon request by the county.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5060(a) to Section 5030 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For history of former Section 5030, see Register 79, No. 21.

#### **5031. Establishment of the Noise Impact Boundary**

Each noise problem airport shall measure, establish and validate noise impact boundaries by noise monitoring as required by this subchapter and shall furnish such information to the county.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5060(b) to Section 5031 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For history of former Section 5031, see Register 79, No. 21.

#### **5032. Validation of the Noise Impact Boundary.**

The noise impact boundary shall be validated by measurements made at locations approved for this purpose by the department. The noise problem airport proprietor shall ascertain the noise impact boundary within a tolerance of plus or minus 1.5 decibels annual CNEL by measurements made in accordance with, and at locations designated in, a noise monitoring plan approved by the department. The noise impact boundary may be ascertained directly from information gathered from monitors or from the combined use of an approved computer model and the data reported by the noise monitoring system. Monitoring shall be accomplished at locations in the approved monitoring system layout plan. The locations shall be selected to facilitate locating the maximum extent (closure points) of the noise impact boundary when the contour extremities encompass incompatible land uses.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5020 to Section 5032 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For history of former Section 5032, see Register 79, No. 21.

**5033. Submittal of Monitoring Plan.**

Each proprietor of a noise problem airport shall submit a description of the proposed monitoring plan to the department for approval containing at least the following information:

- (a) the general monitoring system plan, including at least locations and the type of instrumentation to be employed;
- (b) Justification for any proposed deviations from the measurement system locations specified in these regulations;
- (c) Statistical sampling plan proposed for intermittent monitoring at community locations;
- (d) Additional information as pertinent or as requested by the department.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Renumbering and amendment of former Section 5063 to Section 5033 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5034. Frequency of Measurement.**

(a) For airports with 1,000 or more homes within the noise impact boundary based on CNEL of 70 dB, continuous monitoring is required at those monitoring positions which fall within residential areas. Measurement for at least 48 weeks in a year shall be considered as continuous monitoring.

(b) For all other noise problem airports, an intermittent monitoring schedule is allowed. The intermittent monitoring schedule shall be designed so as to obtain the resulting annual CNEL as computed from measurements at each location which will correspond to the value that would be measured by a monitor operated continuously throughout the year at that location, within an accuracy of plus or minus 1.5 dB.

Thus, it is required that the intermittent monitoring schedule be designed to obtain a realistic statistical sample of the noise at each location. As a minimum, this requires that measurements be taken continuously for 24-hour periods during four 7-day samples throughout the year, chosen so that for each sample, each day of the week is represented, the four seasons of the year are represented, and the results account for the effect of annual proportion of runway utilization. At most airports, these intermittent measurements can be accomplished by a single portable monitoring instrument.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5022 to Section 5034 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5035. Schedule of Implementation.**

Within 90 days following the declaration by a county that an airport has a noise problem, and current estimates indicate that a noise impact area exists, the airport proprietor shall forward a schedule of major actions and events involved in the initiation of noise monitoring to the county and to the department. The schedule shall include an estimate of the number of dwelling units inside the 70 dB CNEL contour based upon current airport operations, and the forecast dates for budget amendments, contract award,

system design, system construction, system installation, and the system becoming operational in cases where continuous monitoring is required.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. New section filed 2-20-90; operative 3-22-90 (Register 90, No. 9). For history of former Section 5035, see Register 79, No. 21.

**5037. Suggested Methodology for Controlling and Reducing Noise Problems.**

The methods whereby the impact of airport noise may be controlled and reduced include, but are not limited to, the following:

(a) Encouraging use of the airport by aircraft classes with lower noise level characteristics and discouraging use by higher noise level aircraft classes;

(b) Encouraging approach and departure flight paths and procedures to minimize the noise in residential areas;

(c) Planning runway utilization schedules to take into account adjacent residential areas, noise characteristics of aircraft and noise sensitive time periods;

(d) Reduction of the flight frequency, particularly in the most noise sensitive time periods and by the noisier aircraft;

(e) Employing shielding for advantage, using natural terrain, buildings, and other obstructions to noise; and

(f) Development of compatible land uses within the noise impact boundary through rezoning, acquisition of avigation easements for noise (voluntarily in exchange for acoustical insulation, an agreed fee, or by eminent domain), application of acoustical insulation, or acquisition of property as examples.

Preference shall be given to actions which reduce the impact of airport noise on existing communities. Land use conversion involving existing residential communities shall normally be considered the least desirable action for achieving compliance with these regulations.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5011 to Section 5037 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21).

**5039. Grounds for Approval.**

Failure of the airport proprietor to comply with the provisions of this subchapter constitutes a ground for revocation of its airport permit.

NOTE: Authority cited: Section 21668, Public Utilities Code. Reference: Section 21668, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5064 to Section 5039 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**Article 4. Implementation by the Department**

**5040. Departmental Review.**

Upon receipt of a petition for review under section 5021, the department shall conduct an investigation on, and make a determination as to, whether the county's finding is based on substantial evidence. If the department determines the county's finding to be not based on substantial evidence, it may either remand the matter to the county for reconsideration or decide the issue on the merits, either classifying the airport as having a noise problem or not. Notice of the determination and of classification as to whether a noise problem

exists, together with the record of the investigation, shall be served by mail on the county, the airport proprietor, and the petitioner. The determination shall, unless a request for hearing is filed, become final on the day after the time for demanding a hearing has lapsed. NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5040 to Section 5048, and new Section 5040 filed 2-20-90; operative 3-22-90 (Register 90, No. 10.) For prior history, see Register 79, No. 21.

**5041. Hearing on Determination.**

Upon services of a determination, the county, airport proprietor, or petitioner under section 5021, may demand a hearing by notice to the department, county, airport proprietor, petitioner, and any additional parties of interest in writing within 10 days. The department shall then arrange for the hearing in accordance with the Administrative Procedure Act (Government Code, Section 11,500 et seq.) and will give appropriate consideration to the findings and recommendations of the administrative law judge before issuing its final determination.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4 and 21669.6, Public Utilities Code.

HISTORY:

1. New section filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5042. Effective Date of Determination.**

Upon a final determination that the county's finding is not based on substantial evidence, the department shall issue a decision regarding whether the airport shall be deemed a noise problem airport.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. New section filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5043. Approval of Noise Monitoring Plans.**

The department will consider monitoring system plans filed by airport proprietors for approval in accordance with the requirements of these regulations.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. New section filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5044. Review of Quarterly Reports.**

The department will review the data submitted quarterly by the counties for the purpose of assessing progress toward reducing the noise impact area. The department's review will include, but not be limited to, observation of any changes in noise monitor positions, and numerical values of CNEL.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5065 to Section 5044, and new Section 5044 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5045. Retention of Monitoring Data.**

The department will maintain the quarterly reports of noise monitoring forwarded by the counties pursuant to these regulations for three years in accordance with the provisions of the California Public Records Act (Government Code, Chapter 3.5, Division 7, Title 1, Section 6250 et seq.).

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5045 to Section 5070, and new Section 5045 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5046. Detailed Specifications.**

HISTORY:

1. Renumbering and amendment of former Section 5046 to Section 5071 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5047. Deviations from Specified Measurement Locations.**

Recognizing the unique geographic and land use features surrounding specific airports, the department will consider measurement plans tailored to fit any airport for which the specified CNEL monitoring locations are impractical. For example, monitors should not be located on bodies of water or at points where other noise sources might interfere with aircraft CNEL measurements, nor are measurements required in regions where land use will clearly remain compatible.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5047 to Section 5072, and renumbering of former Section 5024 to Section 5047 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5048. Additional Monitoring Locations.**

Nothing in this subchapter precludes any airport proprietor from establishing monitors in addition to those required herein.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5048 to Section 5073, and renumbering and amendment of former Section 5040 to Section 5048 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5049. Alternative Measurement Systems.**

The use of noise measurement systems that are more extensive or technically improved over those specified herein is encouraged, particularly at airports where a major noise problem requires more comprehensive noise monitoring, for example, to monitor noise abatement flight procedures. Airports contemplating the acquisition of such monitoring systems may apply to the department for exemptions from specific monitoring requirements set forth in this subchapter.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5025 to Section 5049 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

## Article 5. Variances

### **5050. Variances.**

In granting variances, the department shall be guided by the underlying policy that the proprietor of each existing airport having a noise impact area be required to develop and implement programs to reduce the noise impact area of the airport to an acceptable degree in an orderly manner over a reasonable period of time.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Repealer of former Section 5050, and renumbering and amendment of former Section 5075(a) to Section 5050 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Registers 85, No. 51 and 79, No. 21.

### **5051. Variance Request.**

A proprietor of a noise problem airport may request variances from the requirement of Section 5012 for periods of not exceeding three years as set forth hereinafter.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5075(b) to Section 5051 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

### **5052. Procedure.**

- (a) The airport proprietor shall apply to the department for a variance.
- (b) An application for a variance shall be made upon a form which the department shall make available (DOA Form 618, dated 11-21-89).
- (c) Such application shall set forth the reasons why the airport proprietor believes a variance is necessary. The application shall state the date by which the airport proprietor expects to achieve compliance with the requirement that there not be a noise impact area based upon the airport noise standard identified in Section 5012. The application shall set forth an incremental schedule of noise impact area reductions for the intervening time.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5075(b) (1)-(b) (3) to Section 5052 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

### **5053. Conditions of Variance.**

The department may grant a variance if to do so would be in the public interest. In weighing the public interest, the department's considerations include but are not limited to the following:

- (a) The economic and technological feasibility of complying with the noise standards set by these regulations;
  - (b) The noise impact should the variance be granted;
  - (c) The value to the public of the services for which the variance is sought;
- and

(d) Whether the airport proprietor is taking good faith measures to the best of its ability to achieve the airport noise standards.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5075 (b) (4)-(b) (5) to Section 5053 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

#### **5054. Reasonable Conditions.**

The department in granting a variance may impose reasonable conditions to achieve the purposes of this subchapter of these regulations.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5075(b) (7) to Section 5054 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

#### **5055. Hearing.**

On its own motion, or upon the request of any person or governmental agency residing, owning property within, or having jurisdiction over, the noise impact area, the department shall hold a public hearing under the provisions of the Administrative Procedure Act on the application for variance. Any person may obtain from the department information on pending requests for variances at any time.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

History:

1. Renumbering and amendment of former Section 5075(b) (6) to Section 5055 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Registers 85, No. 51 and 79, No. 21.

#### **5056. Burden of Proof.**

The burden of proof shall be upon the applicant for the variance.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. New section filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

#### **5057. Additional Variances.**

In the event a variance has been granted and it reasonably appears that the airport proprietor cannot within the term of the variance achieve compliance with the requirement that there be no noise impact area based upon the airport noise standard identified in Section 5012, an application for a further variance from such requirement must be made not less than thirty days before the termination date of the prior variance. In the event timely application is made under the provisions of this section, the prior variance shall continue in effect until the department acts on the application.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: Section 21669, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5075(b) (8) to Section 5057 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 85, No. 51.

## Article 6. (Reserved)

### **5060. Monitoring Requirements.**

HISTORY:

1. Renumbering and amendment of former Section 5060(a) to Section 5030 and renumbering and amendment of Section 5060(b) to Section 5031 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5061. Single Event Noise Limit Violations.**

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Repealer filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21). For history of former section, see Register 77, No. 10.

### **5062. Noise Impact Area Violations.**

HISTORY:

1. Renumbering and amendment of former Section 5062 to Section 5012 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5063. Submittal of Monitoring Plan.**

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Amendment filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).  
2. Renumbering and amendment of former Section 5063 to Section 5033 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5064. Grounds for Approval.**

HISTORY:

1. Renumbering and amendment of former Section 5064 to Section 5039 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### **5065. Implementation by the Department.**

HISTORY:

1. Renumbering and amendment of former Section 5065 to Section 5044 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

## Article 7. Noise Monitoring System Requirements

### **5070. General Specifications.**

(a) The noise monitoring system shall measure with an accuracy within plus or minus 1.5 dB on the CNEL scale and record the hourly noise level for each hour of the day, together with identification of the hour, and the CNEL for each day.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Repealer of former Section 5070, and renumbering and amendment of former Section 5045 to Section 5070 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5071. Detailed Specifications.**

Noise monitoring systems shall comply with the specifications given in Sections 5080 through 5080.5 of these regulations.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5046 to Section 5071 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5072. Field Measurement Requirements.**

Specific locations of the monitoring system shall be chosen whenever possible, such that the CNEL from sources other than aircraft in flight is equal to or less than 55dB. This objective may be satisfied by selecting locations in a residential area not immediately adjacent to a noisy industry, freeway, railroad track, et cetera. The measurement microphone shall be placed 20 feet above the ground level, or at least 10 feet above neighboring roof tops, whichever is higher and has a clear line of sight to the path of aircraft in flight.

No obstructions which significantly influence the sound field from the aircraft shall exist within a conical space above the measurement position, the cone being defined by a vertical axis and by a half angle of 75 degrees from that axis.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Renumbering and amendment of former Section 5047 to Section 5072 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5073. Number of Measurement Systems.**

The frequency of measurement specified in Section 5034 has been designed to limit the number of monitoring systems required. The minimum number of systems required per airport is one for intermittent measurements of the noise impact boundary.

For continuous monitoring systems the number of monitoring locations will increase where necessary to provide ample information to ensure the accuracy tolerance of plus or minus 1.5 dB CNEL for location of the noise impact boundary in areas where land use is incompatible. The minimum number of continuous monitoring system stations will be determined by the monitoring system layout plan for each individual airport.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Renumbering and amendment of former Section 5048 to Section 5073 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

**5075. Variances.**

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: Section 21669, Public Utilities Code.

HISTORY:

1. New subsection (b) (8) filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Amendment of subsection (b) filed 12-16-85; effective thirtieth day thereafter (Register 85, No. 51).
3. Renumbering and amendment of former Section 5075 (a) to Section 5050 and renumbering and amendment of former Section 5075 (b) to Sections 5051-5055 and 5057 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Registers 85, No. 51 and 79, No. 21.

## Article 8. Specification: Noise Monitoring System

### **5080. Purpose and Scope.**

(a) Purpose. This specification establishes the minimum requirements for instrumentation to be utilized by airport proprietors required to monitor aircraft noise in accordance with this subchapter.

(b) Scope. The measurement systems defined herein shall be used to monitor noise levels at specifically designated locations in a community surrounding an airport.

(c) Design Goals. The design goals for the noise monitoring system are accuracy, reliability, and ease of maintenance. The measurement techniques set forth herein are sufficiently uncomplicated so that current state-of-the-art instrumentation equipment may be used. The monitor system specifications are not intended to be unduly restrictive in specifying individual system components. The specifications allow the utilization of equipment ranging from analog systems to automated computer systems. The exact configuration will depend upon the specific monitoring requirement and the nature of existing user instrumentation.

This is a total systems specification. It is the prerogative of the user to configure the system with components that will be most compatible with his existing equipment and personnel.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

#### HISTORY:

1. Amendment of subsection (b) filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

### **5080.1. Additional Definitions Applicable to Article 8.**

(a) Field Instrumentation. Field instrumentation are those elements or components of a noise monitoring system that are exposed to the outdoor environment in the vicinity of the measurement microphone. This equipment functions within specification during exposure to a year-around environment adjacent to any public use airport in the state of California.

(b) Centralized Instrumentation. Centralized Instrumentation are those elements of a noise monitoring system that are contained in an environmentally-controlled room.

(c) HNL Monitoring System. The HNL monitoring system is one which measures the hourly noise level and provides identification of the hour. This system is deployed as a community monitoring system. An HNL system consists of two subsystems: a noise level subsystem and an integrator/logger subsystem.

(d) Noise Level Subsystem. Noise level subsystem is a subsystem composed of a microphone, an A-weighted filter, a squaring circuit and a lag network. This subsystem is used to derive a signal representing the mean square, A-weighted value of acoustic pressure.

(e) Integrator/Logger Subsystem. Integrator/logger subsystem is a subsystem composed of a threshold comparator, an integrator, a clock, an accumulator, a logger or printer and a logarithmic converter. This subsystem is used to transform the output from a noise level subsystem in excess of a pre-set threshold into HNL.

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Amendment filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5080.2. Examples of Possible System Configurations.**

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Amendment filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Repealer filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5080.3. Performance Specifications.**

(a) Overall Accuracy. The overall accuracy of the HNL Monitoring System shall be plus or minus 1.5 dB when measuring noise from aircraft in flight. It is the intent of the following specifications to verify this accuracy with laboratory simulation.

(b) Noise Level Subsystem.

(1) Frequency Response and Microphone Characteristics. The frequency response, and associated tolerance of the subsystem, shall be in accordance with American National Standard Specification For Sound Level Meters (ANSI SI.4-1983, as amended by ANSI S1.4A-1985) for Type 1 precision sound level meters for the A-weighting network, which is hereby incorporated by reference.

(2) Dynamic Range. The system output shall be proportional to the antilog of the noise level over a noise level range of at least 60 dB to 120 dB. For the noise level subsystem, the internal electrical noise shall not exceed an equivalent input noise level of 50 dB, and the full scale range of 120 dB shall apply to signals with a crest factor as great as 3:1.

(3) Linearity. The electrical amplitude response to sine waves in the frequency range of 22.4 Hz to 11,200 Hz shall be linear within one decibel from 30 dB below each full scale range up to 7dB above the full scale range on any given range of the instrument.

(c) Integrator/Logger Subsystem.

(1) Threshold Comparator. For HNL, the threshold level shall be adjustable over a noise level range of at least 55 to 70 dB. Threshold triggering shall be repeatable within plus or minus 0.5 dB.

(2) Clock. The clock shall be capable of being set to the time of day within an accuracy of 10 seconds and shall not drift more than 20 seconds in a 24-hour period.

(3) End-to-End Accuracy. The end-to-end accuracy of the integrator/logger subsystem is defined in terms of a unipolar, positive-going square wave input. The logged, integrated output of the system shall fall within plus or minus 1 dB of the true value predicted for the wave of a given duration at an amplitude exceeding the measurement threshold by at least 10 dB, and at all higher amplitudes within the range. The square wave shall be applied at the input to the integrator and level comparator.

(A) HNL Integrator/Logger Subsystem.

1. For each hour during which no noise event exceeds the HNL system noise level threshold, the subsystem shall output the time on the hour, and indicate that the antilog of the HNL for the preceding hour is zero.

2. The overall accuracy of a noise monitoring system pursuant to these regulations shall be determined over a range of HNL from 45 dB to 95 dB for each combination of the following conditions which gives a value in this range:

a. Square waves, as defined above, shall have repetitions of 1, 3, 10, 30 and 100 cycles.

b. Square waves shall have durations of 40, 20, 10, and 5 seconds.

c. Square waves shall have amplitudes equivalent to sound pressure levels of 70, 80, 90, 100 and 110 dB.

d. Overall System Accuracy Demonstration. The overall system accuracy shall be demonstrated for several conditions within each of the above specified ranges, utilizing a 1000 Hz sinusoidal acoustic plane wave oriented along the preferred plane wave axis of the microphone, or an equivalent signal generated in an acoustic coupler:

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Repealer of subsection (d) (1) filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Amendment filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5080.4. Field Calibration.**

The monitoring system shall include an internal electrical means to electrically check and maintain calibration without resort to additional equipment. Provision shall also be made to enable calibration with an external acoustic coupler.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. New NOTE filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

**5080.5. Environmental Precautions and Requirements.**

(a) The field instrumentation shall be provided with suitable protection such that the system performance specified will not be degraded while the system is operating within the range of weather conditions encountered at airports within the State of California.

(b) Humidity. The effect of changes in relative humidity on sensitivity of field instrumentation shall be less than 0.5 decibel at any frequency between 22.4 and 11,200 Hz in the range of 5 to 100 percent relative humidity.

(c) Vibration. The field instrumentation shall be designed and constructed to minimize the effects of vibration resulting from mechanical excitation. Shock mounting of the field instrumentation shall be provided as required to preclude degradation of system performance.

(d) Acoustic Noise. The field instrumentation shall be designed and constructed so as to minimize effects of vibration resulting from airborne noise, and shall operate in an environment of 125 dB SPL-broadband noise over a frequency range of 22.4 to 11,200 Hz-without degradation of system performance.

(e) Magnetic, Electrostatic and Radio Frequency Interference. The effects of magnetic, electrostatic and radio frequency interference shall be reduced to a minimum. The magnitude of such fields which would degrade the performance of the system in accordance with the specifications in Section 5080.3 shall be determined and stated.

(f) Windscreen. A windscreen suitable for use with the microphone shall be used at all times. The windscreen shall be designed so that for windspeeds of 20 miles per hour or less, the overall accuracy of the measurement system specified in Section 5080.3(a) is not compromised.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Amendment of subsections (c) and (e) filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

## Article 9. Changes in Airport Ownership

### **5090. Changes in Airport Ownership or Control.**

In the case of a change in airport ownership or control, the new airport proprietor shall be deemed to be in full compliance with these regulations until such time as the department takes final action on the new proprietor's application for a variance in accordance with Article 5, provided, however, that the new proprietor complies with the following:

(a) The new proprietor shall make application to the department for a variance within twenty (20) days after assuming ownership or control, and

(b) The new proprietor, in operating the airport, shall not permit or authorize any activity in conjunction with the airport that results in an increase of the size of the noise impact area.

NOTE: Authority cited: Section 21669, Public Utilities Code. Reference: Sections 21669-21669.4, Public Utilities Code.

HISTORY:

1. Renumbering and amendment of former Section 5015 to Section 5090 filed 2-20-90; operative 3-22-90 (Register 90, No. 10). For prior history, see Register 79, No. 21.

### FIGURE 4. TYPICAL HOURLY NOISE LEVEL (HNL) SYSTEM

NOTE: Authority cited: Sections 21243 and 21669, Public Utilities Code. Reference: *Air Transport Association of America v. Crotti* (N.D.Cal. 1975) 389 F.Supp. 58.

HISTORY:

1. Repealer of Figure 4, and renumbering of Figure 5 to Figure 4 filed 5-23-79; effective thirtieth day thereafter (Register 79, No. 21).
2. Repealer filed 2-20-90; operative 3-22-90 (Register 90, No. 10).

(Next page is 245)

## **APPENDIX H**

### **SAMPLE AVIGATION EASEMENT AND DEED NOTICE**

- Sample Avigation Easement and Deed Notice from the State of California Department of Transportation (Caltrans)/Division of Aeronautics *California Airport Land Use Planning Handbook, Appendix H* (October 2011)(Exhibit H1).
- Sample Deed Notice from the State of California Department of Transportation (Caltrans)/Division of Aeronautics *California Airport Land Use Planning Handbook, Appendix H* (October 2011)(Exhibit H-2).

**EXHIBIT H1**  
**Typical Avigation Easement**

This indenture made this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, between \_\_\_\_\_ herein after referred to as Grantor, and the [Insert County or City name], a political subdivision in the State of California, hereinafter referred to as Grantee.

The Grantor, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant to the Grantee, its successors and assigns, a perpetual and assignable easement over the following described parcel of land in which the Grantor holds a fee simple estate. The property which is subject to this easement is depicted as \_\_\_\_\_ on "Exhibit A" attached and is more particularly described as follows:

[Insert legal description of real property]

The easement applies to the Airspace above an imaginary plane over the real property. The plane is described as follows:

The imaginary plane above the hereinbefore described real property, as such plane is defined by Part 77 of the Federal Aviation Regulations, and consists of a plane [describe approach, transition, or horizontal surface]; the elevation of said plane being based upon the \_\_\_\_\_ Airport official runway end elevation of \_\_\_\_\_ feet Above Mean Sea Level (AMSL), as determined by [Insert name and Date of Survey or Airport Layout Plan that determines the elevation] the approximate dimensions of which said plane are described and shown on Exhibit A attached hereto and incorporated herein by reference.

The aforesaid easement and right-of-way includes, but is not limited to:

1. For the use and benefit of the public, the easement and continuing right to fly, or cause or permit the flight by any and all persons, or any aircraft, of any and all kinds now or hereafter known, in, through, across, or about any portion of the Airspace hereinabove described; and
2. The easement and right to cause or create, or permit or allow to be caused or created within all space above the existing surface of the hereinabove described real property and any and all Airspace laterally adjacent to said real property, such noise, vibration, currents and other effects of air, illumination, and fuel consumption as may be inherent in, or may arise or occur from or during the operation of aircraft of any and all kinds, now or hereafter known or used, for navigation of or flight in air; and
3. A continuing right to clear and keep clear from the Airspace any portions of buildings, structures, or improvements of any kinds, and of trees or other objects, including the right to remove or demolish those portions of such buildings, structures, improvements, trees, or other things which extend into or above said Airspace, and the right to cut to the ground level and remove, any trees which extend into or above the Airspace; and
4. The right to mark and light, or cause or require to be marked or lighted, as obstructions to air navigation, any and all buildings, structures, or other

improvements, and trees or other objects, which extend into or above the Airspace;  
and

5. The right of ingress to, passage within, and egress from the hereinabove described real property, for the purposes described in subparagraphs (3) and (4) above at reasonable times and after reasonable notice.

For and on behalf of itself, its successors and assigns, the Grantor hereby covenants with the [Insert County or City name], for the direct benefit of the real property constituting the \_\_\_\_\_ Airport hereinafter described, that neither the Grantor, nor its successors in interest or assigns will construct, install, erect, place or grow in or upon the hereinabove described real property, nor will they permit to allow, any building structure, improvement, tree or other object which extends into or above the Airspace, or which constitutes an obstruction to air navigation, or which obstructs or interferes with the use of the easement and rights-of-way herein granted.

The easements and rights-of-way herein granted shall be deemed both appurtenant to and for the direct benefit of that real property which constitutes the \_\_\_\_\_ Airport, in the [Insert County or City name], State of California; and shall further be deemed in gross, being conveyed to the Grantee for the benefit of the Grantee and any and all members of the general public who may use said easement or right-ofway, in landing at, taking off from or operating such aircraft in or about the \_\_\_\_\_ Airport, or in otherwise flying through said Airspace.

Grantor, together with its successors in interest and assigns, hereby waives its right to legal action against Grantee, its successors, or assigns for monetary damages or other redress due to impacts, as described in Paragraph (2) of the granted rights of easement, associated with aircraft operations in the air or on the ground at the airport, including future increases in the volume or changes in location of said operations. Furthermore, Grantor, its successors, and assigns shall have no duty to avoid or mitigate such damages through physical modification of airport facilities or establishment or modification of aircraft operational procedures or restrictions. However, this waiver shall not apply if the airport role or character of its usage (as identified in an adopted airport master plan, for example) changes in a fundamental manner which could not reasonably have been anticipated at the time of the granting of this easement and which results in a substantial increase in the impacts associated with aircraft operations. Also, this grant of easement shall not operate to deprive the Grantor, its successors or assigns, of any rights which may from time to time have against any air carrier or private operator for negligent or unlawful operation of aircraft.

These covenants and agreements run with the land and are binding upon the heirs, administrators, executors, successors and assigns of the Grantor, and, for the purpose of this instrument, the real property firstly hereinabove described is the servient tenement and said \_\_\_\_\_ Airport is the dominant tenement.

DATED: \_\_\_\_\_

STATE OF

COUNTY OF

On \_\_\_\_\_, before me, the undersigned, a Notary Public in and for said County and State, personally appeared \_\_\_\_\_, and \_\_\_\_\_ known to me to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same.

WITNESS my hand and official seal.

---

Notary Public

**EXHIBIT H-2**  
**Sample Deed Notice**

A statement similar to the following should be included on the deed for any real property subject to the deed notice requirements set forth in the [Insert ALUC name] Airport Land Use Compatibility Plan. Such notice should be recorded by the county of [Insert County name]. Also, this deed notice should be included on any parcel map, tentative map, or final map for subdivision approval.

The [Insert ALUC name] Airport Land Use Compatibility Plan and [Insert County/City name] Ordinance (Ordinance No. \_\_\_\_\_ ) identify a [Insert Airport name] Airport Influence Area. Properties within this area are routinely subject to overflights by aircraft using this public-use airport and, as a result, residents may experience inconvenience, annoyance, or discomfort arising from the noise of such operations. State law (Public Utilities Code Section 21670 et seq.) establishes the importance of public-use airports to protection of the public interest of the people of the state of California. Residents of property near such airports should therefore be prepared to accept the inconvenience, annoyance, or discomfort from normal aircraft operations. Residents also should be aware that the current volume of aircraft activity may increase in the future in response to [Insert County name] County population and economic growth. Any subsequent deed conveying this parcel or subdivisions thereof shall contain a statement in substantially this form.

## **APPENDIX I**

(Information in this appendix is provided as a reference source to assist the users of the AELUP.)

### **FAA Advisory Circular No. 150/5200-33B:**

#### **HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS**

The attached advisory circular may be obtained online at:

<http://www.faa.gov>



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

# Advisory Circular

---

**Subject: HAZARDOUS WILDLIFE  
ATTRACTANTS ON OR NEAR  
AIRPORTS**

**Date:** 8/28/2007

**AC No:** 150/5200-33B

**Initiated by:** AAS-300    **Change:**

---

**1. PURPOSE.** This Advisory Circular (AC) provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants. Appendix 1 provides definitions of terms used in this AC.

**2. APPLICABILITY.** The Federal Aviation Administration (FAA) recommends that public-use airport operators implement the standards and practices contained in this AC. The holders of Airport Operating Certificates issued under Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports, Subpart D (Part 139), may use the standards, practices, and recommendations contained in this AC to comply with the wildlife hazard management requirements of Part 139. Airports that have received Federal grant-in-aid assistance must use these standards. The FAA also recommends the guidance in this AC for land-use planners, operators of non-certificated airports, and developers of projects, facilities, and activities on or near airports.

**3. CANCELLATION.** This AC cancels AC 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports*, dated July 27, 2004.

**4. PRINCIPAL CHANGES.** This AC contains the following major changes, which are marked with vertical bars in the margin:

- a. Technical changes to paragraph references.
- b. Wording on storm water detention ponds.
- c. Deleted paragraph 4-3.b, *Additional Coordination*.

**5. BACKGROUND.** Information about the risks posed to aircraft by certain wildlife species has increased a great deal in recent years. Improved reporting, studies, documentation, and statistics clearly show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem. While many species of wildlife can pose a threat to aircraft safety, they are not equally hazardous. Table 1

ranks the wildlife groups commonly involved in damaging strikes in the United States according to their relative hazard to aircraft. The ranking is based on the 47,212 records in the FAA National Wildlife Strike Database for the years 1990 through 2003. These hazard rankings, in conjunction with site-specific Wildlife Hazards Assessments (WHA), will help airport operators determine the relative abundance and use patterns of wildlife species and help focus hazardous wildlife management efforts on those species most likely to cause problems at an airport.

Most public-use airports have large tracts of open, undeveloped land that provide added margins of safety and noise mitigation. These areas can also present potential hazards to aviation if they encourage wildlife to enter an airport's approach or departure airspace or air operations area (AOA). Constructed or natural areas—such as poorly drained locations, detention/retention ponds, roosting habitats on buildings, landscaping, odor-causing rotting organic matter (putrescible waste) disposal operations, wastewater treatment plants, agricultural or aquaculture activities, surface mining, or wetlands—can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. Even small facilities, such as fast food restaurants, taxicab staging areas, rental car facilities, aircraft viewing areas, and public parks, can produce substantial attractions for hazardous wildlife.

During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Hazardous wildlife attractants on and near airports can jeopardize future airport expansion, making proper community land-use planning essential. This AC provides airport operators and those parties with whom they cooperate with the guidance they need to assess and address potentially hazardous wildlife attractants when locating new facilities and implementing certain land-use practices on or near public-use airports.

**6. MEMORANDUM OF AGREEMENT BETWEEN FEDERAL RESOURCE AGENCIES.** The FAA, the U.S. Air Force, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture - Wildlife Services signed a Memorandum of Agreement (MOA) in July 2003 to acknowledge their respective missions in protecting aviation from wildlife hazards. Through the MOA, the agencies established procedures necessary to coordinate their missions to address more effectively existing and future environmental conditions contributing to collisions between wildlife and aircraft (wildlife strikes) throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety while protecting the Nation's valuable environmental resources.



DAVID L. BENNETT  
Director, Office of Airport Safety  
and Standards

Table 1. Ranking of 25 species groups as to relative hazard to aircraft (1=most hazardous) based on three criteria (damage, major damage, and effect-on-flight), a composite ranking based on all three rankings, and a relative hazard score. Data were derived from the FAA National Wildlife Strike Database, January 1990–April 2003.<sup>1</sup>

Species group	Ranking by criteria			Composite ranking <sup>2</sup>	Relative hazard score <sup>3</sup>
	Damage <sup>4</sup>	Major damage <sup>5</sup>	Effect on flight <sup>6</sup>		
Deer	1	1	1	1	100
Vultures	2	2	2	2	64
Geese	3	3	6	3	55
Cormorants/pelicans	4	5	3	4	54
Cranes	7	6	4	5	47
Eagles	6	9	7	6	41
Ducks	5	8	10	7	39
Osprey	8	4	8	8	39
Turkey/pheasants	9	7	11	9	33
Hérons	11	14	9	10	27
Hawks (buteos)	10	12	12	11	25
Gulls	12	11	13	12	24
Rock pigeon	13	10	14	13	23
Owls	14	13	20	14	23
H. lark/s. bunting	18	15	15	15	17
Crows/ravens	15	16	16	16	16
Coyote	16	19	5	17	14
Mourning dove	17	17	17	18	14
Shorebirds	19	21	18	19	10
Blackbirds/starling	20	22	19	20	10
American kestrel	21	18	21	21	9
Meadowlarks	22	20	22	22	7
Swallows	24	23	24	23	4
Sparrows	25	24	23	24	4
Nighthawks	23	25	25	25	1

<sup>1</sup> Excerpted from the *Special Report for the FAA, "Ranking the Hazard Level of Wildlife Species to Civil Aviation in the USA: Update #1, July 2, 2003"*. Refer to this report for additional explanations of criteria and method of ranking.

<sup>2</sup> Relative rank of each species group was compared with every other group for the three variables, placing the species group with the greatest hazard rank for  $\geq 2$  of the 3 variables above the next highest ranked group, then proceeding down the list.

<sup>3</sup> Percentage values, from Tables 3 and 4 in Footnote 1 of the *Special Report*, for the three criteria were summed and scaled down from 100, with 100 as the score for the species group with the maximum summed values and the greatest potential hazard to aircraft.

<sup>4</sup> Aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.

<sup>5</sup> Aircraft incurred damage or structural failure, which adversely affected the structure strength, performance, or flight characteristics, and which would normally require major repair or replacement of the affected component, or the damage sustained makes it inadvisable to restore aircraft to airworthy condition.

<sup>6</sup> Aborted takeoff, engine shutdown, precautionary landing, or other.

This page intentionally left blank.

## Table of Contents

SECTION 1. GENERAL SEPARATION CRITERIA FOR HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS.....	1
1-1. INTRODUCTION.....	1
1-2. AIRPORTS SERVING PISTON-POWERED AIRCRAFT .....	1
1-3. AIRPORTS SERVING TURBINE-POWERED AIRCRAFT.....	1
1-4. PROTECTION OF APPROACH, DEPARTURE, AND CIRCLING AIRSPACE.....	1
SECTION 2. LAND-USE PRACTICES ON OR NEAR AIRPORTS THAT POTENTIALLY ATTRACT HAZARDOUS WILDLIFE .....	3
2-1. GENERAL.....	3
2-2. WASTE DISPOSAL OPERATIONS.....	3
2-3. WATER MANAGEMENT FACILITIES .....	5
2-4. WETLANDS .....	8
2-5. DREDGE SPOIL CONTAINMENT AREAS .....	9
2-6. AGRICULTURAL ACTIVITIES.....	9
2-7. GOLF COURSES, LANDSCAPING AND OTHER LAND-USE CONSIDERATIONS .....	10
2-8. SYNERGISTIC EFFECTS OF SURROUNDING LAND USES .....	11
SECTION 3. PROCEDURES FOR WILDLIFE HAZARD MANAGEMENT BY OPERATORS OF PUBLIC-USE AIRPORTS .....	13
3-1. INTRODUCTION.....	13
3-2. COORDINATION WITH USDA WILDLIFE SERVICES OR OTHER QUALIFIED WILDLIFE DAMAGE MANAGEMENT BIOLOGISTS.....	13
3-3. WILDLIFE HAZARD MANAGEMENT AT AIRPORTS: A MANUAL FOR AIRPORT PERSONNEL .....	13
3-4. WILDLIFE HAZARD ASSESSMENTS, TITLE 14, CODE OF FEDERAL REGULATIONS, PART 139.....	13
3-5. WILDLIFE HAZARD MANAGEMENT PLAN (WHMP) .....	14
3-6. LOCAL COORDINATION .....	14
3-7. COORDINATION/NOTIFICATION OF AIRMEN OF WILDLIFE HAZARDS .....	14
SECTION 4. FAA NOTIFICATION AND REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS.....	15
4-1. FAA REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS.....	15
4-2. WASTE MANAGEMENT FACILITIES .....	15
4-3. OTHER LAND-USE PRACTICE CHANGES .....	16
APPENDIX 1. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR .....	19

This page intentionally left blank.

## SECTION 1.

### GENERAL SEPARATION CRITERIA FOR HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS.

**1-1. INTRODUCTION.** When considering proposed land uses, airport operators, local planners, and developers must take into account whether the proposed land uses, including new development projects, will increase wildlife hazards. Land-use practices that attract or sustain hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes.

The FAA recommends the minimum separation criteria outlined below for land-use practices that attract hazardous wildlife to the vicinity of airports. Please note that FAA criteria include land uses that cause movement of hazardous wildlife onto, into, or across the airport's approach or departure airspace or air operations area (AOA). (See the discussion of the synergistic effects of surrounding land uses in Section 2-8 of this AC.)

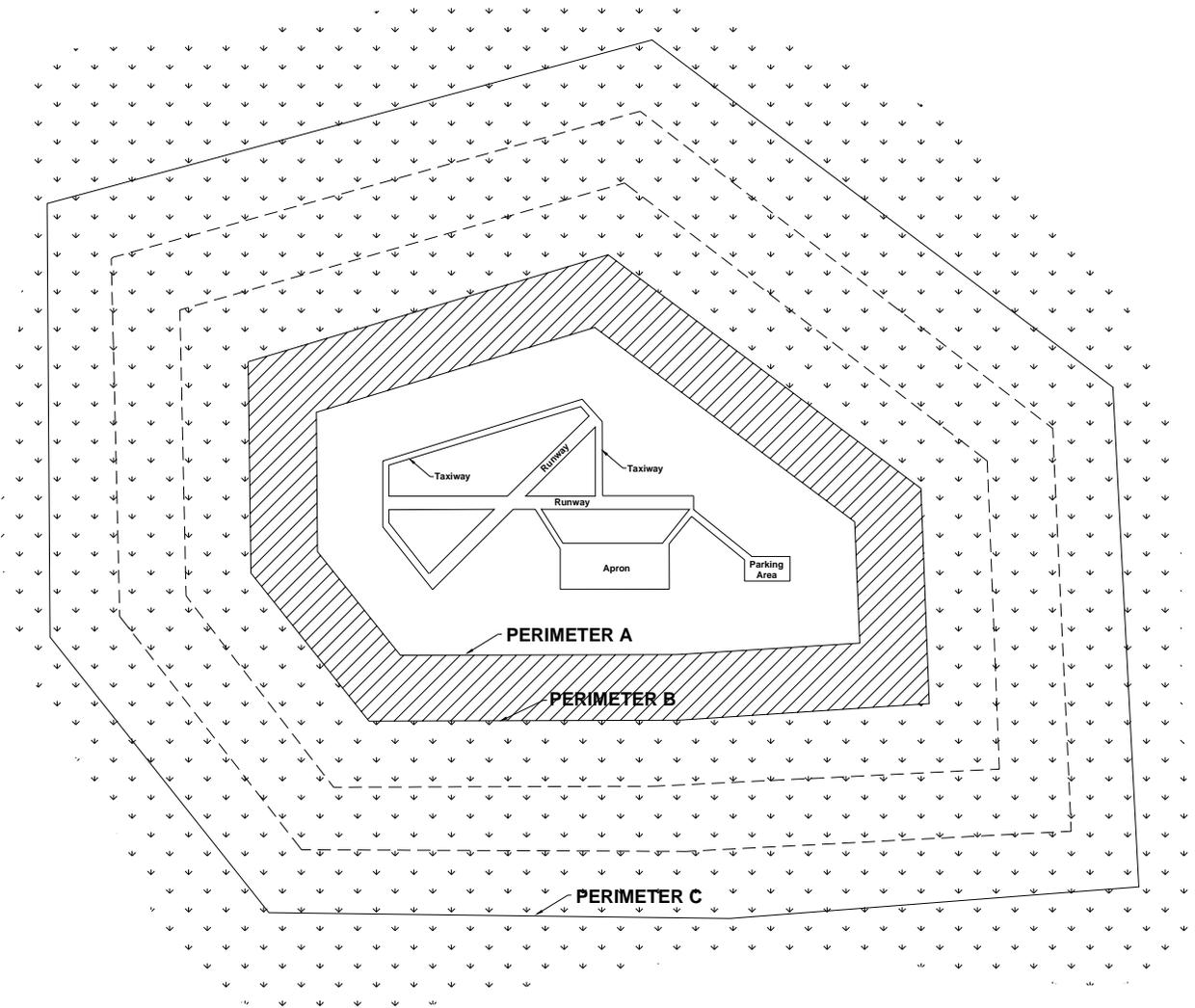
The basis for the separation criteria contained in this section can be found in existing FAA regulations. The separation distances are based on (1) flight patterns of piston-powered aircraft and turbine-powered aircraft, (2) the altitude at which most strikes happen (78 percent occur under 1,000 feet and 90 percent occur under 3,000 feet above ground level), and (3) National Transportation Safety Board (NTSB) recommendations.

**1-2. AIRPORTS SERVING PISTON-POWERED AIRCRAFT.** Airports that do not sell Jet-A fuel normally serve piston-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 5,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance measured from the nearest aircraft operations areas.

**1-3. AIRPORTS SERVING TURBINE-POWERED AIRCRAFT.** Airports selling Jet-A fuel normally serve turbine-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 10,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance from the nearest aircraft movement areas.

**1-4. PROTECTION OF APPROACH, DEPARTURE, AND CIRCLING AIRSPACE.** For all airports, the FAA recommends a distance of 5 statute miles between the farthest edge of the airport's AOA and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

Figure 1. Separation distances within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.



**PERIMETER A:** For airports serving piston-powered aircraft, hazardous wildlife attractants must be 5,000 feet from the nearest air operations area.

**PERIMETER B:** For airports serving turbine-powered aircraft, hazardous wildlife attractants must be 10,000 feet from the nearest air operations area.

**PERIMETER C:** 5-mile range to protect approach, departure and circling airspace.

## SECTION 2.

### LAND-USE PRACTICES ON OR NEAR AIRPORTS THAT POTENTIALLY ATTRACT HAZARDOUS WILDLIFE.

**2-1. GENERAL.** The wildlife species and the size of the populations attracted to the airport environment vary considerably, depending on several factors, including land-use practices on or near the airport. This section discusses land-use practices having the potential to attract hazardous wildlife and threaten aviation safety. In addition to the specific considerations outlined below, airport operators should refer to *Wildlife Hazard Management at Airports*, prepared by FAA and U.S. Department of Agriculture (USDA) staff. (This manual is available in English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: <http://wildlife-mitigation.tc.FAA.gov>.) And, *Prevention and Control of Wildlife Damage*, compiled by the University of Nebraska Cooperative Extension Division. (This manual is available online in a periodically updated version at: [ianrwww.unl.edu/wildlife/solutions/handbook/](http://ianrwww.unl.edu/wildlife/solutions/handbook/).)

**2-2. WASTE DISPOSAL OPERATIONS.** Municipal solid waste landfills (MSWLF) are known to attract large numbers of hazardous wildlife, particularly birds. Because of this, these operations, when located within the separations identified in the siting criteria in Sections 1-2 through 1-4, are considered incompatible with safe airport operations.

**a. Siting for new municipal solid waste landfills subject to AIR 21.** Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) (AIR 21) prohibits the construction or establishment of a new MSWLF within 6 statute miles of certain public-use airports. Before these prohibitions apply, both the airport and the landfill must meet the very specific conditions described below. These restrictions do not apply to airports or landfills located within the state of Alaska.

The airport must (1) have received a Federal grant(s) under 49 U.S.C. § 47101, et. seq.; (2) be under control of a public agency; (3) serve some scheduled air carrier operations conducted in aircraft with less than 60 seats; and (4) have total annual enplanements consisting of at least 51 percent of scheduled air carrier enplanements conducted in aircraft with less than 60 passenger seats.

The proposed MSWLF must (1) be within 6 miles of the airport, as measured from airport property line to MSWLF property line, and (2) have started construction or establishment on or after April 5, 2001. Public Law 106-181 only limits the construction or establishment of some new MSWLF. It does not limit the expansion, either vertical or horizontal, of existing landfills.

NOTE: Consult the most recent version of AC 150/5200-34, *Construction or Establishment of Landfills Near Public Airports*, for a more detailed discussion of these restrictions.

- b. Siting for new MSWLF not subject to AIR 21.** If an airport and MSWLF do not meet the restrictions of Public Law 106-181, the FAA recommends against locating MSWLF within the separation distances identified in Sections 1-2 through 1-4. The separation distances should be measured from the closest point of the airport's AOA to the closest planned MSWLF cell.
- c. Considerations for existing waste disposal facilities within the limits of separation criteria.** The FAA recommends against airport development projects that would increase the number of aircraft operations or accommodate larger or faster aircraft near MSWLF operations located within the separations identified in Sections 1-2 through 1-4. In addition, in accordance with 40 CFR 258.10, owners or operators of existing MSWLF units that are located within the separations listed in Sections 1-2 through 1-4 must demonstrate that the unit is designed and operated so it does not pose a bird hazard to aircraft. (See Section 4-2(b) of this AC for a discussion of this demonstration requirement.)
- d. Enclosed trash transfer stations.** Enclosed waste-handling facilities that receive garbage behind closed doors; process it via compaction, incineration, or similar manner; and remove all residue by enclosed vehicles generally are compatible with safe airport operations, provided they are not located on airport property or within the Runway Protection Zone (RPZ). These facilities should not handle or store putrescible waste outside or in a partially enclosed structure accessible to hazardous wildlife. Trash transfer facilities that are open on one or more sides; that store uncovered quantities of municipal solid waste outside, even if only for a short time; that use semi-trailers that leak or have trash clinging to the outside; or that do not control odors by ventilation and filtration systems (odor masking is not acceptable) do not meet the FAA's definition of fully enclosed trash transfer stations. The FAA considers these facilities incompatible with safe airport operations if they are located closer than the separation distances specified in Sections 1-2 through 1-4.
- e. Composting operations on or near airport property.** Composting operations that accept only yard waste (e.g., leaves, lawn clippings, or branches) generally do not attract hazardous wildlife. Sewage sludge, woodchips, and similar material are not municipal solid wastes and may be used as compost bulking agents. The compost, however, must never include food or other municipal solid waste. Composting operations should not be located on airport property. Off-airport property composting operations should be located no closer than the greater of the following distances: 1,200 feet from any AOA or the distance called for by airport design requirements (see AC 150/5300-13, *Airport Design*). This spacing should prevent material, personnel, or equipment from penetrating any Object Free Area (OFA), Obstacle Free Zone (OFZ), Threshold Siting Surface (TSS), or Clearway. Airport operators should monitor composting operations located in proximity to the airport to ensure that steam or thermal rise does not adversely affect air traffic. On-airport disposal of compost by-products should not be conducted for the reasons stated in 2-3f.

- f. **Underwater waste discharges.** The FAA recommends against the underwater discharge of any food waste (e.g., fish processing offal) within the separations identified in Sections 1-2 through 1-4 because it could attract scavenging hazardous wildlife.
- g. **Recycling centers.** Recycling centers that accept previously sorted non-food items, such as glass, newspaper, cardboard, or aluminum, are, in most cases, not attractive to hazardous wildlife and are acceptable.
- h. **Construction and demolition (C&D) debris facilities.** C&D landfills do not generally attract hazardous wildlife and are acceptable if maintained in an orderly manner, admit no putrescible waste, and are not co-located with other waste disposal operations. However, C&D landfills have similar visual and operational characteristics to putrescible waste disposal sites. When co-located with putrescible waste disposal operations, C&D landfills are more likely to attract hazardous wildlife because of the similarities between these disposal facilities. Therefore, a C&D landfill co-located with another waste disposal operation should be located outside of the separations identified in Sections 1-2 through 1-4.
- i. **Fly ash disposal.** The incinerated residue from resource recovery power/heat-generating facilities that are fired by municipal solid waste, coal, or wood is generally not a wildlife attractant because it no longer contains putrescible matter. Landfills accepting only fly ash are generally not considered to be wildlife attractants and are acceptable as long as they are maintained in an orderly manner, admit no putrescible waste of any kind, and are not co-located with other disposal operations that attract hazardous wildlife.

Since varying degrees of waste consumption are associated with general incineration (not resource recovery power/heat-generating facilities), the FAA considers the ash from general incinerators a regular waste disposal by-product and, therefore, a hazardous wildlife attractant if disposed of within the separation criteria outlined in Sections 1-2 through 1-4.

**2-3. WATER MANAGEMENT FACILITIES.** Drinking water intake and treatment facilities, storm water and wastewater treatment facilities, associated retention and settling ponds, ponds built for recreational use, and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife. To prevent wildlife hazards, land-use developers and airport operators may need to develop management plans, in compliance with local and state regulations, to support the operation of storm water management facilities on or near all public-use airports to ensure a safe airport environment.

- a. **Existing storm water management facilities.** On-airport storm water management facilities allow the quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect storm water, protect water quality, and control runoff. Because they slowly release water

after storms, they create standing bodies of water that can attract hazardous wildlife. Where the airport has developed a Wildlife Hazard Management Plan (WHMP) in accordance with Part 139, the FAA requires immediate correction of any wildlife hazards arising from existing storm water facilities located on or near airports, using appropriate wildlife hazard mitigation techniques. Airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.

Where possible, airport operators should modify storm water detention ponds to allow a maximum 48-hour detention period for the design storm. The FAA recommends that airport operators avoid or remove retention ponds and detention ponds featuring dead storage to eliminate standing water. Detention basins should remain totally dry between rainfalls. Where constant flow of water is anticipated through the basin, or where any portion of the basin bottom may remain wet, the detention facility should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat.

When it is not possible to drain a large detention pond completely, airport operators may use physical barriers, such as bird balls, wires grids, pillows, or netting, to deter birds and other hazardous wildlife. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office.

The FAA recommends that airport operators encourage off-airport storm water treatment facility operators to incorporate appropriate wildlife hazard mitigation techniques into storm water treatment facility operating practices when their facility is located within the separation criteria specified in Sections 1-2 through 1-4.

- b. New storm water management facilities.** The FAA strongly recommends that off-airport storm water management systems located within the separations identified in Sections 1-2 through 1-4 be designed and operated so as not to create above-ground standing water. Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. When it is not possible to place these ponds away from an airport's AOA, airport operators should use physical barriers, such as bird balls, wires grids, pillows, or netting, to prevent access of hazardous wildlife to open water and minimize aircraft-wildlife interactions. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office. All vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. If soil conditions and other requirements allow, the FAA encourages

the use of underground storm water infiltration systems, such as French drains or buried rock fields, because they are less attractive to wildlife.

- c. Existing wastewater treatment facilities.** The FAA strongly recommends that airport operators immediately correct any wildlife hazards arising from existing wastewater treatment facilities located on or near the airport. Where required, a WHMP developed in accordance with Part 139 will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should encourage wastewater treatment facility operators to incorporate measures, developed in consultation with a wildlife damage management biologist, to minimize hazardous wildlife attractants. Airport operators should also encourage those wastewater treatment facility operators to incorporate these mitigation techniques into their standard operating practices. In addition, airport operators should consider the existence of wastewater treatment facilities when evaluating proposed sites for new airport development projects and avoid such sites when practicable.
- d. New wastewater treatment facilities.** The FAA strongly recommends against the construction of new wastewater treatment facilities or associated settling ponds within the separations identified in Sections 1-2 through 1-4. Appendix 1 defines wastewater treatment facility as “any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes.” The definition includes any pretreatment involving the reduction of the amount of pollutants or the elimination of pollutants prior to introducing such pollutants into a publicly owned treatment works (wastewater treatment facility). During the site-location analysis for wastewater treatment facilities, developers should consider the potential to attract hazardous wildlife if an airport is in the vicinity of the proposed site, and airport operators should voice their opposition to such facilities if they are in proximity to the airport.
- e. Artificial marshes.** In warmer climates, wastewater treatment facilities sometimes employ artificial marshes and use submergent and emergent aquatic vegetation as natural filters. These artificial marshes may be used by some species of flocking birds, such as blackbirds and waterfowl, for breeding or roosting activities. The FAA strongly recommends against establishing artificial marshes within the separations identified in Sections 1-2 through 1-4.
- f. Wastewater discharge and sludge disposal.** The FAA recommends against the discharge of wastewater or sludge on airport property because it may improve soil moisture and quality on unpaved areas and lead to improved turf growth that can be an attractive food source for many species of animals. Also, the turf requires more frequent mowing, which in turn may mutilate or flush insects or small animals and produce straw, both of which can attract hazardous wildlife. In addition, the improved turf may attract grazing wildlife, such as deer and geese. Problems may also occur when discharges saturate unpaved airport areas. The resultant soft, muddy conditions can severely restrict or prevent emergency vehicles from reaching accident sites in a timely manner.

**2-4. WETLANDS.** Wetlands provide a variety of functions and can be regulated by local, state, and Federal laws. Normally, wetlands are attractive to many types of wildlife, including many which rank high on the list of hazardous wildlife species (Table 1).

**NOTE:** If questions exist as to whether an area qualifies as a wetland, contact the local division of the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, or a wetland consultant qualified to delineate wetlands.

- a. Existing wetlands on or near airport property.** If wetlands are located on or near airport property, airport operators should be alert to any wildlife use or habitat changes in these areas that could affect safe aircraft operations. At public-use airports, the FAA recommends immediately correcting, in cooperation with local, state, and Federal regulatory agencies, any wildlife hazards arising from existing wetlands located on or near airports. Where required, a WHMP will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.
- b. New airport development.** Whenever possible, the FAA recommends locating new airports using the separations from wetlands identified in Sections 1-2 through 1-4. Where alternative sites are not practicable, or when airport operators are expanding an existing airport into or near wetlands, a wildlife damage management biologist, in consultation with the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the state wildlife management agency should evaluate the wildlife hazards and prepare a WHMP that indicates methods of minimizing the hazards.
- c. Mitigation for wetland impacts from airport projects.** Wetland mitigation may be necessary when unavoidable wetland disturbances result from new airport development projects or projects required to correct wildlife hazards from wetlands. Wetland mitigation must be designed so it does not create a wildlife hazard. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4.

**(1) Onsite mitigation of wetland functions.** The FAA may consider exceptions to locating mitigation activities outside the separations identified in Sections 1-2 through 1-4 if the affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water recharge, which cannot be replicated when moved to a different location. Using existing airport property is sometimes the only feasible way to achieve the mitigation ratios mandated in regulatory orders and/or settlement agreements with the resource agencies. Conservation easements are an additional means of providing mitigation for project impacts. Typically the airport operator continues to own the property, and an easement is created stipulating that the property will be maintained as habitat for state or Federally listed species.

Mitigation must not inhibit the airport operator's ability to effectively control hazardous wildlife on or near the mitigation site or effectively maintain other aspects of safe airport operations. Enhancing such mitigation areas to attract hazardous wildlife must be avoided. The FAA will review any onsite mitigation proposals to determine compatibility with safe airport operations. A wildlife damage management biologist should evaluate any wetland mitigation projects that are needed to protect unique wetland functions and that must be located in the separation criteria in Sections 1-2 through 1-4 before the mitigation is implemented. A WHMP should be developed to reduce the wildlife hazards.

**(2) Offsite mitigation of wetland functions.** The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4 unless they provide unique functions that must remain onsite (see 2-4c(1)). Agencies that regulate impacts to or around wetlands recognize that it may be necessary to split wetland functions in mitigation schemes. Therefore, regulatory agencies may, under certain circumstances, allow portions of mitigation to take place in different locations.

**(3) Mitigation banking.** Wetland mitigation banking is the creation or restoration of wetlands in order to provide mitigation credits that can be used to offset permitted wetland losses. Mitigation banking benefits wetland resources by providing advance replacement for permitted wetland losses; consolidating small projects into larger, better-designed and managed units; and encouraging integration of wetland mitigation projects with watershed planning. This last benefit is most helpful for airport projects, as wetland impacts mitigated outside of the separations identified in Sections 1-2 through 1-4 can still be located within the same watershed. Wetland mitigation banks meeting the separation criteria offer an ecologically sound approach to mitigation in these situations. Airport operators should work with local watershed management agencies or organizations to develop mitigation banking for wetland impacts on airport property.

**2-5. DREDGE SPOIL CONTAINMENT AREAS.** The FAA recommends against locating dredge spoil containment areas (also known as Confined Disposal Facilities) within the separations identified in Sections 1-2 through 1-4 if the containment area or the spoils contain material that would attract hazardous wildlife.

**2-6. AGRICULTURAL ACTIVITIES.** Because most, if not all, agricultural crops can attract hazardous wildlife during some phase of production, the FAA recommends against the used of airport property for agricultural production, including hay crops, within the separations identified in Sections 1-2 through 1-4. . If the airport has no financial alternative to agricultural crops to produce income necessary to maintain the viability of the airport, then the airport shall follow the crop distance guidelines listed in the table titled "Minimum Distances between Certain Airport Features and Any On-Airport Agricultural Crops" found in AC 150/5300-13, *Airport Design*, Appendix 17. The cost of wildlife control and potential accidents should be weighed against the income produced by the on-airport crops when deciding whether to allow crops on the airport.

- a. Livestock production.** Confined livestock operations (i.e., feedlots, dairy operations, hog or chicken production facilities, or egg laying operations) often attract flocking birds, such as starlings, that pose a hazard to aviation. Therefore, The FAA recommends against such facilities within the separations identified in Sections 1-2 through 1-4. Any livestock operation within these separations should have a program developed to reduce the attractiveness of the site to species that are hazardous to aviation safety. Free-ranging livestock must not be grazed on airport property because the animals may wander onto the AOA. Furthermore, livestock feed, water, and manure may attract birds.
- b. Aquaculture.** Aquaculture activities (i.e. catfish or trout production) conducted outside of fully enclosed buildings are inherently attractive to a wide variety of birds. Existing aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4 must have a program developed to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should also oppose the establishment of new aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4.
- c. Alternative uses of agricultural land.** Some airports are surrounded by vast areas of farmed land within the distances specified in Sections 1-2 through 1-4. Seasonal uses of agricultural land for activities such as hunting can create a hazardous wildlife situation. In some areas, farmers will rent their land for hunting purposes. Rice farmers, for example, flood their land during waterfowl hunting season and obtain additional revenue by renting out duck blinds. The duck hunters then use decoys and call in hundreds, if not thousands, of birds, creating a tremendous threat to aircraft safety. A wildlife damage management biologist should review, in coordination with local farmers and producers, these types of seasonal land uses and incorporate them into the WHMP.

## **2-7. GOLF COURSES, LANDSCAPING AND OTHER LAND-USE CONSIDERATIONS.**

- a. Golf courses.** The large grassy areas and open water found on most golf courses are attractive to hazardous wildlife, particularly Canada geese and some species of gulls. These species can pose a threat to aviation safety. The FAA recommends against construction of new golf courses within the separations identified in Sections 1-2 through 1-4. Existing golf courses located within these separations must develop a program to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should ensure these golf courses are monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be immediately implemented.
- b. Landscaping and landscape maintenance.** Depending on its geographic location, landscaping can attract hazardous wildlife. The FAA recommends that airport operators approach landscaping with caution and confine it to airport areas not associated with aircraft movements. A wildlife damage management biologist should review all landscaping plans. Airport operators should also monitor all landscaped areas on a continuing basis for the presence of hazardous wildlife. If

hazardous wildlife is detected, corrective actions should be immediately implemented.

Turf grass areas can be highly attractive to a variety of hazardous wildlife species. Research conducted by the USDA Wildlife Services' National Wildlife Research Center has shown that no one grass management regime will deter all species of hazardous wildlife in all situations. In cooperation with wildlife damage management biologist, airport operators should develop airport turf grass management plans on a prescription basis, depending on the airport's geographic locations and the type of hazardous wildlife likely to frequent the airport

Airport operators should ensure that plant varieties attractive to hazardous wildlife are not used on the airport. Disturbed areas or areas in need of re-vegetating should not be planted with seed mixtures containing millet or any other large-seed producing grass. For airport property already planted with seed mixtures containing millet, rye grass, or other large-seed producing grasses, the FAA recommends disking, plowing, or another suitable agricultural practice to prevent plant maturation and seed head production. Plantings should follow the specific recommendations for grass management and seed and plant selection made by the State University Cooperative Extension Service, the local office of Wildlife Services, or a qualified wildlife damage management biologist. Airport operators should also consider developing and implementing a preferred/prohibited plant species list, reviewed by a wildlife damage management biologist, which has been designed for the geographic location to reduce the attractiveness to hazardous wildlife for landscaping airport property.

- c. Airports surrounded by wildlife habitat.** The FAA recommends that operators of airports surrounded by woodlands, water, or wetlands refer to Section 2.4 of this AC. Operators of such airports should provide for a Wildlife Hazard Assessment (WHA) conducted by a wildlife damage management biologist. This WHA is the first step in preparing a WHMP, where required.
- d. Other hazardous wildlife attractants.** Other specific land uses or activities (e.g., sport or commercial fishing, shellfish harvesting, etc.), perhaps unique to certain regions of the country, have the potential to attract hazardous wildlife. Regardless of the source of the attraction, when hazardous wildlife is noted on a public-use airport, airport operators must take prompt remedial action(s) to protect aviation safety.

**2-8. SYNERGISTIC EFFECTS OF SURROUNDING LAND USES.** There may be circumstances where two (or more) different land uses that would not, by themselves, be considered hazardous wildlife attractants or that are located outside of the separations identified in Sections 1-2 through 1-4 that are in such an alignment with the airport as to create a wildlife corridor directly through the airport and/or surrounding airspace. An example of this situation may involve a lake located outside of the separation criteria on the east side of an airport and a large hayfield on the west side of an airport, land uses that together could create a flyway for Canada geese directly across the airspace of the airport. There are numerous examples of such situations;

therefore, airport operators and the wildlife damage management biologist must consider the entire surrounding landscape and community when developing the WHMP.

## SECTION 3.

### PROCEDURES FOR WILDLIFE HAZARD MANAGEMENT BY OPERATORS OF PUBLIC-USE AIRPORTS.

**3.1. INTRODUCTION.** In recognition of the increased risk of serious aircraft damage or the loss of human life that can result from a wildlife strike, the FAA may require the development of a Wildlife Hazard Management Plan (WHMP) when specific triggering events occur on or near the airport. Part 139.337 discusses the specific events that trigger a Wildlife Hazard Assessment (WHA) and the specific issues that a WHMP must address for FAA approval and inclusion in an Airport Certification Manual.

**3.2. COORDINATION WITH USDA WILDLIFE SERVICES OR OTHER QUALIFIED WILDLIFE DAMAGE MANAGEMENT BIOLOGISTS.** The FAA will use the Wildlife Hazard Assessment (WHA) conducted in accordance with Part 139 to determine if the airport needs a WHMP. Therefore, persons having the education, training, and expertise necessary to assess wildlife hazards must conduct the WHA. The airport operator may look to Wildlife Services or to qualified private consultants to conduct the WHA. When the services of a wildlife damage management biologist are required, the FAA recommends that land-use developers or airport operators contact a consultant specializing in wildlife damage management or the appropriate state director of Wildlife Services.

**NOTE:** Telephone numbers for the respective USDA Wildlife Services state offices can be obtained by contacting USDA Wildlife Services Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD, 20737-1234, Telephone (301) 734-7921, Fax (301) 734-5157 (<http://www.aphis.usda.gov/ws/>).

**3-3. WILDLIFE HAZARD MANAGEMENT AT AIRPORTS: A MANUAL FOR AIRPORT PERSONNEL.** This manual, prepared by FAA and USDA Wildlife Services staff, contains a compilation of information to assist airport personnel in the development, implementation, and evaluation of WHMPs at airports. The manual includes specific information on the nature of wildlife strikes, legal authority, regulations, wildlife management techniques, WHAs, WHMPs, and sources of help and information. The manual is available in three languages: English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: <http://wildlife-mitigation.tc.FAA.gov/>. This manual only provides a starting point for addressing wildlife hazard issues at airports. Hazardous wildlife management is a complex discipline and conditions vary widely across the United States. Therefore, qualified wildlife damage management biologists must direct the development of a WHMP and the implementation of management actions by airport personnel.

There are many other resources complementary to this manual for use in developing and implementing WHMPs. Several are listed in the manual's bibliography.

**3-4. WILDLIFE HAZARD ASSESSMENTS, TITLE 14, CODE OF FEDERAL REGULATIONS, PART 139.** Part 139.337(b) requires airport operators to conduct a Wildlife Hazard Assessment (WHA) when certain events occur on or near the airport.

Part 139.337 (c) provides specific guidance as to what facts must be addressed in a WHA.

**3-5. WILDLIFE HAZARD MANAGEMENT PLAN (WHMP).** The FAA will consider the results of the WHA, along with the aeronautical activity at the airport and the views of the airport operator and airport users, in determining whether a formal WHMP is needed, in accordance with Part 139.337. If the FAA determines that a WHMP is needed, the airport operator must formulate and implement a WHMP, using the WHA as the basis for the plan.

The goal of an airport's Wildlife Hazard Management Plan is to minimize the risk to aviation safety, airport structures or equipment, or human health posed by populations of hazardous wildlife on and around the airport.

The WHMP must identify hazardous wildlife attractants on or near the airport and the appropriate wildlife damage management techniques to minimize the wildlife hazard. It must also prioritize the management measures.

**3-6. LOCAL COORDINATION.** The establishment of a Wildlife Hazards Working Group (WHWG) will facilitate the communication, cooperation, and coordination of the airport and its surrounding community necessary to ensure the effectiveness of the WHMP. The cooperation of the airport community is also necessary when new projects are considered. Whether on or off the airport, the input from all involved parties must be considered when a potentially hazardous wildlife attractant is being proposed. Airport operators should also incorporate public education activities with the local coordination efforts because some activities in the vicinity of your airport, while harmless under normal leisure conditions, can attract wildlife and present a danger to aircraft. For example, if public trails are planned near wetlands or in parks adjoining airport property, the public should know that feeding birds and other wildlife in the area may pose a risk to aircraft.

Airport operators should work with local and regional planning and zoning boards so as to be aware of proposed land-use changes, or modification of existing land uses, that could create hazardous wildlife attractants within the separations identified in Sections 1-2 through 1-4. Pay particular attention to proposed land uses involving creation or expansion of waste water treatment facilities, development of wetland mitigation sites, or development or expansion of dredge spoil containment areas. At the very least, airport operators must ensure they are on the notification list of the local planning board or equivalent review entity for all communities located within 5 miles of the airport, so they will receive notification of any proposed project and have the opportunity to review it for attractiveness to hazardous wildlife.

**3-7 COORDINATION/NOTIFICATION OF AIRMEN OF WILDLIFE HAZARDS.** If an existing land-use practice creates a wildlife hazard and the land-use practice or wildlife hazard cannot be immediately eliminated, airport operators must issue a Notice to Airmen (NOTAM) and encourage the land-owner or manager to take steps to control the wildlife hazard and minimize further attraction.

## SECTION 4.

### FAA NOTIFICATION AND REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS

#### 4-1. FAA REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS.

- a. The FAA discourages the development of waste disposal and other facilities, discussed in Section 2, located within the 5,000/10,000-foot criteria specified in Sections 1-2 through 1-4.
- b. For projects that are located outside the 5,000/10,000-foot criteria but within 5 statute miles of the airport's AOA, the FAA may review development plans, proposed land-use changes, operational changes, or wetland mitigation plans to determine if such changes present potential wildlife hazards to aircraft operations. The FAA considers sensitive airport areas as those that lie under or next to approach or departure airspace. This brief examination should indicate if further investigation is warranted.
- c. Where a wildlife damage management biologist has conducted a further study to evaluate a site's compatibility with airport operations, the FAA may use the study results to make a determination.

#### 4-2. WASTE MANAGEMENT FACILITIES.

- a. **Notification of new/expanded project proposal.** Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) limits the construction or establishment of new MSWLF within 6 statute miles of certain public-use airports, when both the airport and the landfill meet very specific conditions. See Section 2-2 of this AC and AC 150/5200-34 for a more detailed discussion of these restrictions.

The Environmental Protection Agency (EPA) requires any MSWLF operator proposing a new or expanded waste disposal operation within 5 statute miles of a runway end to notify the appropriate FAA Regional Airports Division Office and the airport operator of the proposal (40 CFR 258, *Criteria for Municipal Solid Waste Landfills*, Section 258.10, *Airport Safety*). The EPA also requires owners or operators of new MSWLF units, or lateral expansions of existing MSWLF units, that are located within 10,000 feet of any airport runway end used by turbojet aircraft, or within 5,000 feet of any airport runway end used only by piston-type aircraft, to demonstrate successfully that such units are not hazards to aircraft. (See 4-2.b below.)

When new or expanded MSWLF are being proposed near airports, MSWLF operators must notify the airport operator and the FAA of the proposal as early as possible pursuant to 40 CFR 258.

- b. Waste handling facilities within separations identified in Sections 1-2 through 1-4.** To claim successfully that a waste-handling facility sited within the separations identified in Sections 1-2 through 1-4 does not attract hazardous wildlife and does not threaten aviation, the developer must establish convincingly that the facility will not handle putrescible material other than that as outlined in 2-2.d. The FAA strongly recommends against any facility other than that as outlined in 2-2.d (enclosed transfer stations). The FAA will use this information to determine if the facility will be a hazard to aviation.
- c. Putrescible-Waste Facilities.** In their effort to satisfy the EPA requirement, some putrescible-waste facility proponents may offer to undertake experimental measures to demonstrate that their proposed facility will not be a hazard to aircraft. To date, no such facility has been able to demonstrate an ability to reduce and sustain hazardous wildlife to levels that existed before the putrescible-waste landfill began operating. For this reason, demonstrations of experimental wildlife control measures may not be conducted within the separation identified in Sections 1-2 through 1-4.

**4-3. OTHER LAND-USE PRACTICE CHANGES.** As a matter of policy, the FAA encourages operators of public-use airports who become aware of proposed land use practice changes that may attract hazardous wildlife within 5 statute miles of their airports to promptly notify the FAA. The FAA also encourages proponents of such land use changes to notify the FAA as early in the planning process as possible. Advanced notice affords the FAA an opportunity (1) to evaluate the effect of a particular land-use change on aviation safety and (2) to support efforts by the airport sponsor to restrict the use of land next to or near the airport to uses that are compatible with the airport.

The airport operator, project proponent, or land-use operator may use FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, or other suitable documents similar to FAA Form 7460-1 to notify the appropriate FAA Regional Airports Division Office. Project proponents can contact the appropriate FAA Regional Airports Division Office for assistance with the notification process.

It is helpful if the notification includes a 15-minute quadrangle map of the area identifying the location of the proposed activity. The land-use operator or project proponent should also forward specific details of the proposed land-use change or operational change or expansion. In the case of solid waste landfills, the information should include the type of waste to be handled, how the waste will be processed, and final disposal methods.

- a. Airports that have received Federal grant-in-aid assistance.** Airports that have received Federal grant-in-aid assistance are required by their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. The FAA recommends that airport operators to the extent practicable oppose off-airport land-use changes or practices within the separations identified in Sections 1-2 through 1-4 that may attract hazardous wildlife. Failure to do so may lead to noncompliance with applicable grant assurances. The FAA will not approve the placement of airport

development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for eliminating or reducing a proposed wildlife hazard. Airport operators should identify hazardous wildlife attractants and any associated wildlife hazards during any planning process for new airport development projects.

This page intentionally left blank.

**APPENDIX 1. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR.**

1. **GENERAL.** This appendix provides definitions of terms used throughout this AC.

1. **Air operations area.** Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.
2. **Airport operator.** The operator (private or public) or sponsor of a public-use airport.
3. **Approach or departure airspace.** The airspace, within 5 statute miles of an airport, through which aircraft move during landing or takeoff.
4. **Bird balls.** High-density plastic floating balls that can be used to cover ponds and prevent birds from using the sites.
5. **Certificate holder.** The holder of an Airport Operating Certificate issued under Title 14, Code of Federal Regulations, Part 139.
6. **Construct a new MSWLF.** To begin to excavate, grade land, or raise structures to prepare a municipal solid waste landfill as permitted by the appropriate regulatory or permitting agency.
7. **Detention ponds.** Storm water management ponds that hold storm water for short periods of time, a few hours to a few days.
8. **Establish a new MSWLF.** When the first load of putrescible waste is received on-site for placement in a prepared municipal solid waste landfill.
9. **Fly ash.** The fine, sand-like residue resulting from the complete incineration of an organic fuel source. Fly ash typically results from the combustion of coal or waste used to operate a power generating plant.
10. **General aviation aircraft.** Any civil aviation aircraft not operating under 14 CFR Part 119, Certification: Air Carriers and Commercial Operators.
11. **Hazardous wildlife.** Species of wildlife (birds, mammals, reptiles), including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard
12. **Municipal Solid Waste Landfill (MSWLF).** A publicly or privately owned discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 CFR § 257.2. An MSWLF may receive

other types wastes, such as commercial solid waste, non-hazardous sludge, small-quantity generator waste, and industrial solid waste, as defined under 40 CFR § 258.2. An MSWLF can consist of either a stand alone unit or several cells that receive household waste.

13. **New MSWLF.** A municipal solid waste landfill that was established or constructed after April 5, 2001.
14. **Piston-powered aircraft.** Fixed-wing aircraft powered by piston engines.
15. **Piston-use airport.** Any airport that does not sell Jet-A fuel for fixed-wing turbine-powered aircraft, and primarily serves fixed-wing, piston-powered aircraft. Incidental use of the airport by turbine-powered, fixed-wing aircraft would not affect this designation. However, such aircraft should not be based at the airport.
16. **Public agency.** A State or political subdivision of a State, a tax-supported organization, or an Indian tribe or pueblo (49 U.S.C. § 47102(19)).
17. **Public airport.** An airport used or intended to be used for public purposes that is under the control of a public agency; and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft is publicly owned (49 U.S.C. § 47102(20)).
18. **Public-use airport.** An airport used or intended to be used for public purposes, and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft may be under the control of a public agency or privately owned and used for public purposes (49 U.S.C. § 47102(21)).
19. **Putrescible waste.** Solid waste that contains organic matter capable of being decomposed by micro-organisms and of such a character and proportion as to be capable of attracting or providing food for birds (40 CFR §257.3-8).
20. **Putrescible-waste disposal operation.** Landfills, garbage dumps, underwater waste discharges, or similar facilities where activities include processing, burying, storing, or otherwise disposing of putrescible material, trash, and refuse.
21. **Retention ponds.** Storm water management ponds that hold water for several months.
22. **Runway protection zone (RPZ).** An area off the runway end to enhance the protection of people and property on the ground (see AC 150/5300-13). The dimensions of this zone vary with the airport design, aircraft, type of operation, and visibility minimum.
23. **Scheduled air carrier operation.** Any common carriage passenger-carrying operation for compensation or hire conducted by an air carrier or commercial

operator for which the air carrier, commercial operator, or their representative offers in advance the departure location, departure time, and arrival location. It does not include any operation that is conducted as a supplemental operation under 14 CFR Part 119 or as a public charter operation under 14 CFR Part 380 (14 CFR § 119.3).

- 24. Sewage sludge.** Any solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works. (40 CFR 257.2)
- 25. Sludge.** Any solid, semi-solid, or liquid waste generated from a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. (40 CFR 257.2)
- 26. Solid waste.** Any garbage, refuse, sludge, from a waste treatment plant, water supply treatment plant or air pollution control facility and other discarded material, including, solid liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or by product material as defined by the Atomic Energy Act of 1954, as amended, (68 Stat. 923). (40 CFR 257.2)
- 27. Turbine-powered aircraft.** Aircraft powered by turbine engines including turbojets and turboprops but excluding turbo-shaft rotary-wing aircraft.
- 28. Turbine-use airport.** Any airport that sells Jet-A fuel for fixed-wing turbine-powered aircraft.
- 29. Wastewater treatment facility.** Any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes, including Publicly Owned Treatment Works (POTW), as defined by Section 212 of the Federal Water Pollution Control Act (P.L. 92-500) as amended by the Clean Water Act of 1977 (P.L. 95-576) and the Water Quality Act of 1987 (P.L. 100-4). This definition includes any pretreatment involving the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. (See 40 CFR Section 403.3 (q), (r), & (s)).

- 30. Wildlife.** Any wild animal, including without limitation any wild mammal, bird, reptile, fish, amphibian, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, including any part, product, egg, or offspring thereof (50 CFR 10.12, *Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants*). As used in this AC, wildlife includes feral animals and domestic animals out of the control of their owners (14 CFR Part 139, Certification of Airports).
- 31. Wildlife attractants.** Any human-made structure, land-use practice, or human-made or natural geographic feature that can attract or sustain hazardous wildlife within the landing or departure airspace or the airport's AOA. These attractants can include architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.
- 32. Wildlife hazard.** A potential for a damaging aircraft collision with wildlife on or near an airport.
- 33. Wildlife strike.** A wildlife strike is deemed to have occurred when:
- a. A pilot reports striking 1 or more birds or other wildlife;
  - b. Aircraft maintenance personnel identify aircraft damage as having been caused by a wildlife strike;
  - c. Personnel on the ground report seeing an aircraft strike 1 or more birds or other wildlife;
  - d. Bird or other wildlife remains, whether in whole or in part, are found within 200 feet of a runway centerline, unless another reason for the animal's death is identified;
  - e. The animal's presence on the airport had a significant negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, aircraft left pavement area to avoid collision with animal) (Transport Canada, Airports Group, *Wildlife Control Procedures Manual*, Technical Publication 11500E, 1994).

## 2. RESERVED.

## **APPENDIX J**

(Information in this appendix is provided as a reference source to assist the users of the AELUP.)

### **AICUZ STUDY FOR AFRC, (JFTB) LOS ALAMITOS, 1994**

AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) STUDY

ARMED FORCES RESERVE CENTER

LOS ALAMITOS ARMY AIRFIELD

LOS ALAMITOS, ORANGE COUNTY, CALIFORNIA

Prepared by:

OFFICE OF THE ADJUTANT GENERAL

CALIFORNIA NATIONAL GUARD

9800 Goethe Road - P.O. Box 269101

Sacramento, California 95826-9101

(916) 854-3500

March 1994



DEPARTMENT OF THE ARMY  
OFFICE OF THE ASSISTANT SECRETARY  
INSTALLATIONS LOGISTICS AND ENVIRONMENT  
110 ARMY PENTAGON  
WASHINGTON DC 20310-0110



September 14, 1993

MEMORANDUM FOR THE ENVIRONMENTAL RESOURCES MANAGEMENT  
OFFICE, NATIONAL GUARD BUREAU

SUBJECT: Completion of the Los Alamitos Army Airfield  
Installation Compatible Use Zone (AICUZ)  
Study

Reference memorandum from the Assistant Adjutant  
General, California National Guard, dated July 15, 1993,  
subject as above.

The California National Guard's request for  
authority to use Air Force criteria for determining  
accident potential and clear zones at Los Alamitos Army  
Air Field is approved. When determining the configura-  
tion of the clear zones at the ends of the runways,  
consideration should be given to limiting them to a  
maximum length of 1,000 feet, which is within the  
boundary of the installation.

Paul W. Johnson  
Deputy Assistant Secretary of the Army  
(Installations and Housing)  
OASA(I, L&E)

AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) STUDY

TABLE OF CONTENTS

	<u>Page</u>
SECTION 1 - SUMMARY .....	1
SECTION 2 - BACKGROUND .....	3
SECTION 3 - PURPOSE OF THE STUDY .....	11
SECTION 4 - OBJECTIVES OF THE AICUZ PROGRAM .....	12
SECTION 5 - METHODOLOGY .....	13
SECTION 6 - EXISTING CONDITIONS .....	14
6.1 AIRFIELD OPERATIONS .....	14
6.1.1 Station History .....	14
6.1.2 Mission and Capabilities .....	14
6.1.3 Existing Airfield Operations .....	15
6.2 NOISE CONTOURS AND LEVELS .....	21
6.3 CLEAR ZONES .....	24
6.4 LAND USES .....	28
6.4.1 Installation Land Uses .....	28
6.4.2 Surrounding Communities' Land Uses .....	29
6.4.2.1 Existing Land Uses .....	29
6.4.2.2 Property Values and Ownership .....	34
6.4.2.3 Population Distribution and Density .....	36
SECTION 7 - FUTURE CONDITIONS .....	39
7.1 PROJECTED AIRFIELD OPERATIONS .....	39
7.2 PROJECTED NOISE LEVELS .....	39
7.3 PROJECTED CLEAR ZONES .....	40
7.4 LAND USES .....	40
7.4.1 Future Installation Land Uses .....	41
7.4.2 Surrounding Communities' Future Land Uses .....	41
7.4.3 Projected Property Value Changes .....	41

AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) STUDY

TABLE OF CONTENTS (Continued)

SECTION 8 - INCOMPATIBLE USES .....	42
8.1 EXISTING INCOMPATIBLE USES .....	42
8.1.1 Clear Zones .....	42
8.1.2 Noise Zones .....	42
8.2 FUTURE INCOMPATIBLE USES .....	43
8.2.1 Clear Zones .....	43
8.2.2 Noise Zones .....	43
SECTION 9 - MITIGATIONS AND RECOMMENDATIONS .....	44
SECTION 10 - REFERENCES CITED .....	45

AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) STUDY

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
6.1-1	Los Alamitos AFRC Air Traffic Control Activity ....	16
6.1-2	Flight Patterns and Ingress/Egress Routes .....	20
6.2-1	Existing Noise Contours for Los Alamitos Army Airfield .....	23
6.2-2	Cypress Aircraft Noise Study Monitoring Locations .	25
6.3-1	Clear Zones Runway 22R/04L, 22L/04R .....	27/27A/27B
6.3-2	Los Alamitos AFRC Existing Land Uses .....	30
6.4-2	Disaster Support Area Designation .....	32
6.4-3	Land Use of the Surrounding Communities .....	33
6.4-4	North Orange County - 1990 Population by City-Percent Change from 1980 .....	38

AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) STUDY

LIST OF TABLES

<u>Table</u>		<u>Page</u>
2-1	Department of Defense Airfield Accident Potential Criteria .....	5
2-2	Department of Defense Land Use Compatibility Guidelines for Clear Zone and Accident Potential Zones .....	7
6.1-1	Los Alamitos Army Airfield Record of Operation 1987, 1988, 1989, 1990, 1991, 1992, 1993 .....	17
6.2-1	Summary of Flight Operations .....	22
6.2-2	Summary of Operations by Flight Track .....	22
6.2-3	Average Maximum Noise Levels from Three Residential Sites in Cypress .....	26
6.4-1	Runway Classification by Fixed Wing Aircraft Type ...	31
6.4-2	Regional Existing Home Price Summary for California Annual Median for 1987-1992 and Monthly Median for December 1993 .....	35
6.4-3	Orange County Home Sales Median Sales Price December 1993 .....	36

## AIR INSTALLATION COMPATIBLE USE ZONE (AICUZ) STUDY

### SECTION 1 - SUMMARY

The Los Alamitos Armed Forces Reserve Center (AFRC) is the major facility for Army Reserve Component aviation activities in Southern California. The installation is operated by the California National Guard with the Guard and the U.S. Army Reserve as the primary tenants. A key mission of the Los Alamitos Army Airfield is to provide airfield support to all tenant and transient Department of Defense and Allied fixed and rotary wing operations. The installation is also used for U.S. Navy Seabee activities, U.S. Marine Corps Reserves, U.S. Naval Reserves, the Civil Air Patrol, and as a Federal and State Disaster Support Area.

The Air Installation Compatible Use Zone (AICUZ) Program was initiated by the Department of Defense to protect the operational capability of air installations by identifying incompatible land uses associated with the Accident Potential Zones and Noise Zones established for an airfield. This AICUZ for the Los Alamitos AFRC is intended to inform the general public and act as a planning guide for local communities with regard to compatible land uses surrounding the installation, and act as a revision to the AICUZ determinations established in the Los Alamitos Army Airfield Master Plan (1988).

The study identifies Clear Zones (Figure 6.3-1) that are within the boundaries of Los Alamitos Army Airfield. The Clear Zones for the South Runway (Class B) are coterminous with the airfield boundary, affording protection of the Federal property inside the boundary from incompatible land development. Development within these zones is the responsibility of the Installation Commander. Protection of this property also provides a wider safety buffer between the installation and surrounding communities.

The study does not identify any off base accident potential zones (APZ). The level of airfield utilization by Class B type aircraft requiring such zones is not sufficient to justify off-base APZ designation.

The existing noise contours indicate that only small areas of residential development are within the normally unacceptable contour (Noise Zone II, 65-75 dB(A)). During the next 5 to 7 years UH-60 helicopters will be phased in to replace existing UH-1H. The projected future noise contour should not be significantly larger than the existing contour due to the quieter UH-60 helicopters. Small areas of existing residential property should remain within the projected Noise Zone II boundary.

The net results of this study is that there are no incompatible land uses currently existing within the Clear Zones. A potential for incompatible land use does exist for undeveloped properties around the base if noise impacts are not considered during development planning.

Although no accident potential zones or clear zones are shown off-base, the tables at pages 5 and 6 are retained for reference by the installation. The modification criteria shown in the remarks of table 2-1, page 6, were applied when delineating the current accident potential zones and clear zones.

Measures identified for the Los Alamitos AFRC to reduce existing or potential future incompatible land uses include monitoring and reviewing flight patterns and procedures in an attempt to reduce the size of incompatible zones, limiting of base developments to compatible use areas, continued education/discipline of pilots to follow the correct procedures to limit noise impacts, notifying the public of any planned temporary noise excommunicated of significant intensity, and reviewing development plans proposed by local communities for properties within the AICUZ.

Measures identified for use by local communities include employing noise reduction technology when remodeling/improving existing developments. These measures also include adjusting zoning on undeveloped parcels to reflect land uses outlined by Department of Defense noise guidelines, Federal Aviation Administration, and noise constraints shown on the noise contour map (Figure 6.2-1). Other mitigating measures could include downzoning proposed redevelopments to fit acceptable land uses, and coordinating planning efforts with Los Alamitos Armed Forces Reserve Center personnel.

## SECTION 2 - BACKGROUND

The increased urbanization of Southern California has created conflicts with existing civil and military air installations. Impacts from aircraft noise and potential safety hazards affect the surrounding communities while the encroachment of developments may impair airfield operations.

Airports have traditionally been constructed as far away from urbanized areas as practical for ground transportation and access. Due to the economic enhancement of major commercial airports and general population growth, the areas around many airports have been developed, often with incompatible land uses.

The need for coordinated planning between military air installations and the surrounding communities resulted in the initiation of the Air Installation Compatible Use Zone (AICUZ) Program by the Department of Defense. The purpose of the AICUZ program is to ensure compatible development in high noise areas, minimize public exposure to potential safety hazards associated with aircraft operations, and protect the operational capability of the air installation.

The concept of the AICUZ is to establish compatible land uses in areas around military airfields by identifying noise exposure contours and accident potential zones. This study shows Accident Potential Zones and Clear Zones to be within airfield boundaries.

The Noise Control Act of 1972, which promotes an environment free of noise that jeopardizes the health and welfare of individuals, states that Federal agencies shall comply with Federal, State, and local noise requirements. Military weapons or equipment designed for combat are excluded from this act. However, the Office of the Judge Advocate General (1989) states that the Army should endeavor to comply with noise regulations unless to do so would conflict with its military mission.

The State of California Noise Planning in Land Use Act of 1972 requires noise contours to be generated for all airfields, including military. The California Airport Noise Standards of 1979 define how these noise contours are generated and what are considered compatible land uses for the noise environment. Although military airfields are not included in these standards, the AICUZ program closely follows them.

The Noise Zones for the AICUZ program are defined in Army Regulation 200-1 (1982) for areas containing housing, schools, medical facilities or other noise sensitive dwellings as:

- (a) Zone I - acceptable
- (b) Zone II - normally unacceptable
- (c) Zone III - unacceptable

These noise zones are based on specific A-weighted day-night levels (ADNL) in decibels [dB(A)]. The ADNL is derived from the logarithmic average of noise episodes with a 10 dB(A) penalty added to nighttime levels (2200-0700 hours). The level of each Noise Zone is as follows:

- (a) Zone I - Less than 65 dB(A)
- (b) Zone II - 65 to 75 dB(A)
- (c) Zone III - Greater than 75 dB(A)

In addition to noise and accident potential, there are general requirements for land use planning in the vicinity of airfields. Height and obstruction criteria have been established by various planning documents including Federal Aviation Regulation, Part 77, "Objects Affecting Navigable Airspace." Local communities should regulate land uses which might be hazardous to residents or conflict with aircraft operations. These land use activities include:

- . Release into the air substances which would impair visibility or otherwise interfere with the operation of aircraft; e.g.; steam, dust and smoke.
- . Produce light emissions, either direct or indirect (reflective), which would interfere with pilot vision.
- . Produce emissions which would interfere with aircraft communications systems or navigational equipment.
- . Engage in activities which would attract birds or waterfowl, such as, but not limited to, operation of sanitary landfills, maintenance of feeding stations, or growing of certain vegetation.

The Noise Zones, Clear Zones, and the other land use regulations discussed above are collectively utilized in the AICUZ to determine compatible uses for military airfield environs.

FOR REFERENCE ONLY - MODIFICATIONS APPLICABLE TO THIS STUDY

Table 2-1

DEPARTMENT OF DEFENSE AIRFIELD ACCIDENT POTENTIAL CRITERIA

Item No.	Item Description	Class A Runway Requirement	Class B Runway Requirement	Remarks
<u>CLEAR ZONES*</u>				
1	Length	3,000 feet	3,000 feet	Measured along the extended runway centerline beginning at the runway end.**
2	Width	1,000 feet	3,000 feet	Centered on and measured at right angles to the extended runway centerline. Exceptions to these widths are permissible based on individual service analysis of highest accident potential area for specific runway use and acquisition constraints. Refer to Figure 2-3. Accident Potential Zone Guidelines.
3	Longitudinal grade of area to be graded	Max 10.0%		The area to be graded is 1,000 feet in length by the established width of the primary surface. Grades are exclusive of the overrun, but are to be shaped into the overrun grade. The maximum longitudinal grade change cannot exceed ± 2.0 percent per 100 feet. The graded area is to be cleared and grubbed of stumps and free of abrupt surface irregularities, ditches, and ponding areas. No above-ground structures**, objects, or traverse ways are permitted in the area to be graded, but gentle swales, subsurface drainage, covered culverts and underground structures are permissible. The transition from the graded area to the remainder of the clear zone is to be as gradual as feasible. No part of either area can penetrate the approach-departure clearance surface. For policy regarding permissible facilities, geographical features, and land use in the remainder of the clear zone, refer to guidance furnished by each individual Service, and DOD Air Installations Compatible Use Zone (AICUZ) guidelines for clear zones and accident potential zones (Table 2-2). For Navy and Marine Corps airfields, that area of the clear zone beyond the overrun and having the same width as the overrun must be cleared and graded to generally follow the overrun profile.
4	Transverse grade of area to be graded (in direction of surface drainage prior to channelization)	Min 2.0% Max 10.0%		

\* Applicable to air installations of the Military Departments in the United States, its territories, trusts, and possessions. For military installations overseas, other than in locations designated, apply to the maximum practical extent.

\*\* For the definition of runway end refer to Airfield and Helipport Planning Criteria, 1981.

\*\*\* Essential Nav Aid structures expected according to standards of individual DOD Service component.

FOR REFERENCE ONLY - MODIFICATIONS APPLICABLE TO THIS STUDY

Table 2-1 (Continued)

DEPARTMENT OF DEFENSE AIRFIELD ACCIDENT POTENTIAL CRITERIA

Item No.	Item Description	Class A Runway Requirement	Class B Runway Requirement	Remarks
<u>ACCIDENT POTENTIAL ZONES (APZ)</u> <sup>1 2</sup>				
1	APZ I Length	2,500 feet	5,000 feet	APZ I starts at the end of the clear zone. APZ II starts at the end of APZ I. They are centered and measured on the extended runway centerline. Modifications will be considered if: o The runway is infrequently used. o Prevailing wind conditions are such that a large percentage (that is, over 80 percent) of the operations are in one direction.
2	APZ I Width	1,000 feet	3,000 feet	o Local accident history indicates consideration of different Areas. o Most aircraft do not overfly an APZ area as defined here during normal operations (modifications may be made to alter these zones and adjust them to conform to the line of flight). o Other unusual conditions exist.
3	APZ II Length	2,500 feet	7,000 feet	
4	APZ II Width	1,000 feet	3,000 feet	

1 Applicable to air installations of the Military Departments in the United States, its territories, trusts, and possessions.  
For military installations overseas, other than in locations designated, follow guidance of the individual service component.

2 For guidance on land use within the APZ's, see DOD Air Installations Compatible Use zone (AICUZ) guidelines (Table 2-2).

Source: Airfield and Heliport Planning Criteria, TM 5-803-7, 1981

Table 2-2

DEPARTMENT OF DEFENSE  
LAND USE COMPATIBILITY GUIDELINES FOR CLEAR ZONE  
AND ACCIDENT POTENTIAL ZONES\*

<u>Land Use Category</u>	<u>Compatibility</u>		
	<u>Clear Zone</u>	<u>APZ I</u>	<u>APZ II</u>
1			
RESIDENTIAL			
Single family	No	No	Yes <sup>2</sup>
2-4 family	No	No	No
Multifamily dwellings	No	No	No
Group quarters	No	No	No
Residential hotels	No	No	No
Mobile home parks or courts	No	No	No
Other residential	No	No	No
3			
INDUSTRIAL AND MANUFACTURING			
Food and kindred products	No	No	No
Textile mill products	No	No	No
Apparel	No	No	No
Lumber and wood products	No	Yes	Yes
Furniture and fixtures	No	Yes	Yes
Paper and allied products	No	Yes	Yes
Printing, publishing	No	Yes	Yes
Chemicals and allied products	No	No	No
Petroleum refining and related industries	No	No	No
Rubber and miscellaneous plastic goods	No	No	No
Stone, clay, and glass products	No	Yes	Yes
Primary metal industries	No	Yes	Yes

\*Off-Base Accident Potential Zones (APZ) are not applicable to this study.

Table 2-2 (continued)

DEPARTMENT OF DEFENSE  
 LAND USE COMPATIBILITY GUIDELINES FOR CLEAR ZONE  
 AND ACCIDENT POTENTIAL ZONES\*

<u>Land Use Category</u>	<u>Clear Zone</u>	<u>Compatibility</u>	
		<u>APZ I</u>	<u>APZ II</u>
Fabricated metal products	No	Yes	Yes
Professional, scientific and controlling instruments	No	No	No
Miscellaneous manufacturing	No	Yes	Yes
4			
<b>TRANSPORTATION, COMMUNICATIONS AND UTILITIES</b>			
Railroad, rapid rail transit (on-grade)	No	Yes	Yes
5			
Highway and street rights-of-way	Yes	Yes	Yes
Auto parking	No	Yes	Yes
5			
Communication	Yes	Yes	Yes
5			
Utilities	Yes	Yes	Yes
5			
Other transportation, communications and utilities	Yes	Yes	Yes
<b>COMMERCIAL AND RETAIL TRADE</b>			
Wholesale trade	No	Yes	Yes
Building materials (retail)	No	Yes	Yes
General merchandise (retail)	No	No	Yes
Food-retail	No	No	Yes
Automotive, marine, aviation (retail)	No	Yes	Yes
Apparel and accessories (retail)	No	No	Yes
Furniture, home furnishing (retail)	No	No	No
Eating and drinking places	No	No	No
Other retail trade	No	No	Yes

\*Off-Base Accident Potential Zones (APZ) are not applicable to this study.

Table 2-2 (continued)

DEPARTMENT OF DEFENSE  
 LAND USE COMPATIBILITY GUIDELINES FOR CLEAR ZONE  
 AND ACCIDENT POTENTIAL ZONES\*

<u>Land Use Category</u>	<u>Compatibility</u>		
	<u>Clear Zone</u>	<u>APZ I</u>	<u>APZ II</u>
6			
<b>PERSONNEL AND BUSINESS SERVICE</b>			
Finance, insurance and real estate	No	No	Yes
Personal services	No	No	Yes
Business services	No	No	Yes
Repair Services	No	Yes	Yes
Professional services	No	No	Yes
Contract construction services	No	Yes	Yes
Indoor recreation services	No	No	Yes
Other services	No	No	Yes
<b>PUBLIC AND QUASI-PUBLIC SERVICES</b>			
6			
Governmental services	No	No	Yes
Educational services	No	No	No
Cultural services	No	No	No
Medical and other health services	No	No	No
Cemeteries	No	Yes	Yes
Non-profit organizations including churches	No	No	No
Other public and quasi-public services	No	No	Yes
<b>OUTDOOR RECREATION</b>			
Playground's neighboring parks	No	No	Yes
Community and regional parks	No	Yes	Yes
Nature exhibits	No	Yes	Yes
Spectator sports including arenas	No	No	Yes

\*Off-Base Accident Potential Zones (APZ) are not applicable to this study.



Table 2-2 (continued)

DEPARTMENT OF DEFENSE  
LAND USE COMPATIBILITY GUIDELINES FOR CLEAR ZONE  
AND ACCIDENT POTENTIAL ZONES\*

Footnotes

1. A "Yes" or "No" designation for compatible land use is to be used only for gross comparison. Within each, uses exist where further definition may be needed as to whether it is clear or usually acceptable/unacceptable owing to variations in densities of people and structures.
2. Suggested maximum density is one to two dwelling units per acre; possibly increased under a Planned Unit Development where maximum lot coverage is less than 20 percent.
3. Factors to be considered: Labor intensity, structural coverage, explosive characteristics, air pollution.
4. No passenger terminals and no major above ground transmission lines in APZ I.
5. Not permitted in graded area, except as noted in Table 207 in TM 5-803-7.
6. Low intensity office uses only. Meeting places, auditoriums, etc., not recommended.
7. Excludes chapels.
8. Facilities must be low intensity.
9. Clubhouse not recommended.
10. Concentrated rings with large classes not recommended.
11. Includes livestock grazing but excludes feedlots and intensive animal husbandry.
12. Includes feedlots and intensive animal husbandry.
13. Includes hunting and fishing.
14. Controlled hunting and fishing may be permitted for the purpose of wildlife control.

---

Source: Airfield and Heliport Planning Criteria, TM 5-803-7 1981

### SECTION 3 - PURPOSE OF THE STUDY

The purpose of the AICUZ Study is to identify and examine the impacts of aircraft noise and accident potential from flight operations at the Los Alamitos Armed Forces Reserve Center (AFRC) on the local community, and to identify those land uses which are compatible with flight operations. These impacts are compared with existing and future land use plans, and any incompatible uses or other environmental impacts are identified. Possible mitigation measures are defined and recommendations proposed.

#### SECTION 4 - OBJECTIVES OF THE AICUZ PROGRAM

The major objective of the AICUZ program is to achieve land use compatibility between the AFRC installation and neighboring communities. The AICUZ is intended as a planning guide for the Department of Defense, United States Army, California National Guard, and local governments to assist in orderly development of civilian and military communities by providing advance information regarding aviation impacts upon adjacent land uses. The study will identify those land uses which are, or are not, compatible with noise and safety aspects of airfield operations. The AICUZ will suggest limitations on the type of land use needed to promote and protect the health, safety and welfare of the community without compromising the mission capability of the AFRC air installation.

Distribution of this document is intended to inform the general public about the AICUZ program in conjunction with efforts to minimize noise and aircraft accident potential in the vicinity of the air installation. The establishment of compatible land uses will protect Department of Defense and U.S. Army investments in the AFRC and maintain the operational capabilities of the air installation.

## SECTION 5 - METHODOLOGY

A thorough review of the land use plan, safety element, and noise element of the general plan from each community surrounding the AFRC installation was made. In addition, the planning department of each community was consulted, along with real estate and development companies in the area. These reviews and discussions yielded information on existing land uses, land ownership and values, the distribution and density of the population, and future land uses and values.

The Los Alamitos Army Airfield Master Plan was reviewed, along with airfield and heliport planning criteria, AICUZ documents from other military installations, environmental noise assessments for the AFRC, existing and proposed airfield operations, an environmental impact statement for the AFRC, and the Army Environmental Noise Abatement Program. From these reviews, and discussions with air base personnel, the airfield's Noise Zones, Clear Zones, and existing and future land uses were identified.

Uses of land that are incompatible, or anticipated to be incompatible, with existing and proposed land use plans and regulations were identified, and mitigation measures were defined and recommendations proposed.

Clear Zones for both runways extend to installation boundaries. Accident Potential Zones do not extend beyond installation boundaries. Use of the airfield by Class B type aircraft, while routine, is not sufficient in numbers and type aircraft to justify off-base Clear Zones and Accident Potential Zones.

## SECTION 6 - EXISTING CONDITIONS

### 6.1 AIRFIELD OPERATIONS

#### 6.1.1 Station History

In 1941 the U.S. Navy purchased land in northwestern Orange County and began construction of the Los Alamitos Naval Air Station. The Station was commissioned in 1942 and served as an Air Group Staging Center in World War II. In 1946 the installation officially became a Naval Air Reserve activity.

The Naval Air Station Los Alamitos was re-designated Los Alamitos Armed Forces Reserve Center by the Department of Defense in 1973, with airfield operations and air traffic control facilities to be operated by the California Army National Guard. In 1977 the Armed Forces Reserve Center and its property was transferred from the Navy to the Army and the California Army National Guard was directed to be the host activity and assigned operational control of the installation.

#### 6.1.2 Mission and Capabilities

The mission of Los Alamitos Army Airfield is to provide airfield support to the AFRC for:

- . Operating the airfield seven days a week, 15 hours a day (0700 to 2200 hours).
- . Facilities for flight planning, notices to airmen (NOTAMS), clearance authority for Continental United States (CONUS) and international flight plans, for tenant and transient Department of Defense and Allied aircrews.
- . Support to all tenant and transient Department of Defense and Allied fixed and rotary wing aircraft, including refueling, lubrication, ground and air power units, and oxygen servicing.
- . Aviation and ground safety programs, and crash rescue support.
- . Air traffic control services, and weather services.
- . Function as a Federal and State Disaster Support Area, supporting aircraft conducting relief operations, and providing a base for disaster support operations
- . Supporting Department of Defense medical evacuation flights of military and veterans administration hospitals in the Los Angeles area.

- . Airfield support for tenant and transient Department of Defense, Allied, local law enforcement and local fire department aircrew flight training.

Los Alamitos Armed Forces Reserve Center is the only facility within the Los Angeles Basin with all the capabilities listed above, and therefore represents a vital and important military and civilian asset and resource.

### 6.1.3 Existing Airfield Operations

An Environmental Impact Statement (EIS) was prepared prior to the Department of Defense designation of Los Alamitos as an Armed Forces Reserve Center (6th Army, Engineer Office, 1973). The approved EIS provides for airfield operations seven days a week, 15 hours a day (0700-2200 hours), with a maximum of 113,000 annual aircraft operations. See Table 6.1-1.

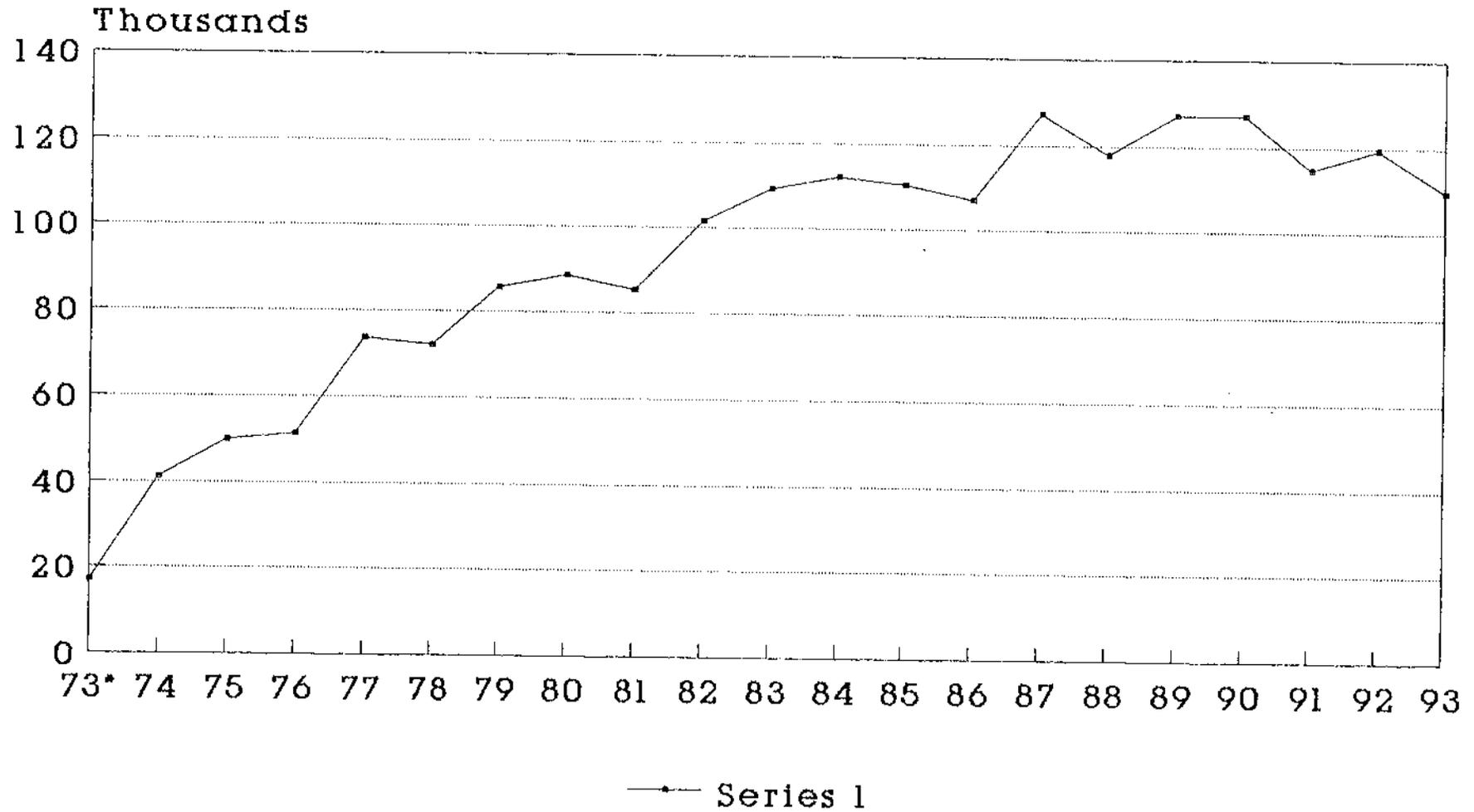
Under the current level of service, operations are conducted 15 hours a day for 4 days of the week and 8 hours a day for 3 days of the week. The most recent three year average (1991, 1992, 1993) aircraft operations totaled 50,690. This is 62,310 annual aircraft operations less than the 113,000 annual allowable operations and 21 hours per week less than the 105 allowable weekly hours. Should conditions arise that require an increase from current aircraft operating levels, the airfield would be able to increase up to the 113,000 annual airfield operations established by the EIS. Tower operations (airfield operations plus other control tower operations) most recent three year (1991, 1992, 1993) average totaled 114,643.

The number of air traffic control operations has increased steadily since the designation of the AFRC in 1973, with the 1992 total about three times as high as the 1973 total (Figure 6.1-1). There is a fairly even distribution of operations each month, as shown for 1991, 1992, and 1993 (Table 6.1-1). The most recent three year average (1991, 1992, 1993) aircraft operations totaled 50,690.

Should annual aircraft operations reach the authorized total of 113,000 on a routine basis, a new AICUZ would be required. The maximum operational level is not addressed in this study in detail because it is unlikely that such a level of operation would be reached on a routine basis. The tempo of operations during an emergency increases to a level consistent with or exceeding the maximum. However, these periods are infrequent and short lived.

Tower operations are included as part of this study as they emphasize the need for an operational tower during all hours the airfield is open. Because of the heavy traffic in this airspace, Los Alamitos Tower must be staffed with qualified air traffic control operators in order to retain a safe and operationally compatible environment.

# LOS ALAMITOS AAF ATC ACTIVITY 1973\* - 1993



\*Data for 1973 is from August to December

Figure 6.1-1

Table 6.1-1

LOS ALAMITOS ARMY AIRFIELD  
RECORD OF OPERATION 1991, 1992, 1993

<u>Month</u>	<u>Tower Operations*</u>			<u>Aircraft Operations**</u>		
	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1991</u>	<u>1992</u>	<u>1993</u>
January	10,016	10,641	7,256	4,040	5,063	3,330
February	8,030	9,243	9,077	3,044	4,916	4,452
March	8,714	10,598	10,474	2,741	5,363	5,158
April	10,715	10,692	9,805	4,171	4,824	4,049
May	10,970	11,224	9,170	4,728	5,372	4,056
June	9,976	9,665	8,359	4,097	3,907	3,211
July	10,292	8,677	8,950	4,742	3,378	3,489
August	10,857	9,256	9,870	4,942	3,631	4,329
September	8,623	10,446	9,983	4,109	4,939	5,032
October	10,291	9,617	8,775	4,663	4,188	3,785
November	9,166	9,908	8,672	4,373	4,572	3,936
December	<u>7,060</u>	<u>9,501</u>	<u>9,247</u>	<u>2,963</u>	<u>4,410</u>	<u>4,066</u>
TOTALS	114,822	119,468	109,638	48,613	54,563	48,893

\* Tower operations consist of takeoffs and landings and other aircraft overflights requiring contact with the tower.

\*\* Aircraft operations consist of takeoffs and landings only.

Source: Los Alamitos Army Airfield Annual Reports

Aircraft using the Los Alamitos Army Airfield consist of the resident aircraft fleet at the AFRC and Department of Defense/ Governmental and Allied transient aircraft flying in from other air facilities. Approximately one hundred helicopters make up the resident fleet. These aircraft could include:

- . The UH-1H, Huey Iroquois, a single engine utility helicopter designed to transport personnel and equipment.
- . The UH-60, Blackhawk, a twin engine utility type helicopter currently being phased in to replace the UH-1H.

The AH-64, Apache, RAH-66 Comanche, twin engine attack helicopter providing a stable weapons platform for anti-tank operations.

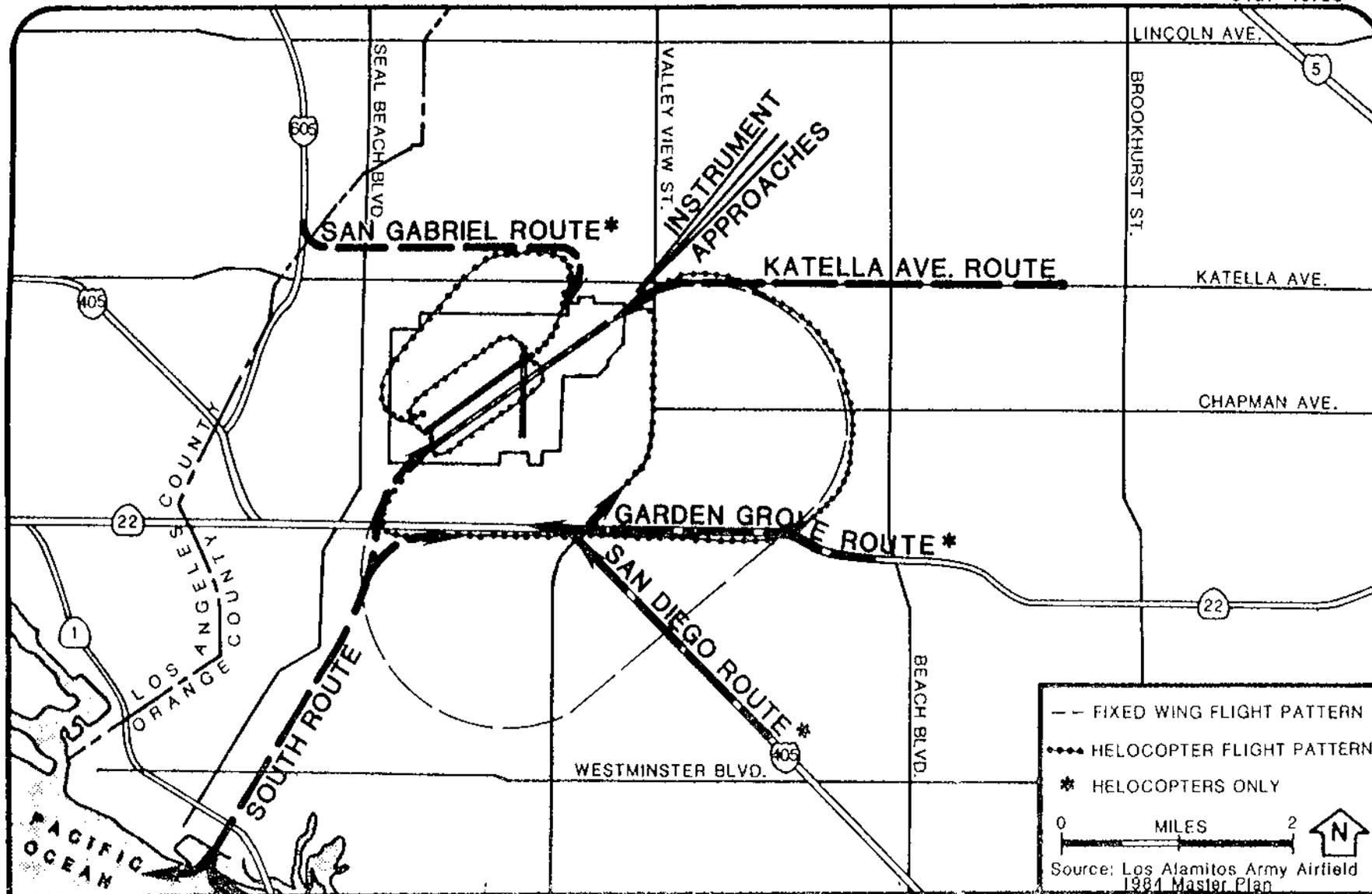
- . The AH-1F, Cobra, a single engine attack helicopter providing a stable weapons platform for anti-tank operations.
- . The OH-58A, Kiowa, a single engine observation type helicopter designed for limited personnel transport and reconnaissance missions. The OH-58A will undergo an engine upgrade to the model OH-58D.
- . The CH-47A, Chinook, a twin engine medium lift helicopter designed for the transportation of cargo or personnel. The CH-47A will be replaced with the CH-47D model with an upgraded engine.
- . The U-21, Ute, a twin engine utility airplane designed for personnel and limited cargo transport.
- . The C-12, Huron, a twin engine utility airplane will replace the U-21, to transport personnel and cargo.

The current aircraft mix is 64 UH-1, 17 OH-58, 10 UH60A, and 8 AH1F.

As an air installation serving the entire Department of Defense, the Los Alamitos AFRC hosts numerous types of transient aircraft in addition to the resident fleet. These include, but are not limited to, large transport fixed wing

aircraft (C-5, C-9, C-130, C-141), twin engine light personnel transports (C-12), and Air Force and NASA trainers (T-37, T-38). Additionally, CH-53 and CH-46 troop and cargo transport, and AH-1 attack helicopter utilize the installation. Support to local, State and Federal law enforcement agencies and Coast Guard Search and Rescue missions and training, add considerable traffic to the local patterns.

There are several ingress and egress corridors established to facilitate aircraft arrivals and departures. The predominant corridors used for visual flight conditions are Katella Avenue, South, San Gabriel, San Diego, and Garden Grove. Instrument approaches arrive from the northeast. The ingress/egress corridors along with the flight patterns for fixed wing aircraft and helicopters are shown in Figure 6.1-2.



FLIGHT PATTERNS AND INGRESS/EGRESS ROUTES

FIGURE

6.1-2

## 6.2 NOISE CONTOURS AND LEVELS

Defining the noise environment around the Los Alamitos AFRC is required to determine the impact from air base operations on the adjacent communities, and to continue refinement of noise abatement and/or attenuation procedures. Noise level contours are established using the Noise Zones described in Section 2. These noise contours are mapped out to identify existing and potential land use conflicts and to aid in land use planning.

Noise Zones are defined in terms of the A-weighted day-night sound level (ADNL) with Zone III greater than 75 dB(A), Zone II 65-75 dB(A), and Zone I less than 65 dB(A). The State of California and the County of Orange use the Community Noise Equivalent Level (CNEL) to assess environmental noise. This level is the ADNL with a 5 decibel penalty added to noise occurring during the evening (1900-2200) hours. A CNEL of 65 dB(A) is recognized as the maximum for residential communities.

The level of aircraft noise and the Noise Zone contours for the Los Alamitos AFRC were determined by the U.S. Army Environmental Hygiene Agency (USAEHA) in 1987. Environmental noise is assessed through computer simulations using the NOISEMAP computer program developed for the U.S. Air Force by Bolt, Beranek, and Newman (1978). The 1987 USAEHA study is subject to revision depending on the current computer model used by that agency. If required, a revision to this study will be made when new data is received from the agency.

The required inputs to the program are the location of the flight tracks and the number of each type of aircraft using each flight track. These inputs were obtained from airfield operational data, based on an estimate of 55,000 annual aircraft operations. The distribution of aircraft types are listed in Table 6.2-1. All operations were conducted between 0700 and 2200 hours (7:00 a.m. to 10:00 p.m.). The operations were distributed among five flight tracks as listed in Table 6.2-2.

The noise contours for Los Alamitos Army Airfield are shown in Figure 6.2-1. These contours are not meant to represent precise noise zone boundaries, but may vary somewhat from day to day depending on flight operations. Noise contours near the base tend to be more accurate since deviations from flight tracks are less and engine power settings are more standardized. The variability increases with the distance from the airfield.

The zone of unacceptable noise (Zone III) does not extend beyond the airfield installation boundary, being centered over the runways. Noise Zone II (normally unacceptable) extends beyond the installation boundary in the northeast and southwest corners.

Table 6.2-1

## SUMMARY OF FLIGHT OPERATIONS

<u>Aircraft Type(R/W)</u>	<u>Percent of Operations</u>	<u>Aircraft Type(F/W)</u>	<u>Percent of Operations</u>
UH-1	87.4	C-5A	0.1
OH-6, -58	7.8	C-141	0.2
CH-46, -47, -53	1.7	C-9	0.2
		C-130	0.1
		C-12/U-21	2.3
		Single Engine	0.2

Source: US-AEHA 1987.

Table 6.2-2

## SUMMARY OF OPERATIONS BY FLIGHT TRACK

<u>Flight Track</u>	<u>Percent of Aircraft Using Flight Track</u>	
	<u>Rotary Wing</u>	<u>Fixed Wing</u>
Instrument	19.4	47.8
South	21.4	21.5
Katella	37.1	30.7
San Gabriel	3.1	0.0
Closed Pattern	19.0	0.0

Source: US-AEHA 1987.

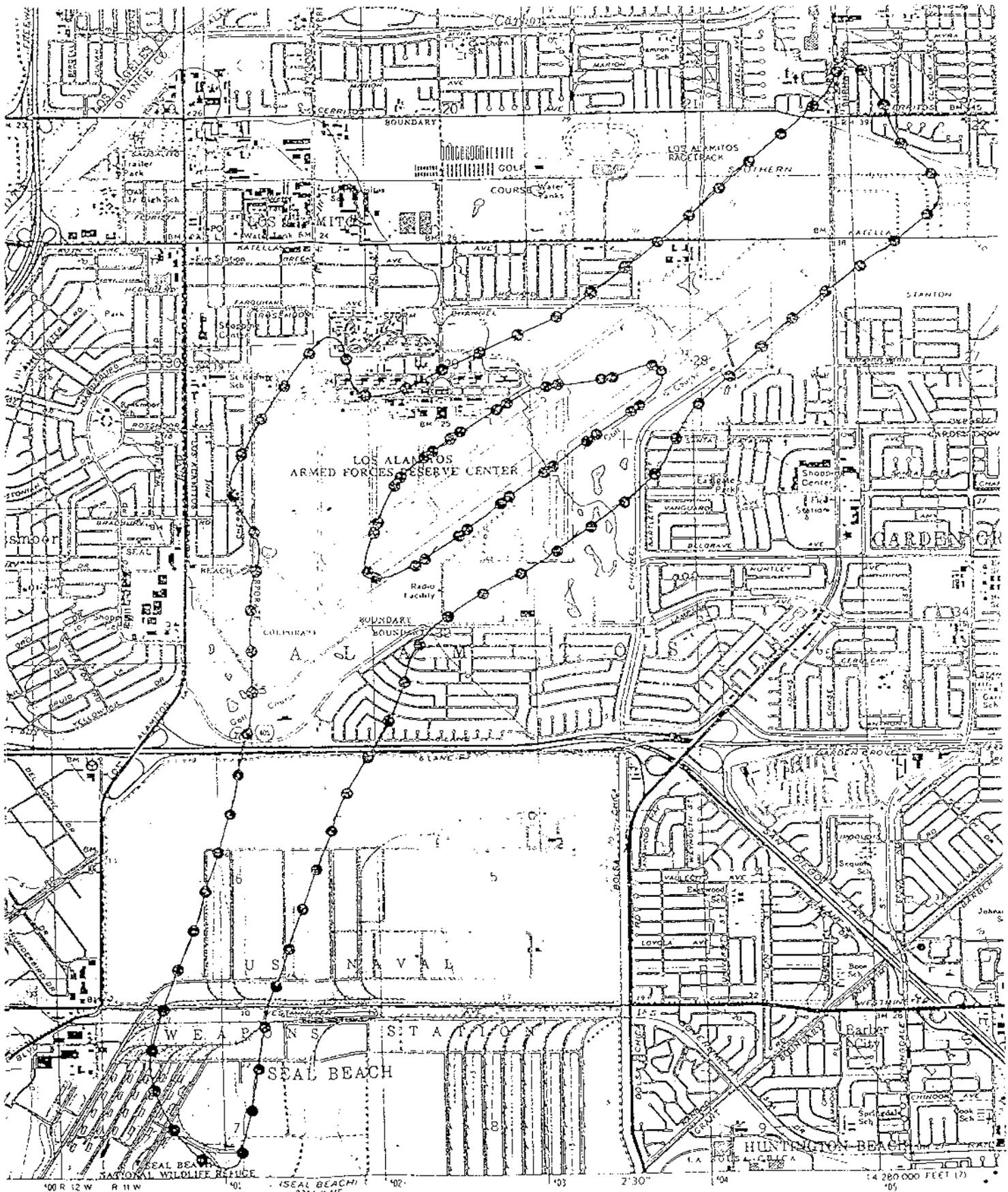
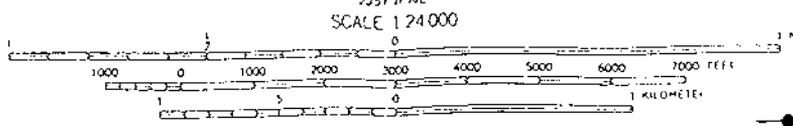


FIGURE 6.2-1

EXISTING NOISE CONTOURS



CONTOUR INTERVAL 5 FEET  
 NATIONAL GEODETIC VERTICAL DATUM OF 1929  
 DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOWER LOW WATER  
 THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE  
 SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER  
 THE MEAN RANGE OF TIDE IS APPROXIMATELY 4 FEET

- NOISE ZONE II 65-75 dB(A)
- NOISE ZONE III > 75 dB(A)

To the northeast, Zone II extends from the City of Los Alamitos, through the northwest corner of Garden Grove, into the southeast portion of Cypress, and slightly into the southwest corner of Buena Park. The majority of these areas are designated for industrial/commercial land use, although small portions of residential areas are located near the edges of the noise contour boundary. A detailed discussion of community land uses is presented in Section 6.4.3, below.

Noise Zone II extends beyond the southwest corner of the installation into the City of Seal Beach. This area encompasses a portion of the golf course and residential community directly south of the installation and a large portion of the Seal Beach Naval Weapons Station further south.

In 1985 the City of Cypress conducted an independent study to investigate the noise from aircraft using the AFRC (Health Care Agency 1985). The study recorded noise levels at three residential locations within the City of Cypress, northeast of the airfield runways (Figure 6.2-2). Station 1 was located on the observed center of the approach path, while Station 2 was to the west and Station 3 to the east. The average and range of the maximum noise level (LMAX) for each noise episode, for four different aircraft types are listed in Table 6.2-3.

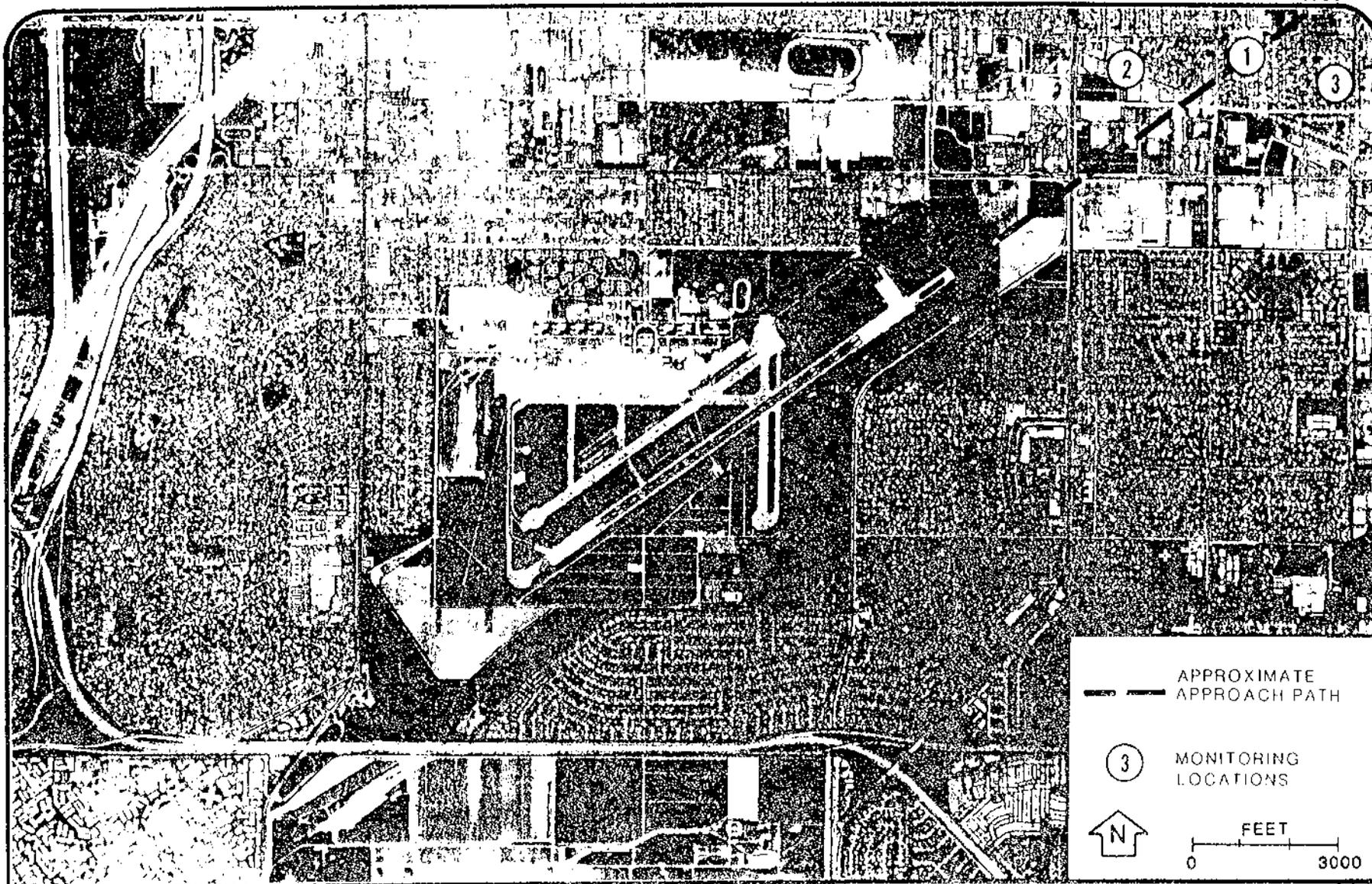
The Cypress study indicates that at the locations monitored, all aircraft flyovers exceeded the 65 dB(A) level. However, these levels were recorded for individual events with durations exceeding 65 dB(A) ranging from 13 to 61 seconds. The CNEL is computed based on a 24-hour day with different weighing factors for daytime, evening, and nighttime periods. The Cypress aircraft noise study used flight operations records supplied by the AFRC with the recorded noise measurements to compute CNELS for each monitoring location. These levels are as follows:

	<u>Station 1</u>	<u>Station 2</u>	<u>Station 3</u>
CNEL dB(A)	58.7	55.4	52.6

Although a certain amount of variation should be expected, these results indicate that the residential area to the northeast of the installation is outside the 65 dB(A) CNEL boundary established for residential communities.

### 6.3 CLEAR ZONES

The criteria for the Clear Zone is presented in Section 2, Table 2-1. Modification criteria referenced by the table and United States Air Force guidelines were used to designate the Clear Zones for Los Alamitos Army Airfield. These zones underlie the approach and departure to runways 22L/04R and 22R/04L (Figure 6.3-1), and the flight tracks and flight patterns in use at the Los Alamitos AFRC installation.



CYPRESS AIRCRAFT NOISE STUDY MONITORING LOCATIONS

FIGURE

6.2-2

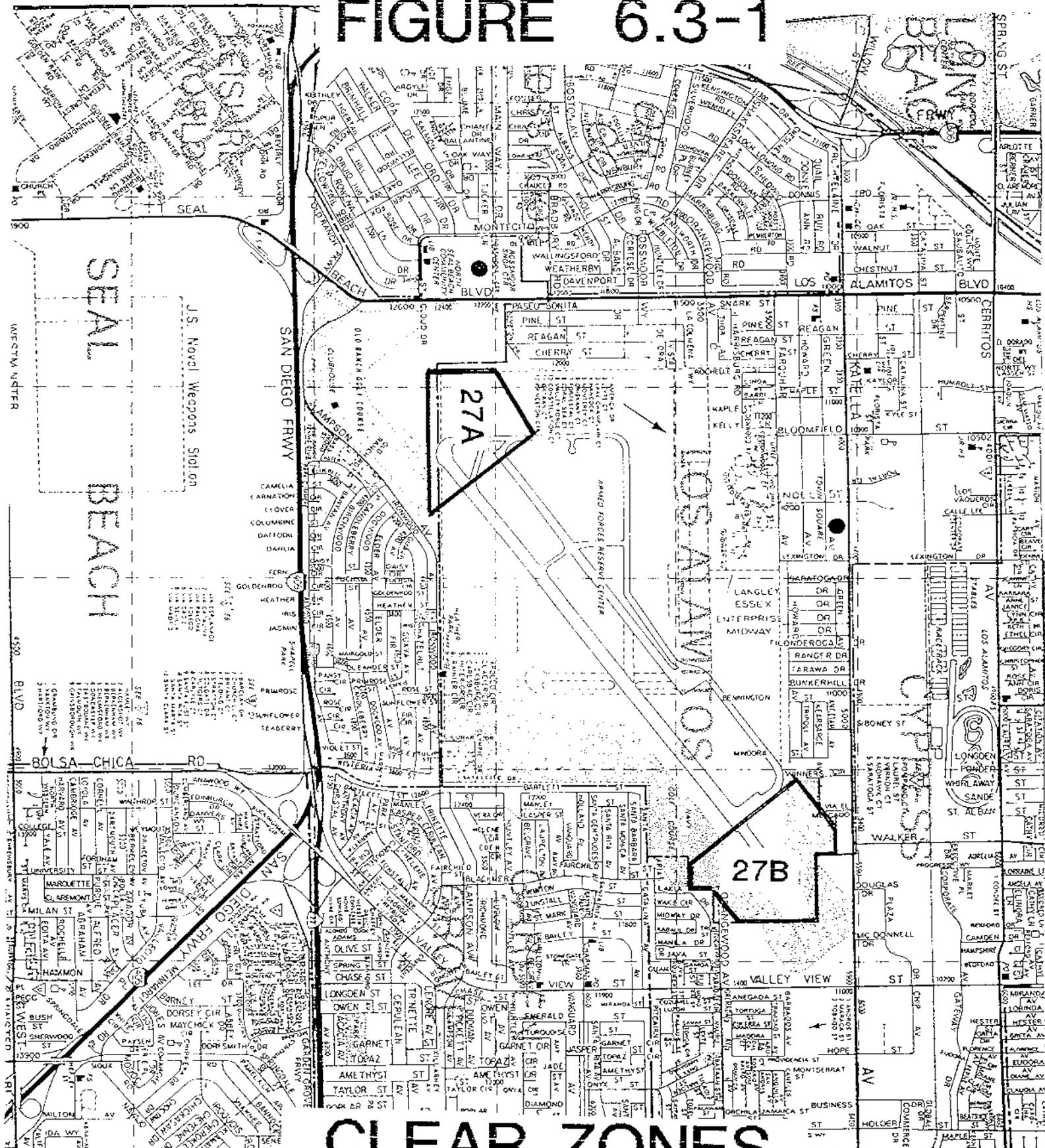
Table 6.2-3

AVERAGE MAXIMUM NOISE LEVELS (LMAX)  
FROM THREE RESIDENTIAL SITES IN CYPRESS

<u>Aircraft Type</u>		<u>Station 1</u> <u>LMAX dB(A)</u>	<u>Station 2</u> <u>LMAX dB(A)</u>	<u>Station 3</u> <u>LMAX dB(A)</u>
CH-53	Mean	86.7	85.3	79.0
	Range	85.3-89.2	84.0-87.0	79.0
	N	3	3	1
UH-1	Mean	79.9	75.0	74.0
	Range	72.8-88.8	69.0-80.0	70.0-82.0
	N	10	10	7
C-141	Mean	100.8	88.5	86.0
	Range	100.6-101.0	86.0-91.0	86.0
	N	2	2	1
AH-1	Mean	82.5	79.0	71.5
	Range	81.7-83.3	76.0-82.0	70.0-73.0
	N	2	2	2

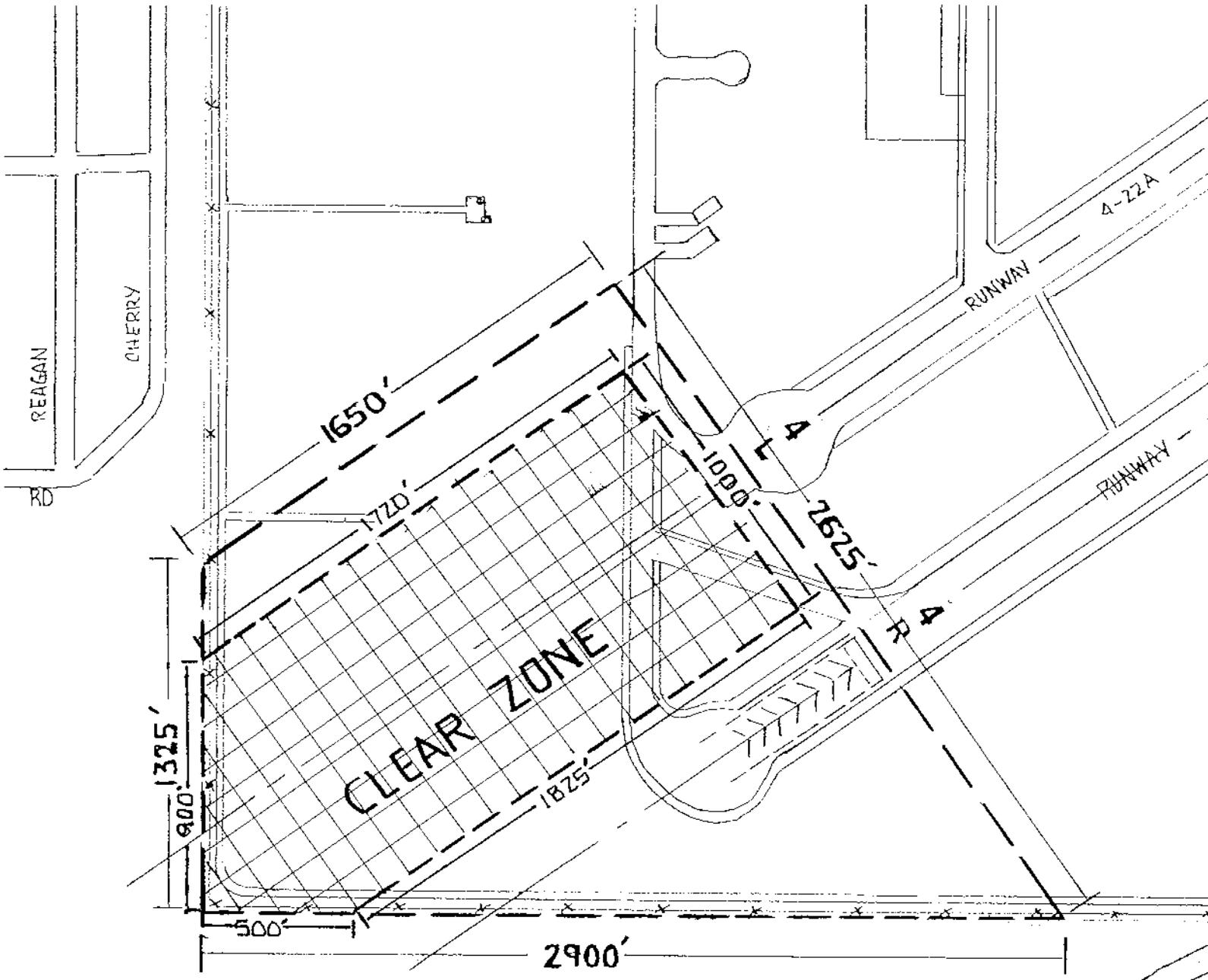
Source: Health Care Agency 1985.

# FIGURE 6.3-1

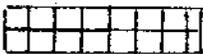


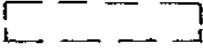
## CLEAR ZONES

ALL MEASUREMENTS ARE APPROXIMATE

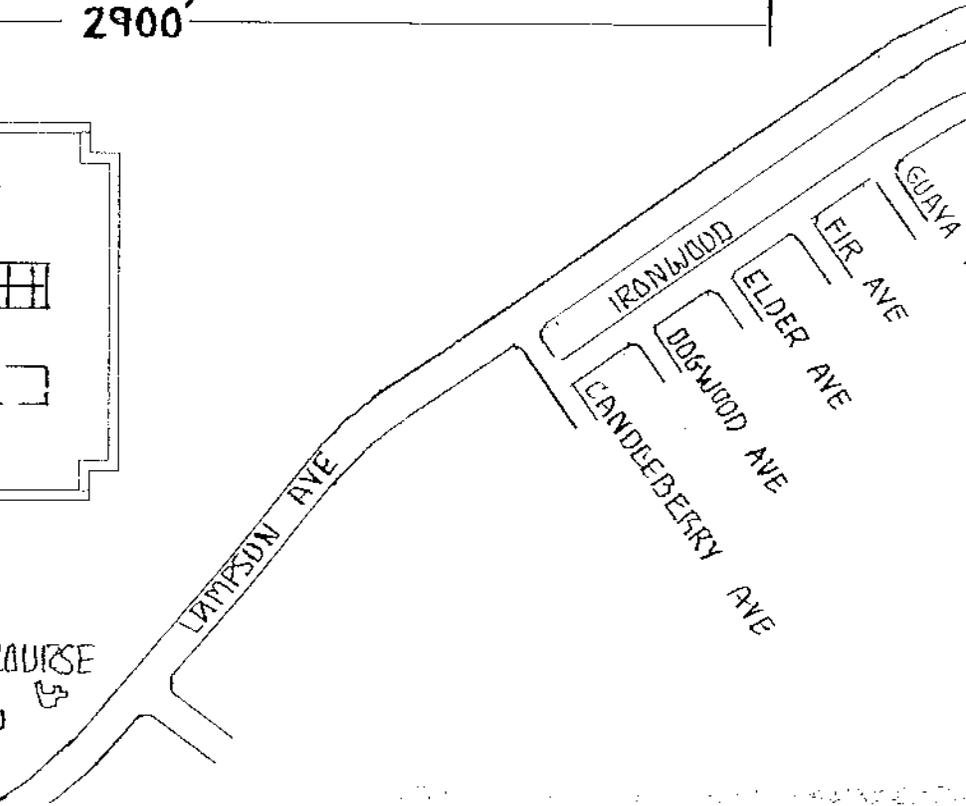


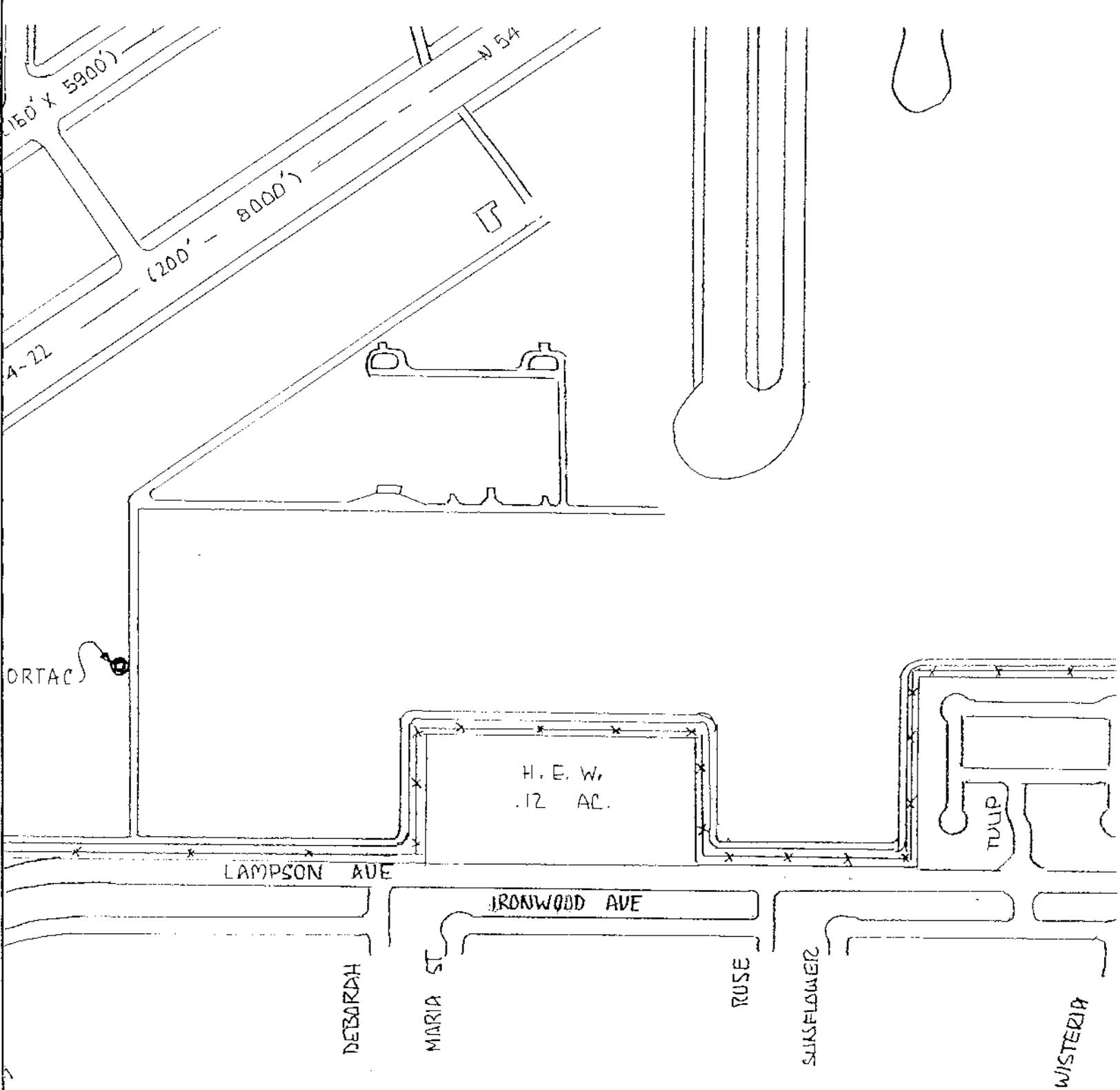
**LEGEND**

CLASS A 

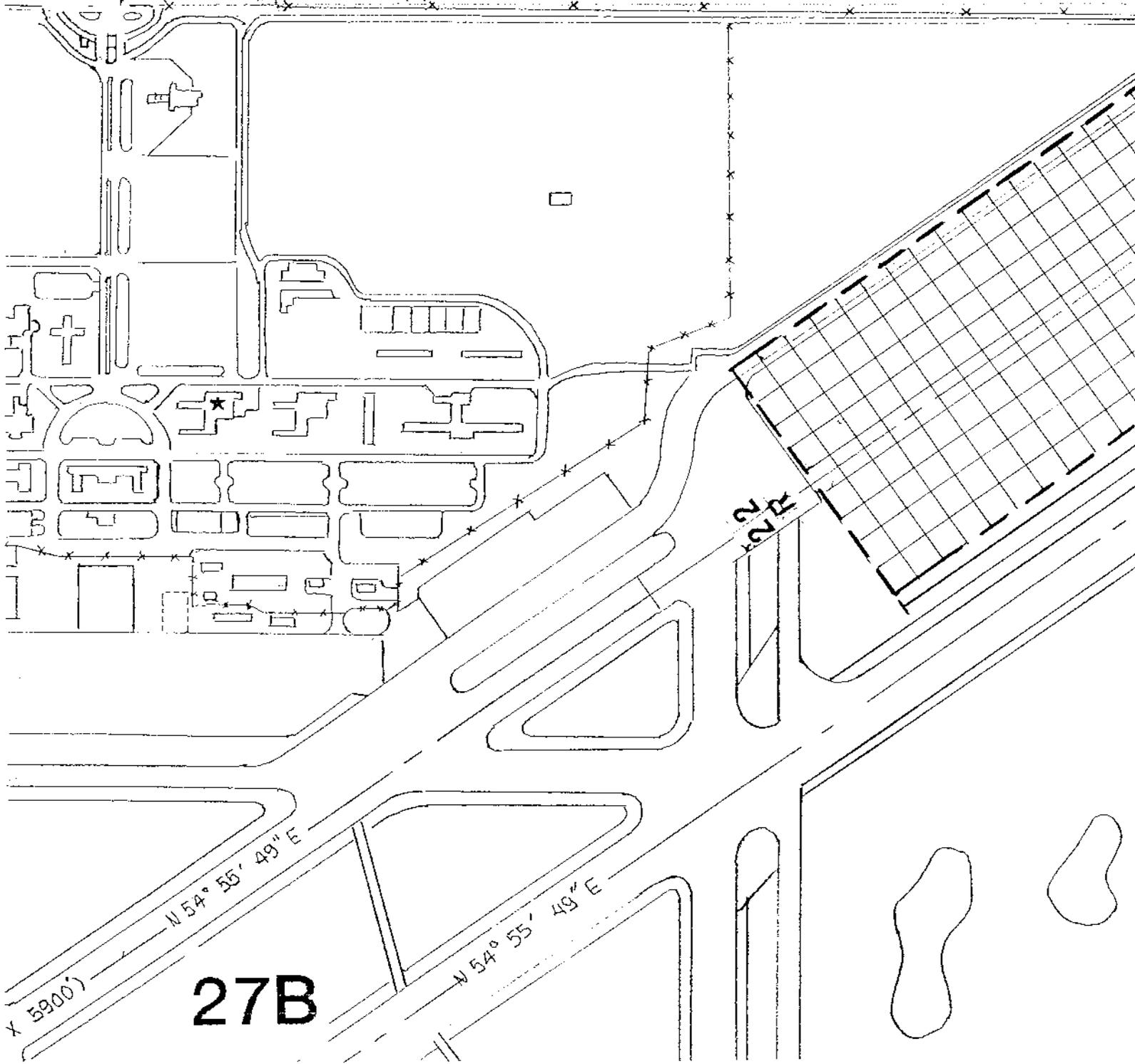
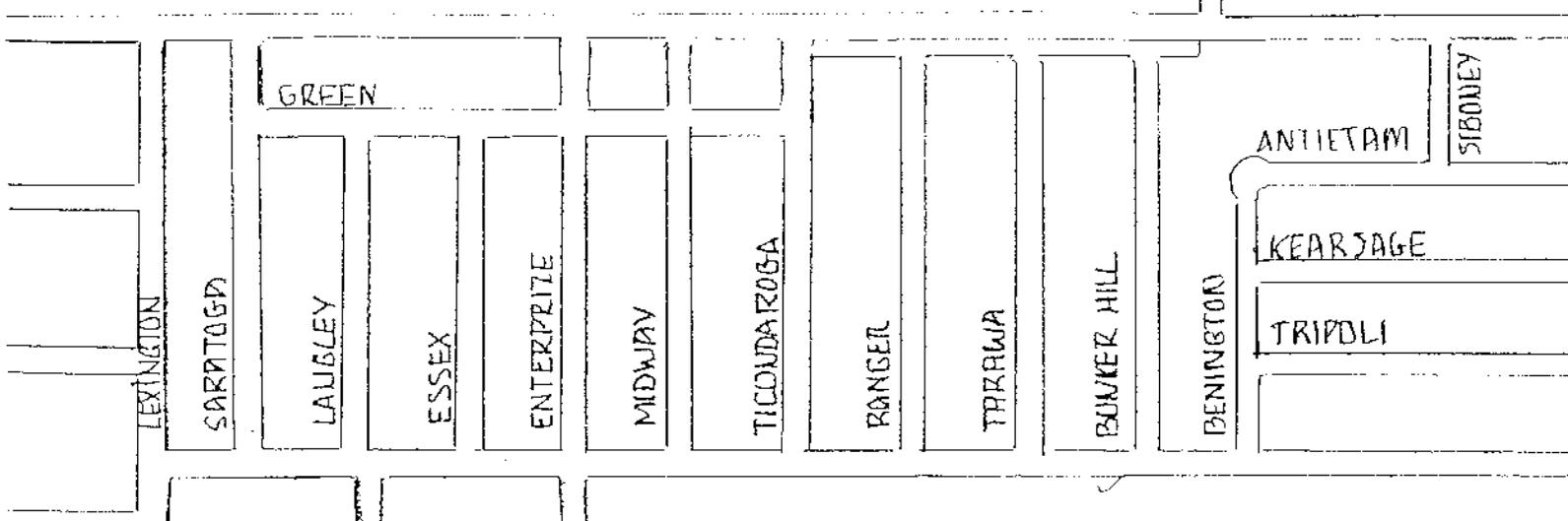
CLASS B 

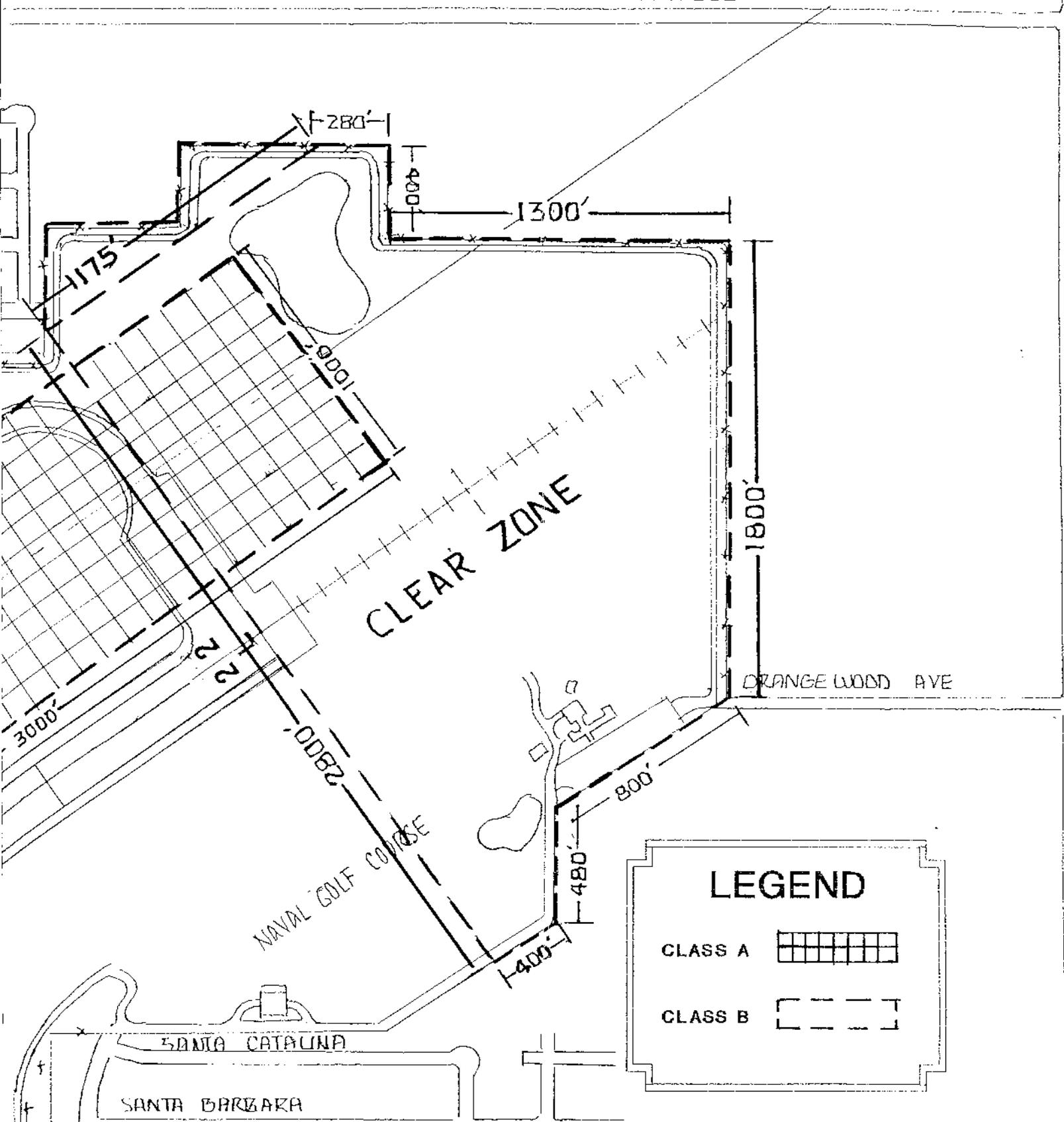
**27A** PRIVATE GOLF COURSE





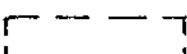
# LOS ALAMITOS ARMY AIRFIELD

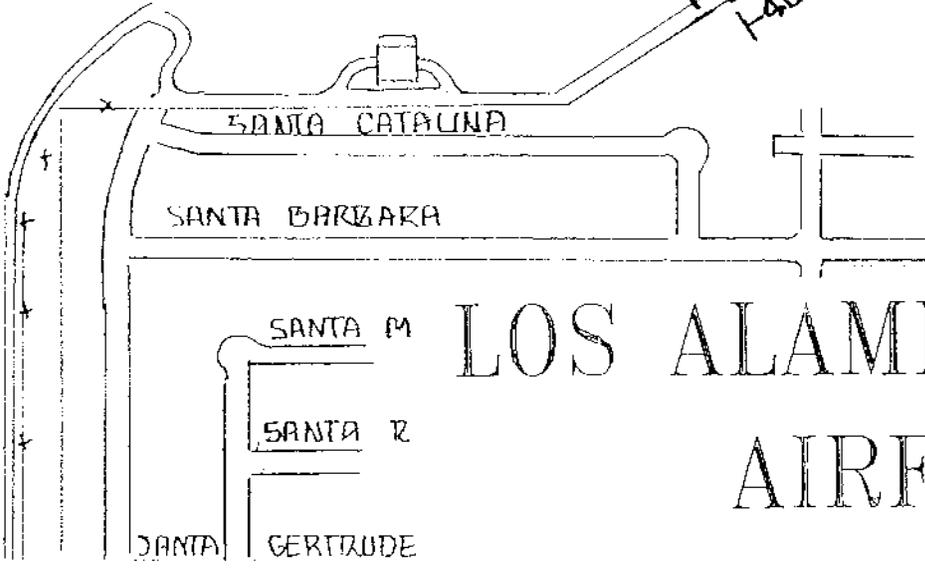




**LEGEND**

CLASS A 

CLASS B 



# LOS ALAMITOS ARMY AIRFIELD

For the remainder of the document, references to Clear Zones are referring to those zones for Runway 22L/04R because they represent the largest area for accident potential and overlies nearly all the accident zones for Runway 22R/04L.

The Clear Zone at the north east end of the installation is contained within the boundaries of AFRC Los Alamitos. At the southwestern end, the Clear Zone is also contained within the boundaries of AFRC Los Alamitos.

## 6.4 LAND USES

### 6.4.1 Installation Land Uses

The Los Alamitos AFRC consists of approximately 1337.28 acres of government land. Approximately 692 acres are used in support of aviation activities; 258 acres are used for supply and administration; 51 acres for field training, and approximately 20 acres for non-flying Reserve activities (Los Alamitos Army Airfield Master Plan 1988). Other uses of government land at Los Alamitos AFRC include the Navy Golf Course, a VHF omnidirectional range station used in airways navigation (SLI VORTAC), agricultural out-leases, and a Navy housing development. Existing land uses are shown at Figure 6.4-1.

The airfield has two active runways. Runway 22L/04R is an instrumented Class B runway, 8,000 feet long and 200 feet wide, capable of supporting all Department of Defense and commercial transport aircraft. Runway 22R/04L is classified as an active Class A runway, 5,900 feet long and 150 feet wide. Class A runways are intended for small light aircraft, 90% of the time, while Class B runways are for all other fixed-wing aircraft (Table 6.4-1). Rotary-wing aircraft can utilize either Class A or Class B runways.

The air installation facilities are designed to support the stationing of California National Guard and other Armed Forces Reserve units, the training of aviation personnel, and maintenance of assigned and transient Department of Defense vehicles and aircraft. Section 6.1.2 provides a detailed description of the airfield mission and capabilities.

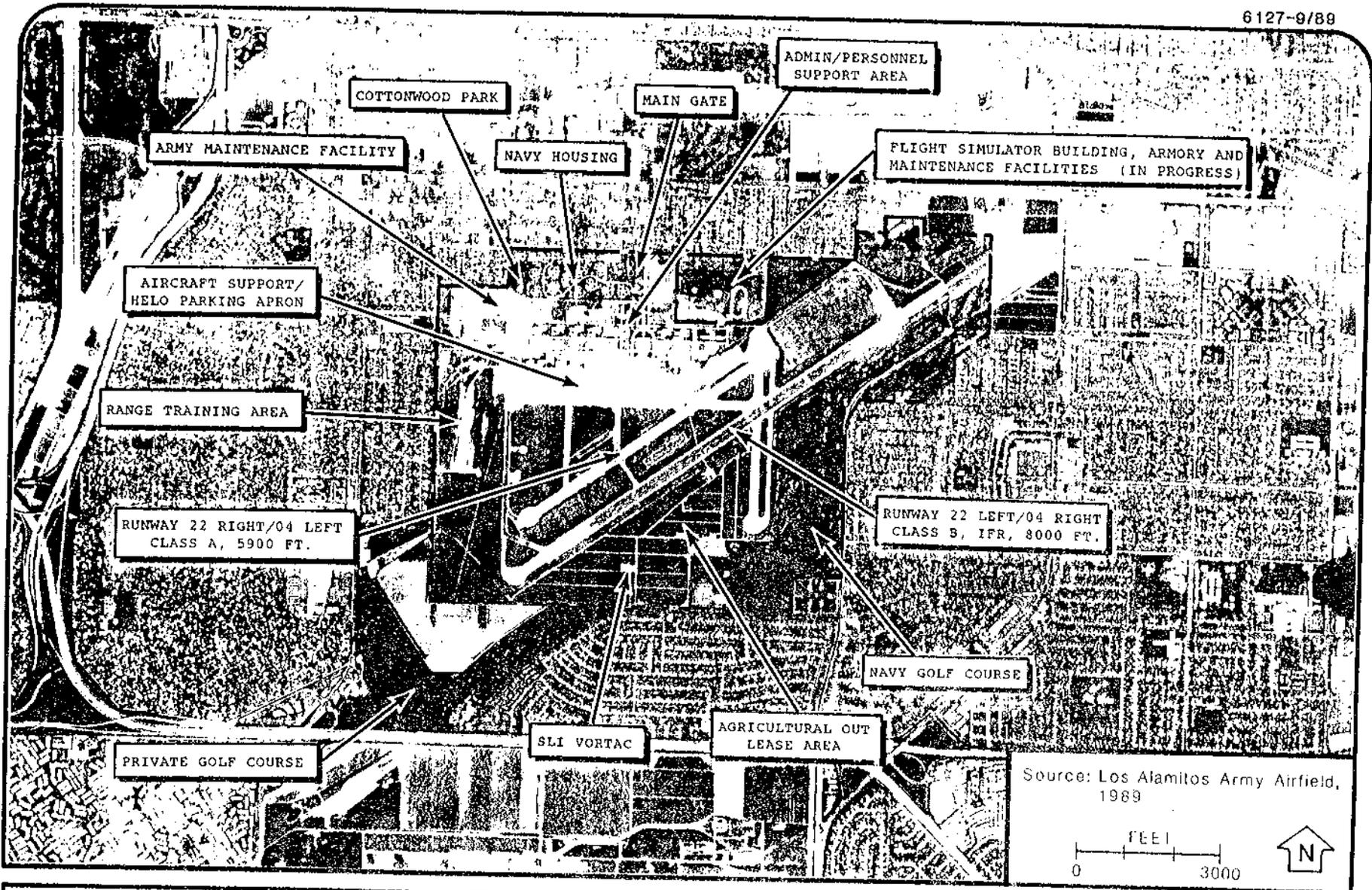
As stated in Section 6.1.2, the Los Alamitos AFRC serves the State and Federal Civil Disaster Organizations as a Disaster Support Area (DSA). The 1979 designation as a Disaster Support Area was predicated upon the occurrence of a magnitude 8.3 earthquake in the Los Angeles/Orange County area along the San Andreas Fault. An earthquake of that magnitude would require the mobilization of relief personnel at a common coordination point.

Los Alamitos was selected as a DSA primarily because of its proximity to the expected damage area and location between the large metropolitan areas of Los Angeles and Orange Counties; ability to accommodate large cargo aircraft; presence of buildings to provide command and control facilities; and sufficient open ground, taxiways and aircraft parking aprons to accommodate supply and resource areas and an extensive temporary medical treatment facility. The areas designated for disaster support activities are shown in Figure 6.4-2.

#### 6.4.2 Surrounding Communities' Land Uses

##### 6.4.2.1 Existing Land Uses

The Los Alamitos AFRC is surrounded by a number of communities, including the cities of Cypress, Buena Park, Anaheim, Stanton, Garden Grove, Westminster, and Seal Beach, the unincorporated Orange County community of Rossmoor, and the City of Los Alamitos. Each of these communities is generally comprised of a mix of residential, commercial, industrial, and public land use areas. Figure 6.4-3 shows the land use designations for the communities in the immediate vicinity of the airfield



LOS ALAMITOS AFRC EXISTING LAND USES

FIGURE

6.4-1

Table 6.4-1

## RUNWAY CLASSIFICATION BY FIXED WING AIRCRAFT TYPE

<u>Class A Runways</u>		<u>Class B Runways</u>		
C-1	0-2	A-3	C-121	F-100
C-2	OV-1	A-4	C-123	F-101
C-4	OV-10	A-5	C-130	F-104
C-6	S-2	A-6	C-131	F-105
C-7	T-28	A-7	C-135	F-106
C-12	T-34	A-8	C-137	F-111
C-45	T-41	A-10	C-140	P-2
C-47	T-42	A-18	C-141	P-3
C-117	T-44	AV-8	E-3	S-3
E-1	U-10	B-1	E-4	SR-71
E-2	U-11	B-52	F-4	T-2
0-1	U-21	B-57	F-5	T-29
	UV-18	C-5	F-8	T-33
		C-9	F-14	T-37
		C-10	F-15	T-38
		C-14	F-16	T-39
		C-15	F-17	TR-1
		C-118	F-18	U-2

1

Only symbols for basic mission aircraft or basic mission aircraft plus type are used. Designations represent entire series. Runway classes in this table are not related to aircraft approach categories or to pavement design classes or types.

Source: Airfield and Heliport Planning Criteria, TM 5-803-7, 1981.

## LEGEND

1. Post/40th ID (M) HQ
2. Coordination Center
3. Control Center
4. Vehicle Parking
5. Logistical Support Areas
6. Helicopter F.A.R.P.
7. Airfield Operational Areas
8. Field Hospital Sites
9. MEDEVAC Aircraft
10. Military Vehicle Parking
11. Class III Point (Fuel Storage)
12. Transient Aircraft Marshalling Area
13. Troop Building Area

Source: ARMED FORCES RESERVE  
CENTER DSA SUPPORT PLAN, 1986

FEET  
0 3000



DISASTER SUPPORT AREA DESIGNATION

FIGURE  
6.4-2

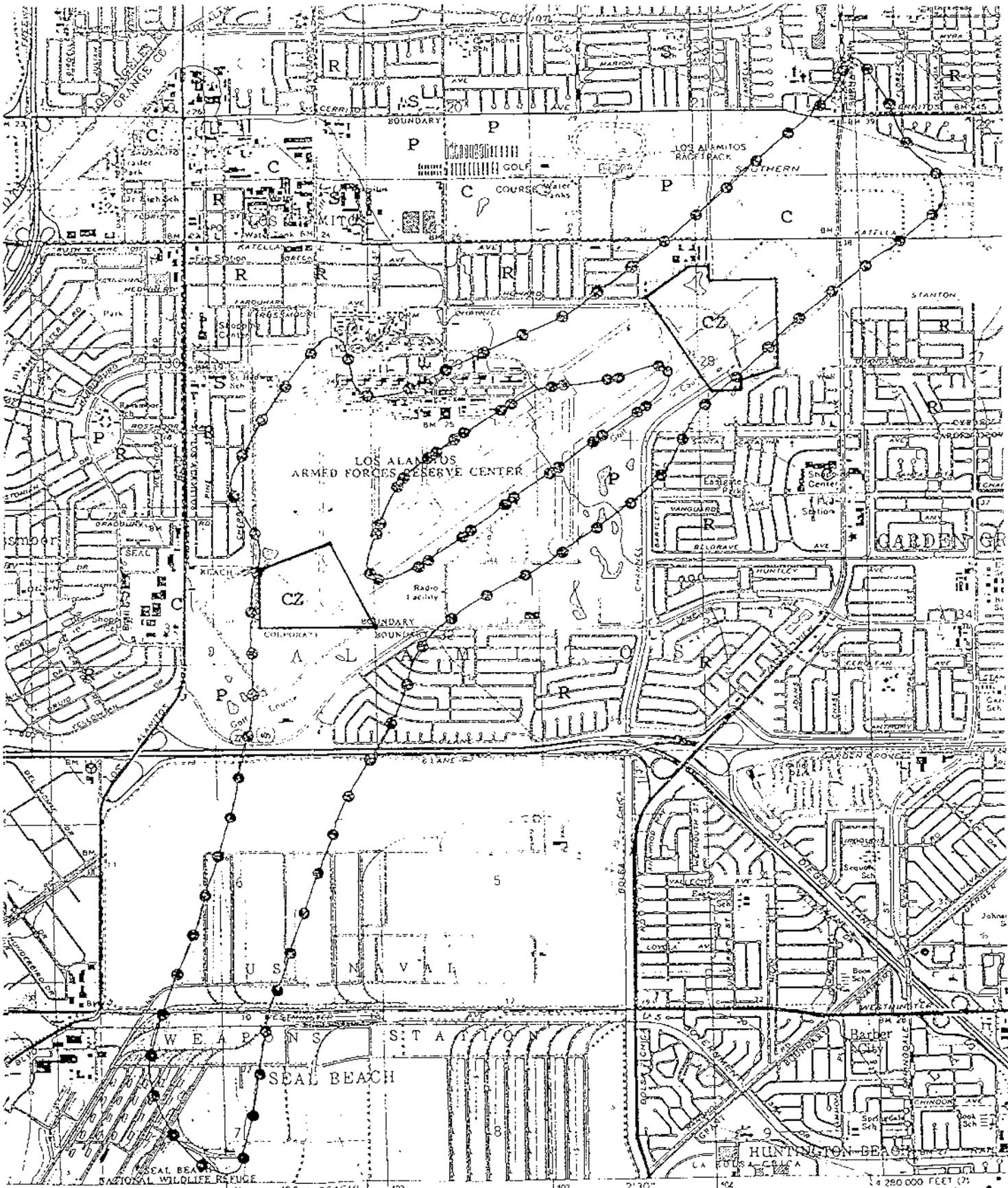


FIGURE 6.4-3

LAND USE OF THE SURROUNDING COMMUNITIES

- EXIST NOISE CONTOURS
- - - CLEAR ZONES
- R RESIDENTIAL
- P PUBLIC / SEMI-PUBLIC
- C COMMERCIAL
- S SCHOOL

CONTOUR INTERVAL 5 FEET  
 NATIONAL GEODETIC VERTICAL DATUM OF 1929  
 DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOWER LOW WATER  
 THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE  
 SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER  
 THE MEAN RANGE OF TIDE IS APPROXIMATELY 4 FEET

installation. The encroachment of development up to the installation boundaries, both commercial/industrial, and residential development, is readily apparent from Figure 6.4-3.

Noise Zone contours and Clear Zones (Sections 6.2 and 6.3, respectively) are also overlain on Figure 6.4-1. Noise Zone III (ADNL greater than 75 decibels) does not extend beyond the boundaries of the base; however, Zone II (65-75 dB(A) ADNL) covers planned and existing business park areas and a small amount of residential units near the edge of the zone north and northeast of the airfield. South of the airfield, Zone II extends through portions of the private golf course and residential area adjacent to the installation and into the Seal Beach Naval Weapons Station.

#### 6.4.2.2 Property Values and Ownership

Despite a decrease in property values in California over the past couple years, property values remain high and can be expected to increase in years to come. The comfortable climate, proximity to the Pacific Ocean, and availability of jobs, make Orange County one of the most desirable areas for residential living in Southern California. Table 6.4-2 lists the annual median price for existing homes from several areas in Southern California from 1987 to 1993. Table 6.4-3 lists December 1993 Orange County home resales by zip code.

In the immediate area surrounding the Los Alamitos AFRC, property values for condominiums and townhomes start around \$140,000 and single family homes around \$225,000 (Jaculin Cowart, real estate broker, Remax Realty, personal communication, January 26, 1994).

Table 6.4-2

REGIONAL EXISTING HOME PRICE SUMMARY FOR SOUTHERN CALIFORNIA  
 ANNUAL MEDIAN FOR 1987 -1992 and MONTHLY MEDIAN FOR DECEMBER 1993

<u>Regional Area</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>	<u>DEC-1993</u>
Orange County	\$163,218	\$203,860	\$241,708	\$242,358	\$239,680	\$234,880	\$217,300
Los Angeles	146,630	178,889	214,831	212,130	218,940	213,230	195,100
Riverside/ San Bernardino	96,170	106,729	124,122	132,127	135,400	136,230	132,200
San Diego	134,073	153,410	181,922	183,210	187,510	183,760	182,700
Ventura	159,072	204,318	247,658	238,792	234,930	225,680	208,400
Santa Barbara	149,084	204,984	233,071	219,587	215,760	219,180	N/A
Monterey	161,787	185,658	232,191	237,732	233,660	225,960	N/A
San Francisco	176,796	212,863	260,722	259,288	258,470	254,830	N/A
Central Valley	82,408	87,187	97,372	116,330	118,730	119,330	N/A
Northern California	93,672	102,426	115,075	143,801	135,020	137,600	N/A

Source: California Association of Realtors

Table 6.4-3

## ORANGE COUNTY HOME SALES - MEDIAN SALES PRICE - DECEMBER 1993

CITY	ZIP CODE	DEC 93	% change from '92	CITY	ZIP CODE	DEC 93	% change from '92
Aliso Viejo	92656	\$177,500	-4.8	Laguna Hills	92653	\$174,250	-2.5
Anaheim	92801	153,000	-12.1	Lake Forest	92610	250,000	0.2
Anaheim	92802	173,500	-2.3	Lake Forest	92630	176,000	-15.8
Anaheim	92804	165,000	-8.8	Los Alamitos	90720	280,000	-8.9
Anaheim	92805	159,000	-4.2	Midway City	92655	153,000	-3.3
Anaheim	92806	194,000	-4.2	Mission Viejo	92690	215,000	-15.7
Anaheim	92807	213,500	-3.1	Mission Viejo	92691	191,250	-4.4
Anaheim	92808	237,000	0.9	Mission Viejo	92692	207,000	-10.0
Brea	92621	225,000	-18.9	Newport Beach	92657	388,500	14.3
Buena Park	90620	167,000	-8.5	Newport Beach	92660	412,000	7.6
Buena Park	90621	164,750	-2.8	Newport Beach	92661	520,000	-24.9
Corona Del Mar	92625	591,000	-13.1	Newport Beach	92662	525,000	-13.9
Costa Mesa	92626	208,750	-7.2	Newport Beach	92663	275,500	-21.6
Costa Mesa	92627	182,250	-13.0	Orange	92665	194,000	4.9
Cypress	90630	220,000	8.6	Orange	92666	195,000	19.6
Dana Point	92624	190,000	-21.7	Orange	92667	296,000	-10.0
Dana Point	92629	224,000	-6.7	Orange	92668	171,000	8.9
Fountain Valley	92708	222,250	-9.3	Orange	92669	240,000	-4.8
Fullerton	92631	174,000	-2.8	Placentia	92670	215,000	-11.2
Fullerton	92632	176,000	-2.8	Rancho Santa Margarita	92688	213,750	11.3
Fullerton	92633	179,000	3.5	San Clemente	92672	235,000	-10.8
Fullerton	92635	224,000	-5.1	San Clemente	92673	283,500	N/A
Garden Grove	92640	165,000	-5.7	San Juan Capistrano	92675	164,000	-11.4
Garden Grove	92641	175,000	-1.1	San Juan Capistrano	92679	276,000	-1.4
Garden Grove	92643	156,000	-4.3	Santa Ana	92701	174,000	9.4
Garden Grove	92644	160,500	-7.5	Santa Ana	92703	140,000	-9.7
Garden Grove	92645	197,500	-10.8	Santa Ana	92704	159,000	-9.1
Huntington Beach	92646	230,000	-9.3	Santa Ana	92705	295,000	-14.5
Huntington Beach	92647	223,000	3.0	Santa Ana	92706	175,000	-5.4
Huntington Beach	92648	260,000	3.0	Santa Ana	92707	155,000	-8.3
Huntington Beach	92649	255,000	-5.6	Seal Beach	90740	296,250	-1.9
Irvine	92709	225,000	-10.4	Silverado	92676	137,000	16.1
Irvine	92714	228,500	-1.1	Stanton	90680	140,500	5.1
Irvine	92715	219,750	-0.6	Sunset Beach	90742	365,000	N/A
Irvine	92720	243,000	-9.8	Trabuco Canyon	92678	252,250	-2.0
La Habra	90631	179,000	-1.1	Tustin	92680	210,000	7.7
La Mirada	90638	188,000	-11.5	Westminster	92683	179,000	-5.7
La Palma	90623	220,500	-1.6	Yorba Linda	92686	247,500	-20.2
Laguna Beach	92651	366,000	-5.6	Yorba Linda	92687	360,000	7.5
Laguna Niguel	92677	270,227	3.2	TOTAL		206,425	-3.9

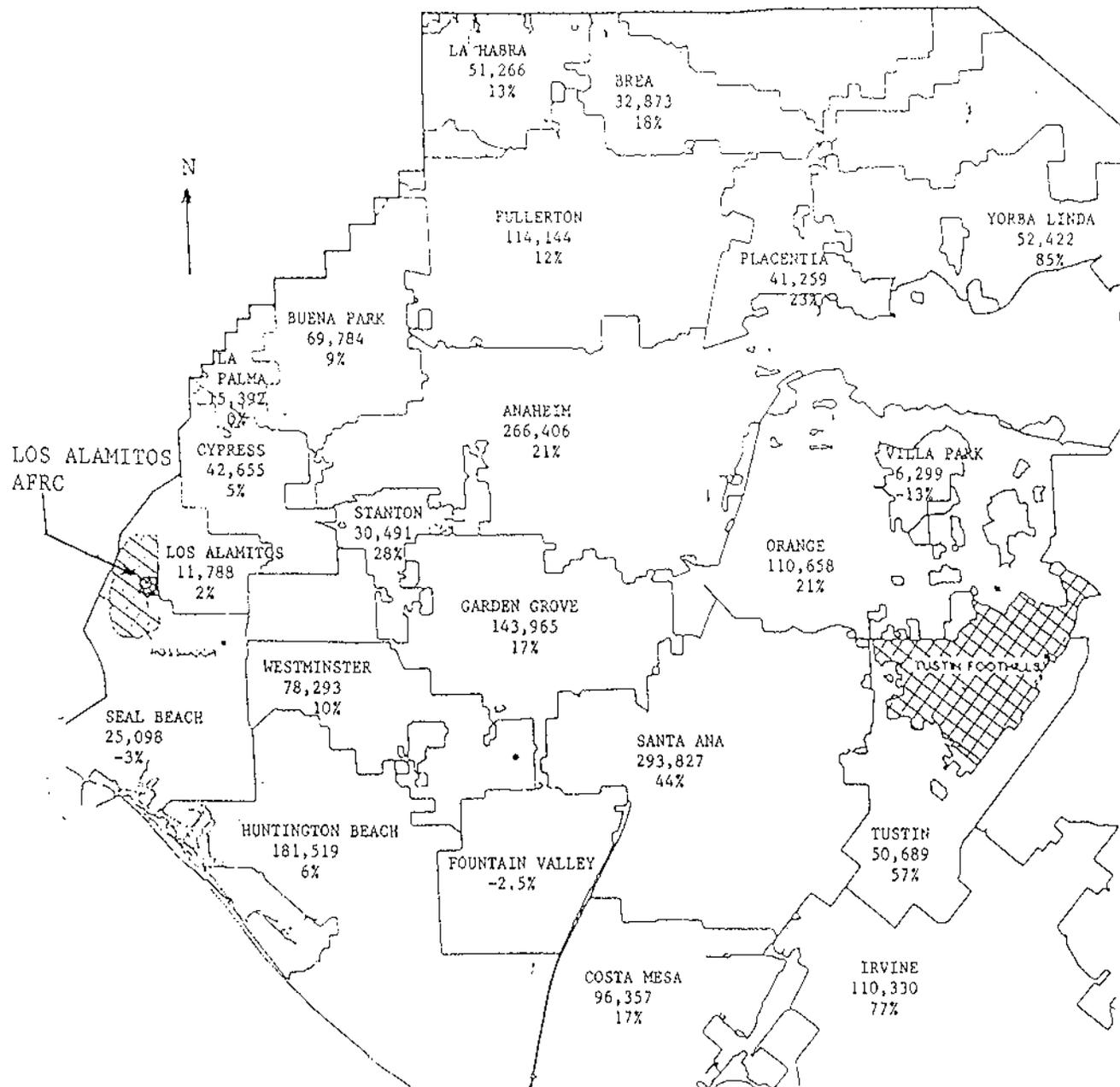
Source: Orange County Register, Jan 25, 1994

These prices are comparable to the median home prices for Orange County (Table 6.4-2). Home prices are higher in the community of Rossmoor, located west of the air installation, with starting prices at \$340,000 to \$350,000 and up. In College Park East, the residential development located south of the installation in Seal Beach, homes sell for \$300,000 and up.

#### 6.4.2.3 Population Distribution and Density

The most recent population census for Orange County was in 1990. At that time the population of Orange County was 2,410,668 or an increase of 24.7 percent over 1980. The rate of growth in the immediate area around Los Alamitos AFRC (Cypress 5%, Los Alamitos 2%, Westminster 10%, Seal Beach 3%) is much slower because these communities are near their maximum buildouts. Little new residential development is available in these areas. Redevelopment of existing low density units to higher density dwellings would add to the existing population, however a dramatic increase is not expected in this area.

Communities farther south and east with access to rural or vacant land have experienced the largest growth (Yorba Linda 85%, Tustin 57%, Irvine 77%; see Figure 6.4-4). These areas can be expected to continue with the largest population growth. These areas have a smaller direct impact on Los Alamitos AFRC, but do affect aircraft transiting to military training areas.



NORTH ORANGE COUNTY - 1990 POPULATION BY CITY - PERCENT CHANGE FROM 1980

Source: The World Almanac, 1994 Edition

FIGURE 6.4-4

## SECTION 7 - FUTURE CONDITIONS

### 7.1 PROJECTED AIRFIELD OPERATIONS

According to the Airfield Master Plan for Los Alamitos Army Airfield (1988), the installation is a necessary and viable facility for the State of California, the Department of the Army, and the Department of Defense, and will remain so for the foreseeable future. Near and long-range plans for the airfield include maintenance projects, phasing in of new aircraft, and expansion of installation facilities. There are currently no plans to increase runways or taxiways.

Maintenance projects include reconditioning and/or resurfacing of runways and taxiways, and continued maintenance of grounds and support facilities. Runway and taxiway improvements are necessary for existing and projected future large fixed wing aircraft operations.

As stated in Section 6.1.3 several aircraft types are being phased in to replace or upgrade existing models. These include the UH-60, AH-1G, OH-58D, and CH-47D helicopters; and the C-12 airplane. The projected 1997 aircraft mix is 40 to 65 UH-60 and 25 to 40 UH-1H (combined total of UH-60 and UH-1H equalling 73), eight AH-1F, 18 OH-58D, for a total of 99 rotary wing aircraft.

With expected modest increases in airfield operations, number of personnel, and technological advances, construction and/or expansion of facilities will be necessary to maintain operational compatibility. Construction/expansion of hangars, administration and supply buildings, and installation of improved weather, navigation, and landing systems are proposed in the Airfield Master Plan (1988).

It is anticipated that the mission and operational requirements of the AFRC will continue at present levels with slight variations in aircraft operations each year. However, mission changes directed by the State of California, the Department of the Army or the Department of Defense could occur.

### 7.2 PROJECTED NOISE LEVELS

Several new aircraft are expected to be phased into operation in the near future (Section 6.1.3 and 7.1). The UH-60 will be phased in for the existing UH-1 with an approximate 70/30 percent UH-60/UH-1 mix in 5 to 7 years. The UH-60 is approximately 5 decibels quieter than the UH-1.

Occasional temporary increases in military fixed wing aircraft operations could occur as a result of base closures, disaster support, and other emergency/contingency operations.

These changes in aircraft operations are not expected to significantly increase the size of the existing noise contours. However, with new family of aircraft and possible changes of mission, changes to existing noise contours could occur. Should conditions change substantially in the future, updated and re-evaluated noise studies will be conducted.

### 7.3 PROJECTED CLEAR ZONES

The Clear Zones for the Los Alamitos Army Airfield are not expected to change in the future. Criteria for Clear Zones have been established in accordance with AFR 19-9 dated 14 Feb 1986.

### 7.4 LAND USES

#### 7.4.1 Future Installation Land Uses

A number of new land uses and new developments are planned for the installation. These facilities include:

1. A UH60 Flight Simulator Building
2. Combined ARNG/USAR Major Command Headquarters
3. New National Guard Armory
4. New Class IX Repair Parts Supply Facility
5. New Fuel Storage and Dispensing Facility

#### 7.4.2 Surrounding Communities' Future Land Uses

Northeast of the installation in the City of Cypress, areas of undeveloped land zoned as planned business parks exist. The construction of the infrastructure to support future commercial/industrial development has been completed. These areas are located within Noise Zone II. Currently the McDonnell Douglas Real Estate Company has submitted conceptual plans for a four story office building to be located near the corner of Walker Street and Katella Avenue, and two and three story buildings to be located further north. There are no plans submitted at AFRC for new developments by the government in the Clear Zone immediately adjacent to the end of the runway. When definite plans for developments are proposed for those areas adjacent to the Clear Zones, copies of the plans will be subject to review by Los Alamitos base personnel and will have to meet height restrictions established in Federal Aviation Regulation, Part 77, "Objects Affecting Navigable Airspace", as outlined in the General Plan for the City of Cypress.

Adjacent to the southwest corner of the installation are undeveloped lands owned by the Bixby Ranch Company. The Bixby Company has submitted a proposal for development to the City of Seal Beach. When contacted regarding future uses for these areas, copies of the plans will be subject to review by Los Alamitos base personnel and will have to meet height restrictions established in Federal Aviation Regulation, Part 77, "Objects Affecting Navigable Airspace", as outlined in the General Plan for the City of Seal Beach.

#### 7.4.3 Projected Property Value Changes

The annual median price of homes in Orange County has risen an average of 4.7 percent per year from 1987 through 1993, with the yearly increases for 1987, 1988, 1989, 1990 being 13.0, 24.9, 18.6, and 0.3 percent, respectively. From 1990 through 1993, the median home value decreased 10.3 percent, or an average of 3.4 percent annually, despite dramatically lower interest rates. Although we have had decreasing home values for the past several years, this trend is probably ending with home values holding steady with possible modest increases during the economic recovery.

Projected future operations at the Los Alamitos AFRC should not affect property values since there are no major changes from the existing conditions planned.

## SECTION 8 - INCOMPATIBLE USES

### 8.1 EXISTING INCOMPATIBLE USES

#### 8.1.1 Clear Zones

The Department of Defense established compatibility guidelines for Clear Zones and Accident Potential Zones. These compatibility guidelines are shown at table 2-2. Although not used completely in this study, these compatibility guidelines demonstrate how land use is coordinated within these zones. The modifications to criteria shown at section 2, page 6, table 2-1, were applied to this study.

#### 8.1.2 Noise Zones

As determined by the 1987 noise contours, the unacceptable noise zone (Zone III) does not extend beyond the boundaries of the base or into the housing area within the base (Figure 6.2-1). Noise Zone II, which is considered normally unacceptable for residential areas, extends beyond base boundaries to the south and northeast. This zone encompasses mainly business park areas to the northeast, and a private golf course and military land to the south. However, a small portion of residential area in the Cities of Cypress, Los Alamitos, and Buena Park at the northeast end, and residential area in the City of Seal Beach to the south, are within the Noise Zone II contour (Figure 6.4-3). These represent incompatible land uses as determined by the Department of Defense.

## 8.2 FUTURE INCOMPATIBLE USES

### 8.2.1 Clear Zones

Commercial/industrial development outside the base boundary adjacent to the clear zones would be compatible so long as it complies with FAA (FAR Part 77), and other local agency land use regulations.

### 8.2.2 Noise Zones

The noise contours expected for the projected future operations are not anticipated to be significantly greater than the existing noise contours (Figure 6.2-1). A similar number of incompatible land uses are expected from projected airfield operation noise which consists of a small amount of residential units within Noise Zone II. Any rezoning of property within the Zone II contour to include residential developments, schools, or hospitals, would represent additional incompatible land uses. Should substantial changes to the aircraft mix or number of operations occur, updated and re-evaluated noise studies will be conducted which could indicate changes in incompatible land uses.

## SECTION 9 - MITIGATIONS AND RECOMMENDATIONS

The following recommendations and mitigation measures have been identified as methods to reduce existing and potential future incompatible land uses in the vicinity of the Los Alamitos AFRC:

### Measures Applicable to Los Alamitos AFRC

1. Monitor and review landing and takeoff procedures and patterns in an attempt to reduce the size of incompatible noise zones outside base limits.
2. Limit base developments to areas outside of incompatible use areas.
3. Continue the program of pilot education/discipline designed to ensure that pilots follow the correct procedures to limit noise impacts on the surrounding communities.
4. Provide public notification (newspapers, radio, etc.) of any planned temporary noise excommunicated activity of significant intensity (testing, large-scale exercises, etc.).
5. Review development plans and environmental documents for proposed projects in local communities within the parameters set by FAR Part 77 and city building, planning and other requirements.

### Measures Applicable to Local Communities

1. For all remodeling/improvement projects of existing developments in noise zone II, require noise reduction technology (noise-regulating windows, additional insulation, etc.) be employed in design and construction.
2. Coordinate development in accordance with the noise constraints indicated on the noise contour map. Do not create more conflicts by allowing the construction of incompatible developments.
3. Coordinate planning efforts with Los Alamitos AFRC personnel for future developments.

## SECTION 10 - REFERENCES CITED

- 6th Army, Engineer Office 1973  
Final Environmental Impact Statement for Establishment of an  
Armed Forces Reserve Center at Los Alamitos Naval Air  
Station, Los Alamitos, California
- Airfield and Heliport Planning Criteria 1981  
Civil Engineering Programming, Department of Defense.  
Department of the Army Document TM 5-803-7.
- Armed Forces Reserve Center DSA Support Plan 1986
- Army Regulations No. 200-1 1982  
Environmental Quality, Environmental Protection and  
Enhancement. Headquarters Department of the Army.
- Bolt, Beranek, and Newman 1978  
Operator's Manual, NOISEMAP 3.4 Computer Program. Aerospace  
Medical Research Laboratory.
- California Airport Noise Standards 1979  
California Administrative Code Title 21, Public Works,  
Chapter 2.5 - Division of Aeronautics (Department of  
Transportation), Subchapter 6.
- California Noise Planning in Land Use Act 1972  
California Government Code, Division 1, Planning and Zoning,  
Chapter 3 - Land Planning, Article 5, Section 65302.
- California Association of Realtors 1994  
Exhibit 12, Regional Annual Median Price Summary: 1982-1988.
- The World Almanac, 1994 Edition
- Federal Aviation Regulation Volume XI Part 77  
Objects Affecting Navigable Airspace.
- Health Care Agency 1985  
Aircraft Noise Study, Armed Forces Reserve Center, Los  
Alamitos Army Airfield, Los Alamitos, California. Prepared  
for Cypress City Council.
- Los Alamitos Army Airfield 1988  
Airfield Master Plan
- Los Alamitos Army Airfield 1993  
Air Traffic Control Activity and Airfield Operations Report.

Noise Control Act 1972  
Public Law 92-574, October 1972

Office of the Judge Advocate General 1989  
Memorandum. Applicability of State and Local Noise  
Regulations to Army Activities. March 1989.

United States Army Environmental Hygiene Agency 1987  
Environmental Noise Assessment No. 52-34-0424-88, Noise  
Contours for Current Operations at Los Alamitos Army  
Airfield, Armed Forces Reserve Center, Los Alamitos,  
California.

Air Force Regulation 19-9, dated 14 February 1986

Memorandum for Environmental Resources Management Office,  
National Guard Bureau; Completion of the Los Alamitos  
Army Airfield AICUZ Study dated 14 Sep 93

## **APPENDIX K**

(Information in this appendix is provided as a reference source to assist the users of the AELUP.)

### **CALIFORNIA ARMY NATIONAL GUARD INSTALLATION COMPATIBLE USE ZONE STUDY 2015**

**CALIFORNIA ARMY NATIONAL  
GUARD  
INSTALLATION COMPATIBLE  
USE ZONE STUDY**



**December 2015**

**Operational Noise Program  
Army Public Health Center**

# California Army National Guard

## INSTALLATION COMPATIBLE USE ZONE STUDY

December 2015



Prepared by:  
Operational Noise Program  
Environmental Health Engineering  
Army Public Health Center

5158 Blackhawk Road  
Aberdeen Proving Ground  
Maryland, 21010-5403

# EXECUTIVE SUMMARY

## OVERVIEW

Installation Compatible Use Zone (ICUZ) study quantifies the noise environment from military training sources and recommends the most appropriate uses of noise-impacted areas. This assessment updates the information contained in the September 2004 California Army National Guard Statewide Operational Noise Management Plan.

Army Regulation (AR) 200-1 lists housing, schools, and medical facilities as examples of noise-sensitive land uses. Regulation guidelines state for land use planning purposes, noise-sensitive land uses are acceptable within the Noise Zone I, normally not recommended in Noise Zone II, and not recommended or incompatible in Noise Zone III. The LUPZ is a subdivision of Zone I and noise-sensitive land uses are generally acceptable. However, communities and individuals often have different views regarding what level of noise is acceptable or desirable. To address this, some local governments have implemented land use planning measures out beyond the Zone II limits. Additionally, implementing planning controls within the LUPZ can develop a buffer to avert future noise conflicts. Army Regulation 200-1 offers land use recommendations, which if adopted on and off the installation, would facilitate future development that is unaffected by military noise. These guidelines apply throughout the ICUZ document, which analyzes individual training and/or testing operations. Additionally, supplemental metrics predict the probability of community noise annoyance and complaints.

## CONCLUSIONS

### **CAMP ROBERTS**

#### Land Use Compatibility

The principle noise sources at Camp Roberts are small and large arms weapons firing, demolition, and air-to-ground firing. The area around Camp Roberts is primarily rural and agricultural with exceedingly low population density (<25 persons per square mile) with the exceptions of San Miquel bordering to the east, and several small areas bordering southwest (<50 persons per square mile) in the Lake Nacimiento/Heritage Ranch area.

The majority of the small arms Noise Zones remain on post. There are several scattered residences due west within Zone II residing on farmland, but the majority of the land is rural and agricultural.

For large arms activity, Noise Zone III extends beyond the boundary in three small areas due west into agricultural and rural land uses. There is a very small area of farming land use within Zone III, but imagery indicates no residences within this Zone. Noise Zone II extends beyond the boundary due west into rural and agricultural land uses. There are several scattered residences within Zone II residing on minimum 40 to 160 acre plots of farmland. The LUPZ extends

beyond the installation boundary due west and due east in a single small area. The LUPZ encompasses residential areas of Bradley and Lake Nacimiento/Heritage Ranch to the north and southwest. On post, the LUPZ encompasses the cantonment area on the eastern side of the camp but there is no full time housing.

#### Complaint Risk

Under unfavorable weather conditions, the Moderate Complaint Risk area encompasses the residential areas of Bradley and Lake Nacimiento/Heritage Ranch. Although the High Complaint Risk area also extends off post, it does not encompass any noise-sensitive land uses. Under neutral or favorable weather conditions, the risk of complaints from large caliber activity is minimal.

### **CAMP SAN LUIS OBISPO**

#### Land Use Compatibility

The principle noise sources at Camp San Luis Obispo (SLO) are small arms weapons firing and simulators. The largely rural and agricultural lands surrounding the camp indicate a population density less than 50 people per square mile. The Zone III and Zone II areas off post encompass recreational (El Chorro Park), rural and agricultural lands. There are no noise-sensitive land uses within the Noise Zones.

#### Complaint Risk

Based on the current land uses and complaint risk guidelines, the risk of complaints from demolition activity is minimal. For simulators, the moderate complaint risk areas encompassed off post would include El Chorro Park to the west and San Luis Obispo County office buildings just north of Training Areas K and K-1.

### **LOS ALAMITOS JOINT FORCES TRAINING BASE**

The principle noise sources at the Los Alamitos Joint Forces Training Base (JFTB), Army Aviation Support Facilities and Army Aviation Flight Activity are rotary-winged aircraft. The LUPZ and Zone II areas do not extend beyond the installation boundary. The majority of complaints received by the CAARNG originate at the Los Alamitos training base. Proactive measures are in place to help mitigate the effects of aircraft noise including minimum flight altitudes and designated no-fly areas. Local community outreach programs also help mitigate noise concerns with local communities.

### **AVIATION AND ARMY AVIATION SUPPORT FACILITIES (AASF) AND ARMY AVIATION FLIGHT ACTIVITY (AAFA)**

Although the number of operations at the AASFs and AAFA is not high enough to generate Noise Zones, there is always a potential that individual overflights could annoy people near

the flight tracks. However, measures are in place to mitigate the effects of aircraft noise including minimum flight altitudes and designated no-fly areas. These measures in conjunction with the limited number of operations result in the complaint risk being low.

*Aviation Classification Repair Activity Depot (AVCRAD) at Fresno*

The current location of the Flexible Engine Diagnostic System (FEDS) testing is far enough to the interior of the airport to not impact on noise-sensitive land use off the airport property. In addition, a maintenance hangar between the FEDS and residential areas due north provides a sound barrier. To date, officials indicate no complaints resulting from FEDS testing. The closest residential property, is approximately 400 meters (1,300 feet) due north. An estimate of the sound level would be 60 dBA or lower at the closest residential property. This value included spreading losses and barrier effects

## RECOMMENDATIONS

The ICUZ is a proactive planning tool, which will help to guide future development in surrounding communities. At a minimum, local municipal governments are encouraged to support public disclosure of all Noise Zones and supplemental metrics help convey how military training operations affect the noise environment.

The ICUZ and Noise Zones describe the noise characteristics of a specific operational environment, and as such, will change upon significant operational changes. Therefore, if CAARNG mission, training, or training facilities undergo changes, the document should be reviewed to determine if the current noise assessment is sufficient or if a full ICUZ update is necessary. At a minimum, it is recommended that every five years the ICUZ and/or Noise Zones be updated to incorporate changes. This may include changes in the installation noise environment and/or existing or planned land use.

**SECTION**

1 INTRODUCTION ..... 1-1

    1.1 GENERAL..... 1-1

    1.2 PURPOSE AND NEED..... 1-1

    1.3 PROCESS AND PROCEDURE..... 1-2

        1.3.1 REGULATORY REQUIREMENTS..... 1-2

        1.3.2 NOISE EXPOSURE MODELS..... 1-2

    1.4 NOISE BASICS..... 1-2

        1.4.1 NOISE METRICS ..... 1-3

        1.4.2 SOUND PROPAGATION..... 1-4

    1.5 NOISE MANAGEMENT PROGRAM ..... 1-6

        1.5.1 NOISE COMPLAINT MANAGEMENT PROCEDURE..... 1-6

2 NOISE ASSESSMENT GUIDELINES ..... 2-1

3 CAMP ROBERTS ..... 3-1

    3.1 BACKGROUND ..... 3-1

    3.2 HISTORY ..... 3-1

    3.3 MISSION AND STRUCTURE ..... 3-4

    3.4 TRAINING FACILITIES AND RANGES ..... 3-4

    3.5 LOCAL COMMUNITIES ..... 3-10

4 CAMP ROBERTS RANGE NOISE ASSESSMENT ..... 4-1

    4.1 SMALL ARMS NOISE..... 4-1

        4.1.1 SMALL ARMS RANGES..... 4-1

        4.1.2 NON-FIXED FIRING POINT RANGES AND TRAINING AREAS..... 4-3

            4.1.2.1 NON-FIXED FIRING POINT NOISE EXPOSURE..... 4-3

    4.2 LARGE ARMS, DEMOLITION, AND OTHER IMPULSIVE NOISE..... 4-5

        4.2.1 DEMOLITION AND LARGE CALIBER NOISE ZONES..... 4-5

        4.2.2 LARGE ARMS AND DEMOLITION COMPLAINT RISK POTENTIAL..... 4-8

    4.3 AIRCRAFT NOISE ASSESSMENT ..... 4-11

        4.3.1 GENERAL..... 4-11

        4.3.2 EAST GARRISON AIRFIELD AND CAMP ROBERTS ARMY HELIPORT (CRAH)..... 4-11

        4.3.3 CAMP ROBERTS PARADE FIELD HELIPORT AND MISCELLANEOUS HELIPADS ..... 4-12

        4.3.4 MCMILLAN AIRFIELD..... 4-12

4.3.5 FLIGHT CORRIDORS, NOISE ABATEMENT AND LOCAL FLYING AREAS 4-14

4.3.6 ANNOYANCE POTENTIAL FROM OVERFLIGHTS..... 4-16

    4.3.6.1 ROTARY WING AND FIXED WING AIRCRAFT..... 4-16

4.4 LAND USE COMPATIBILITY GUIDELINES AND NOISE ASSESSMENT - CAMP ROBERTS ..... 4-21

    4.4.1 INTRODUCTION ..... 4-21

    4.4.2 LAND USE..... 4-21

    4.4.3 SMALL ARMS..... 4-21

    4.4.4 EXPLOSIVE AND LARGE ARMS OPERATIONS..... 4-22

5 CAMP SAN LUIS OBISPO ..... 5-1

    5.1 LOCATION AND PHYSICAL DESCRIPTION..... 5-1

    5.2 HISTORY ..... 5-1

    5.3 MISSION AND STRUCTURE ..... 5-3

    5.4 TRAINING AREAS AND RANGES ..... 5-3

    5.5 LOCAL COMMUNITIES ..... 5-7

6 CAMP SAN LUIS OBISPO RANGE NOISE ASSESSMENT..... 6-1

    6.1 SMALL ARMS NOISE..... 6-1

        6.1.1 SMALL ARMS RANGES..... 6-1

        6.1.2 NON-FIXED FIRING POINTS ..... 6-3

        6.1.3 LARGE ARMS AND DEMOLITION COMPLAINT RISK POTENTIAL..... 6-3

        6.1.4 SIMULATOR NOISE COMPLAINT RISK POTENTIAL ..... 6-6

    6.2 AIRCRAFT NOISE ASSESSMENT ..... 6-7

        6.2.1 O’SULLIVAN ARMY HELIPORT..... 6-7

        6.2.2 NOISE ABATEMENT ..... 6-7

    6.3 LAND USE COMPATIBILITY GUIDELINES AND ASSESSMENT - CAMP SAN LUIS OBISPO ..... 6-9

        6.3.1 LAND USE..... 6-9

        6.3.2 SMALL ARMS..... 6-9

7 LOS ALAMITOS JOINT FORCES TRAINING BASE..... 7-1

    7.1 BACKGROUND ..... 7-1

    7.2 HISTORY ..... 7-1

    7.3 MISSION AND STRUCTURE ..... 7-1

    7.4 LOCAL COMMUNITIES ..... 7-3

7.4.1	FLIGHT CORRIDORS AND NOISE ABATEMENT .....	7-5
7.4.2	AIRCRAFT NOISE ZONES .....	7-8
7.4.3	ANNOYANCE POTENTIAL FROM OVERFLIGHTS.....	7-10
7.4.3.1	HELICOPTER AND FIXED-WING AIRCRAFT .....	7-10
8	ARMY AVIATION SUPPORT FACILITIES AND ARMY AVIATION FLIGHT ACTIVITY.....	8-1
8.1	AASF #1 LOS ALAMITOS .....	8-1
8.2	AASF #2 STOCKTON .....	8-1
8.2.1	NOISE ABATEMENT .....	8-1
8.3	AASF #3 SACRAMENTO.....	8-4
8.3.1	NOISE ABATEMENT .....	8-4
8.4	FRESNO ARMY AVIATION FLIGHT ACTIVITY.....	8-6
8.4.1	NOISE ABATEMENT .....	8-7
9	NOISE RELATED LAND USE POLICY AND CONTROL.....	9-1
9.1	INTRODUCTION .....	9-1
9.2	ACHIEVING LAND USE COMPATIBILITY.....	9-1
9.3	LAND USE PLANNING OPTIONS .....	9-1
9.4	THE ARMY COMPATIBLE USE BUFFER (ACUB) PROGRAM.....	9-2
9.5	JOINT LAND USE STUDY (JLUS).....	9-3
9.6	STATEWIDE / LOCAL MILITARY POLICY .....	9-4
10	SUMMARY.....	10-1
10.1	CAMP ROBERTS .....	10-1
10.2	CAMP SAN LUIS OBISPO .....	10-2
10.3	LOS ALAMITOS JOINT FORCES TRAINING BASE (LOS ALAMITOS ARMY AIRFIELD).....	10-2
10.4	AVIATION ACTIVITY AT ARMY AVIATION TRAINING FACILITES AND ARMY AVIATION FLIGHT ACTIVITY.....	10-3
10.5	RECOMMENDATIONS.....	10-3
A	GLOSSARY OF TERMS .....	A-1
B	FICUN GUIDELINES .....	B-1
B.1	LAND USE COMPATIBILITY FOR SMALL ARMS.....	B-1
C	DATA USED TO GENERATE NOISE ZONES .....	C-1
D	REFERENCES.....	D-1

**FIGURES**

Figure 1-1. Example of a Temperature Inversion..... 1-5

Figure 1-2. CAARNG Noise Complaint Form..... 1-9

Figure 3-1. Camp Roberts General Location..... 3-3

Figure 3-2. Camp Roberts Training Areas, ROZ, and Firing Points (9 and 16)..... 3-7

Figure 3-3. Camp Roberts Ranges ..... 3-9

Figure 3-4. Camp Roberts Nearby Communities ..... 3-11

Figure 3-5. Camp Roberts Surrounding 2013 Population Density (Per Square Mile) ..... 3-12

Figure 4-1. Noise Zones for Small Arms Operations ..... 4-2

Figure 4-2. Explosives and Large Arms Operations CNEL Noise Zones (C-Weighted)..... 4-6

Figure 4-3. Projected Explosives and Large Arms Operations CNEL Noise Zones (20% Increase)  
..... 4-7

Figure 4-4. Explosives and Large Arms Operations Complaint Risk Areas (Unfavorable Weather  
Conditions)..... 4-9

Figure 4-5. Explosives and Large Arms Operations Complaint Risk Areas (Neutral Weather  
Conditions)..... 4-10

Figure 4-6. Camp Roberts Airfields, Helipads, and Drop Zones..... 4-13

Figure 4-7. Camp Roberts Flight Routes ..... 4-15

Figure 4-8. Example of Ground Track Distance versus Flight Annoyance Potential (CH-47). 4-18

Figure 4-9. Small Arms Noise Zones with Surrounding Generalized Land Use..... 4-23

Figure 4-10. Explosives and Large Arms Noise Zones with Surrounding Generalized Land Use4-  
24

Figure 5-1. Camp San Luis Obispo Location ..... 5-2

Figure 5-2. Camp San Luis Obispo Training Areas ..... 5-5

Figure 5-3. Camp San Luis Obispo Ranges..... 5-6

Figure 5-4. Camp San Luis Obispo 2013 Population Density (Per Square Mile) ..... 5-8

Figure 6-1. Camp San Luis Obispo Small Arms Noise Zones ..... 6-2

Figure 6-2. Demolition Complaint Risk Areas (Unfavorable Weather Conditions) 1 lb. TNT .. 6-4

Figure 6-3. Demolition Complaint Risk Areas (Neutral Weather Conditions) 1 lb. TNT ..... 6-5

Figure 6-4. O’Sullivan Army Heliport..... 6-8

Figure 6-5. Small Arms Noise Zones and Land Use ..... 6-10

Figure 7-1. Los Alamitos Joint Forces Training Base General Location ..... 7-2

Figure 7-2. Population Density Surrounding Los Alamitos JFTB ..... 7-4

Figure 7-3. LAAAF Closed Traffic Pattern and Noise-Sensitive Areas ..... 7-6

Figure 7-4. LAAAF Inbound and Outbound Flight Routes..... 7-7

Figure 7-5. LAAAF Aircraft ADNL Noise Zones..... 7-9

Figure 7-6. UH-60 Overflight Annoyance Potential..... 7-14

Figure 8-1. AASF #2 at Stockton Metropolitan Airport..... 8-3

Figure 8-2. AASF #3 at Sacramento Mather Airport ..... 8-5

Figure 8-3. AAFA and AVCRAD at Fresno ..... 8-8

**TABLES**

Table 1-1 University of Utah Criteria for "Good" and "Bad" Firing Conditions .....	1-6
Table 2-1. Noise Limits for Noise Zones.....	2-1
Table 3-1. Camp Roberts Training Area Descriptions .....	3-6
Table 3-2. Camp Roberts Range Descriptions.....	3-8
Table 3-3. Population Surrounding Camp Roberts.....	3-10
Table 4-1. Predicted Peak Levels for 5.56 mm Blank Round .....	4-3
Table 4-2. Predicted Peak for 7.62 mm Blank Round .....	4-4
Table 4-3. Predicted Peak for .50 Caliber Blank Round.....	4-4
Table 4-4. Complaint Risk Guidelines.....	4-8
Table 4-5. Maximum A-Weighted Sound Levels for Rotary-Wing Aircraft .....	4-16
Table 4-6. Maximum A-Weighted Sound Levels for Fixed-Wing Aircraft .....	4-17
Table 4-7. Percentage of Population Highly Annoyed from Aircraft Noise .....	4-17
Table 4-8. Rotary-Wing Overflights Annoyance Potential <sup>1</sup> .....	4-19
Table 4-9. Fixed-Wing Overflights Annoyance Potential <sup>1</sup> .....	4-20
Table 4-10. Small Caliber Noise Zones Acreage.....	4-22
Table 4-11. Large Caliber Noise Zones Acreage.....	4-22
Table 5-1. CSLO Training Area Description.....	5-4
Table 5-2. CSLO Range Description .....	5-4
Table 5-3. Population Surrounding CSLO.....	5-7
Table 6-1. Predicted Peak Noise Levels for Typical Army Simulators.....	6-6
Table 6-2. Population Exposure in Small Caliber Noise Zones .....	6-9
Table 7-1. Population Surrounding Los Alamitos JFTB .....	7-3
Table 7-2. Maximum A-Weighted Sound Levels for Rotary-Wing Aircraft .....	7-10
Table 7-3. Maximum A-Weighted Sound Levels for Fixed-Wing Aircraft .....	7-11
Table 7-4. Percentage of Population Highly Annoyed from Aircraft Noise .....	7-11
Table 7-5. Overflight Annoyance Potential <sup>1</sup> .....	7-12
Table 8-1. A-Weighted Noise Levels for T-700 and T-55 Engines (90° Azimuth) .....	8-6
Table 8-2. A-Weighted Noise Levels at 50 Feet for Selected Azimuths.....	8-7

**ACRONYMS AND ABBREVIATIONS**

AAD	Average Annual Day
AAFA	Army Aviation Flight Activity
AASF	Army Aviation Support Facility
ACUB	Army Compatible Use Buffer
ADNL	A-Weighted Day-Night Average Sound Level
AGL	Above Ground Level
AR	Army Regulation
AT	Annual Training
ATC	Air Traffic Control
AVCRAD	Aviation Classification Repair Depot
CAB	Combat Aviation Brigade
CAARNG	California Army National Guard
CALFEX	Combined Arms Live Fire Exercises
CDEC	Combat Development Experimental Command
CDNL	C-Weighted Day-Night Average Sound Level
CHABA	Committee on Hearing, Bioacoustics and Biomechanics
CNEL	Community Noise Equivalent Level
CNG	California National Guard
CRAH	Camp Roberts Army Heliport
CRPRH	Camp Roberts Parade Field Heliport
CSLO	Camp San Luis Obispo
dB	Decibel(s)
dBA	Decibels, A-Weighted
dBC	Decibels, C-Weighted
dBp	Decibels, Unweighted Peak
DNL	Day-Night Average Sound Level
DoD	Department of Defense
DODI	Department of Defense Instruction
DZ	Drop Zone
ERG	Explosives Research Group
FAAFA	Fresno Army Aviation Flight Activity
FEDS	Flexible Engine Diagnostic System
FICUN	Federal Interagency Committee on Urban Noise
GIS	Geographical Information System
ICUZ	Installation Compatible Use Zone
IED	Improvised Explosive Device
JFTB	Joint Forces Training Base
JLUS	Joint Land Use Study
KD	Known Distance
LAAAF	Los Alamitos Army Airfield
LEQ	Equivalent Sound Level
LUPZ	Land Use Planning Zone
LZ	Landing Zone

MATES	Maneuver Area Training and Equipment Site
MOUT	Military Operations in Urban Terrain
MPMG	Multi-Purpose Machine Gun
MSL	Mean Sea Level
MTC	Maneuver Training Center
NOE	Nap Of the Earth
NLR	Noise Level Reduction
NVD	Night Vision Devices
OIC	Officer In Charge
ONMP	Operational Noise Management Plan
OPR	Office of Planning and Research
Pa	Pascal
PAO	Public Affairs Office
ROZ	Restricted Operating Zone
SARNAM	Small Arms Range Noise Assessment Model
SEL	Sound Exposure Level
SLO	San Luis Obispo
SOP	Standard Operating Procedure
TA	Training Area
TMC	Troop Medical Clinic
TP	Target Practice
USACHPPM	U. S. Army Center for Health Promotion and Preventive Medicine
USAPHC	U. S. Army Public Health Command

# 1 INTRODUCTION

## 1.1 GENERAL

The Installation Compatible Use Zone (ICUZ) study provides a strategy for noise management on and surrounding Camp Roberts, Camp San Luis Obispo (SLO), Los Alamitos Joint Forces Training Base (JFTB), Army Aviation Support Facilities (AASF) and Army Aviation Flight Activity (AAFA). Elements of the ICUZ include noise analysis, education about noise and Army noise metrics, complaint management, and when necessary, noise abatement procedures.

The report assists installation personnel and local community officials. Specifically, the ICUZ provides a methodology for analyzing noise exposure associated with military operations and provides land use guidelines for achieving compatibility between the noise generated by the Army and affected communities.

As military planners and local communities prepare and modify comprehensive development plans, the conclusions from this ICUZ will assist in the planning process with a goal of preventing incompatible land use.

## 1.2 PURPOSE AND NEED

The Army has an obligation to U.S. citizens to recommend land use around its installations that will: (a) protect citizens from noise and other hazards; and (b) protect the public's investment in these training facilities. To meet these obligations, the Army will recommend land uses that are compatible with military operations while allowing maximum beneficial use of adjacent properties. The U.S. Department of Defense (DoD) and component Services have published guidelines that reflect these land use recommendations.

Through Army Regulation (AR) 200-1, noise exposures on communities exist as Noise Zones. Regulation guidelines state that for land use planning purposes, noise-sensitive land uses range from acceptable to not recommended within the Noise Zones. These guidelines apply throughout the ICUZ as individual or combined training operations. The program defines the following four Noise Zones:

- Zone III- Noise-sensitive land uses are not recommended.
- Zone II- Although local conditions such as availability of developable land or cost may require noise-sensitive land uses in Zone II, this type of land use is strongly discouraged on the installation and in surrounding communities. All viable alternatives should be considered to limit development in Zone II to non-sensitive activities such as industry, manufacturing, transportation and agriculture.
- Zone I- Noise-sensitive land uses are generally acceptable but military operations may still be loud enough to be heard - or even judged loud on occasion. Zone I is not one of the contours shown on the map; rather it is the entire area outside of the Zone II contour.

- The Land Use Planning Zone (LUPZ)- The LUPZ is a subdivision of Zone I and noise-sensitive land uses are generally acceptable. However, communities and individuals often have different views regarding what level of noise is acceptable or desirable. To address this, some local governments have implemented land use planning measures out beyond the Zone II limits. Additionally, implementing planning controls within the LUPZ can develop a buffer to avert future noise conflicts.

### **1.3 PROCESS AND PROCEDURE**

#### **1.3.1 REGULATORY REQUIREMENTS**

This assessment has been conducted in accordance with the DoD Instruction Directive 4715.13 *subject: DoD Noise Program* (DoD 2005) and Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, Chapter 14, *Operational Noise* (U.S. Army 2007).

#### **1.3.2 NOISE EXPOSURE MODELS**

Computer software models are the Army's primary noise assessment tools. The principal Army noise models are:

- The Small Arms Range Noise Assessment Model (SARNAM) creates noise contours for small arms (.50 caliber and below) ranges. SARNAM incorporates the latest available information on weapons noise source models, directivity, sound propagation, and the effects of noise mitigation and safety structures such as berms, wall, and ricochet barriers. The SARNAM calculation algorithms assume weather conditions or wind direction that favors sound propagation. Small caliber weapon noise is addressed utilizing peak levels and therefore has no assessment period.
- The BNOISE2 modeling program calculates noise levels generated by the firing of large arms (20mm and greater) and high-explosive charges. The sounds from large arms, demolitions, and other impulsive sounds generally create the largest complaint issues because the sound can travel far, it is difficult to mitigate and often accompanied by vibration that may increase the public's annoyance. The Blast Noise Zones used an assessment period of 104 days for development.
- NOISEMAP is a suite of computer modeling programs developed by the Air Force for predicting noise exposures from aircraft flight, maintenance, and ground run-up operations. Inputs include the types of aircraft, flight patterns, and variations in altitude, number of operations, ground run-up information, and hours of operations.

### **1.4 NOISE BASICS**

Sound is the vibration of air pressure about a mean atmospheric pressure of 100,000 Pa (Pascal) or 14.7 pounds per square inch (the standard atmospheric pressure at sea level). While all animals have different hearing ranges, these changes in atmospheric pressure as they relate to

human hearing vary from approximately 0.0006 Pa for a whisper at two meters, to 1,000 Pa for an M16 rifle at the shooter's ear.

Due to this large range of sound pressures and that the human ear responds more closely to a logarithmic scale (rather than a linear), the decibel (dB) system was developed to quantify sound energy (loudness) into a meaningful and manageable scale. On this scale, the range of average human hearing runs from approximately zero (threshold of hearing) to 140.

### 1.4.1 NOISE METRICS

When measuring sound, the levels are often filtered (i.e. frequency weighted) to accommodate how the human ear functions. This filtering is "A-weighting" and assumed for all sound levels in this report unless otherwise specified. Military impulsive sounds (e.g., explosions, artillery blasts) can be felt (vibration) as well as heard and utilize "C-Weighting" where the low-frequency components of these sounds are not de-emphasized to the same extent as A-weighting. Listed below are explanations of the noise metrics in this assessment.

- **Community Noise Equivalent Level (CNEL).** California is the only State that uses a variation of the DNL. The CNEL metric is an average sound level over a 24-hour period with a 5 dB penalty applied to evening events (7 p.m.-10 p.m.) and a 10 dB applied to night events (10 p.m. - 7 a.m.). In practice, there is little difference between DNL and CNEL. The 5dB evening penalty typically results in less than a 1dB increase above DNL values.
- **Day-Night Average Sound Level (DNL).** DNL is a noise metric describing the average noise level over the course of a 24-hour period. A 10 dB penalty applies to operations that happen during nighttime hours (10 p.m. through 7 a.m.) because noise tends to be more intrusive at night than during the day. DNL accounts for the total or cumulative noise level at a given location.
- **Maximum Sound Level ( $L_{max}$ ).** The highest sound level measured during a single event in which the sound level changes value with time (e.g., an aircraft overflight). The maximum sound level is important in judging the interference caused by a noise event with conversation, television or radio listening, sleeping, or other common activities.
- **Peak (dB<sub>P</sub>).** Peak is a measure of the highest instantaneous sound pressure without frequency weighting or exponential time weighting over a given time period.
- **PK15(met).** PK15(met) is the peak sound level, factoring in the statistical variations caused by weather, that is exceeded only 15 percent of the time (i.e., 85 percent certainty that sound will be within this range). This "85 percent solution" gives the installation and the community a means to consider the areas possibly impacted by training noise at times under unfavorable weather conditions that enhance sound propagation.
- **PK50(met).** PK50(met) is the peak level that would be expected 50 percent of the time during "average" or "neutral" weather conditions.

### 1.4.2 SOUND PROPAGATION

One of the principle influences on sound propagation is the day-to-day weather conditions. Wind and temperature significantly influence how far sound travels from a source and how loud it will be at the receiver's location. As sound travels through air, a receiver downwind of the source is subjected to higher sound levels than a receiver upwind, in effect the wind is actually helping move the sound to the downwind receiver, while upwind the sound must "swim against the current."

Combine wind direction with temperature variation (as a rule, sound usually travels further in cold temperatures) and one may observe the phenomena of *atmospheric refraction*. This atmospheric condition bends and/or focuses sound waves toward some areas and away from others.

When a temperature inversion is present, military operations may sound much louder than normal, or be heard at greater distances. The inversion layer acts as a boundary for the sound, trapping it close to the ground. This can create areas of high intensity sound far from the sound's source. As a result, on most days it may be possible to detonate 10 pounds of explosives without disturbing a community (neutral weather conditions), while on another day with a temperature inversion, the detonation of 1 pound at the same location may be disruptive (unfavorable weather conditions).

Figure 1-1 illustrates how temperature inversions bend (refraction) the sound created by a typical explosion. The sound waves from the explosion initially travel upward, but the inversion reflects the sound back downward toward the ground, generating high noise levels many miles away. Under normal conditions, the Noise levels at that distance would otherwise be much lower.

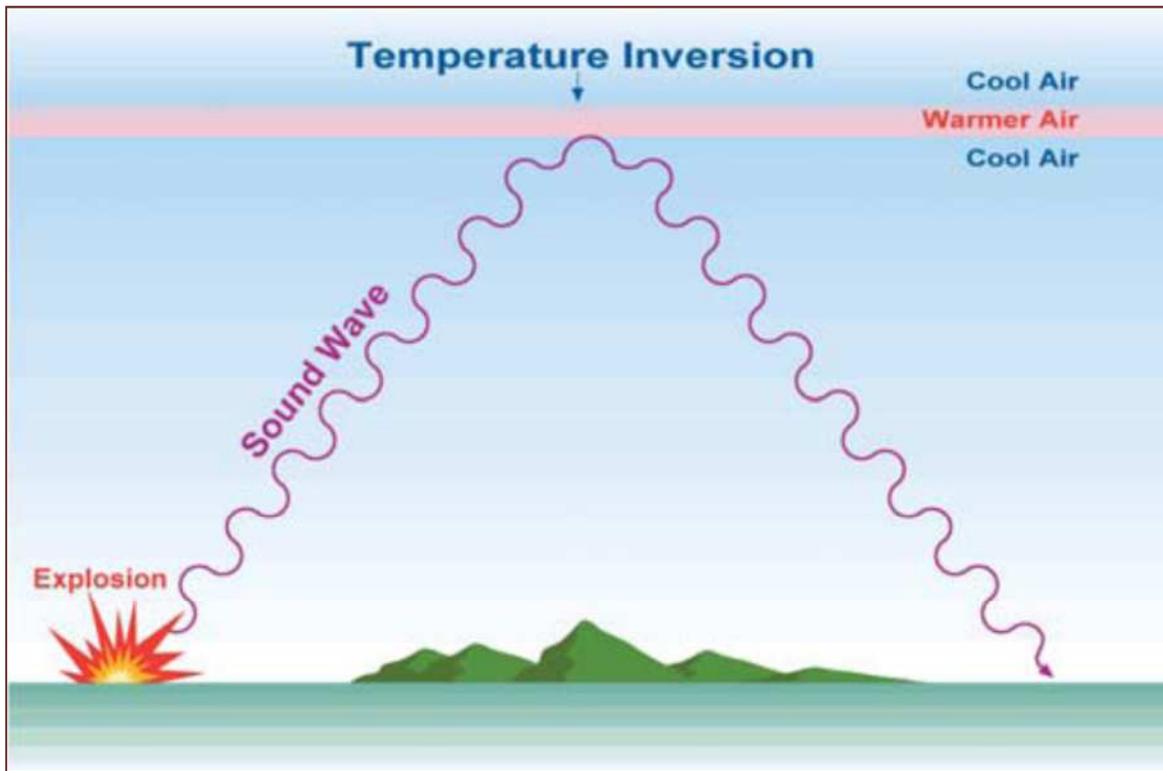


Figure 1-1. Example of a Temperature Inversion

Based on these phenomenon it's easy to see how predicting sound travel can be very difficult, but the Explosives Research Group (ERG) and the University of Utah developed guidelines to help determine what would be "good" or "bad" firing times. Table 1.1 summarizes these guidelines.

Table 1-1 University of Utah Criteria for "Good" and "Bad" Firing Conditions

“Good” Firing Conditions	“Bad” Firing Conditions
<p>Clear skies with billowy cloud formations, especially during warm periods of the year.</p> <p>A rising barometer immediately following a storm.</p>	<p>Days of steady winds (5-10 mph) with gusts of greater velocities (above 20 mph) in the direction of nearby residences.</p> <p>Clear days on which “layering” of smoke or fog are observed.</p> <p>Cold, hazy, or foggy mornings.</p> <p>Days following a day when large extremes of temperature (about 36°F) between day and night are observed.</p> <p>Generally high barometer readings with low temperatures.</p>

**1.5 NOISE MANAGEMENT PROGRAM**

In accordance with AR 200-1, Army installations are responsible for maintaining a Noise Management Program. The program includes two main components:

- (1). *Evaluate and document the impact of noise produced by ongoing and proposed actions/activities.*
- (2). *Monitor, record, archive and address operational noise complaints.*

The ICUZ document is generally the center of the noise management program. The ICUZ provides the information needed so installations can work with communities on noise incompatibility issues. The ICUZ will help installations advise local planning commissions, and be instrumental in developing action plans which limit future encroachment threats.

**1.5.1 NOISE COMPLAINT MANAGEMENT PROCEDURE**

A centralized procedure to log and investigate noise complaints is most effective when responding to public inquires. The goal of a complaint procedure is to reduce the potential for noise complaints by keeping the public informed about what is happening and to satisfy the complainants so that noise complaints do not escalate. A proactive noise complaint program will

help prevent the degradation of the mission due to controversy over noise impacts, while at the same time protecting the health and safety of the local community, both civilian and military, on and off the installation.

In accordance with AR 200-1, the CAARNG Noise Complaint Management Program indicates:

### Methodology

An online process streamlines the complaint log process. The CAARNG portal has capabilities to generate annual noise complaint requests for internal record keeping. Complainants have the opportunity to supply the following information:

- Name and address
- Phone number, Email address, and preferred method of contact
- Date and time of occurrence
- Nature of complaint (e.g., frequency, nighttime noise, low-flying, ground noise)
- Types of noise (e.g., aircraft, range activity, transportation)
- Approximate location of the noise
- Additional comments.

The form forwards to the Officer in Charge (OIC) upon completion. If the complaint cannot be addressed within the unit, the OIC will request help from unit leadership to determine subsequent steps and decide if the Public Affairs Office (PAO) should become involved. Citizens should be informed of the installation's mission. Complainants will be informed that their issue will be investigated and that a follow up will be completed.

### Complaint Investigation

Once the complaint form has been received and recorded, an investigation should be conducted shortly thereafter. The complaint form will be routed through the OIC to the office responsible for the activity that resulted in the noise complaint. The investigation should reveal the following:

1. The identity of the unit involved
2. The validity of the complaint
3. Whether applicable guidelines and regulations were followed
4. If corrective action should be taken
5. What steps should be taken to avoid future noise complaints regarding this activity.

### Complainant Follow Up

Following the complaint investigation, the complainant should be contacted for a follow up. Information to be discussed should include the following:

- Inform complainant of the importance of their complaint
- Identify the noise source
- Address corrective action taken
- Inform citizen of future actions that will produce similar noise events
- Other necessary information.

Once the complaint has been addressed and the citizen has been debriefed, the complaint form should be updated to reflect this. The date, responses from the citizen, and other necessary comments should be entered into the record to close each complaint incident. A copy of the noise complaint form should be submitted to the PAO. The PAO will keep a log with all of the noise complaints on file.

Figure 1-2 depicts a copy of the Noise Complaint form used by the CAARNG. Currently the CAARNG is utilizing an online portal to maintain and archive noise complaint history.

<b><u>Noise Complaint Form</u></b>	
<b><i>Personal Information</i></b>	
First and Last Name:	_____
Address:	_____
	_____
Phone number:	_____
Email address:	_____
Preferred contact method:	<input type="checkbox"/> Phone <input type="checkbox"/> Email <input type="checkbox"/> Postal service
<b><i>Complaint Information</i></b>	
Date of occurrence:	_____
Time of occurrence:	_____
Nature of complaint:	_____
	_____
	_____
Location:	<input type="checkbox"/> Camp Roberts <input type="checkbox"/> Camp San Luis Obispo <input type="checkbox"/> Los Alamitos <input type="checkbox"/> Other _____
Aircraft noise:	No. of Aircraft _____ Color _____ Est. altitude _____ Flight direction _____ Other _____
Range noise:	No. of Shots _____ Direction _____ Source _____ Surrounding Terrain _____
Transportation noise:	Vehicle/rail _____ Direction _____ Est. Speed _____
Location of Complainant when disturbed:	_____
Weather conditions:	_____
Additional Comments:	_____
	_____
<b><i>Complaint Investigation</i></b>	
Responsible office:	_____
Contact:	_____
Corrective Action:	_____
	_____
<b><i>Complainant Follow up</i></b>	
Date:	_____
Response:	_____
Notes:	_____
	_____
<b>PROVIDE COPY TO PAO</b>	

Figure 1-2. CAARNG Noise Complaint Form

## 2 NOISE ASSESSMENT GUIDELINES

The USAPHC applies the Federal Interagency Committee on Urban Noise (FICUN, 1980) guidelines (shown in Appendix B) when recommending land use options for areas near noise producing activities. Originally, the guidelines were applicable to A-weighted noise sources such as aircraft and aviation. Using the FICUN guidelines in conjunction with recommendations of the National Academy of Sciences Committee on Hearing, Bioacoustics and Biomechanics (CHABA 1981), the Army developed Noise Zone limits for weapons and explosive noise. Army Regulation 200-1 contains the Noise Zone limits presented in Table 2-1.

Table 2-1. Noise Limits for Noise Zones

Noise Zone	Noise Limits		
	Aviation ADNL (dB)	Impulsive CDNL (dB)	Small Arms dBP
LUPZ	60 – 65	57 – 62	n/a
I	< 65	< 62	< 87
II	65 – 75	62 – 70	87 – 104
III	> 75	> 70	> 104

Notes:

dB = decibel

ADNL = A-weighted Day-Night Level

CDNL = C-weighted Day-Night Level

P = Peak

n/a = Not Applicable

There are often existing “noise-sensitive” land uses defined as non-conforming within a Noise Zone. In most cases, this is not a risk to community quality of life or mission sustainment. Long-term neighbors outside the installation boundary often acknowledge that they hear training, and most are not bothered. Average noise levels may be the best tool for long-term land use planning, but they may not adequately assess the probability of community noise complaints. As recommended in AR 200-1, this assessment includes supplemental metrics to identify where noise from aviation overflights, demolition activity, and large caliber weapons may periodically reach levels high enough to generate complaints.

## 3 CAMP ROBERTS

### 3.1 BACKGROUND<sup>1</sup>

Camp Roberts is located in south central California in Monterey and San Luis Obispo counties, approximately 26 miles from the Pacific Coast (Figure 3-1). The Camp is comprised of 42,768 acres and is approximately 12 miles north of Paso Robles within the Salinas River Valley. The installation borders the Pacific Coastal Mountain range to the west and rolling hillsides leading to flat plains to the east. The terrain in the center and southeastern sections includes flat plains and moderate relief. This area is primarily for combined arms maneuver units, and contains most of the firing points for artillery. The interior is also ideal for aerial gunnery. The vegetation in this area is mainly grassland with some stands of oak trees. The terrain along the southwestern boundary is mountainous with denser oak cover, and is reserved for infantry maneuver. The East Garrison Maneuver Area is used for armored infantry training and the Maneuver Area Training and Equipment Site (MATES) is the training site's vehicle maintenance and storage facility.

Camp Robert's climate enhances training opportunities supporting year-round joint, multi-component, and interagency training. The varied terrain and weather conditions at Camp Roberts, provides unique opportunity for continuing training and testing, and makes the installation a valuable asset for future armed forces land use needs.

### 3.2 HISTORY<sup>2</sup>

Camp Roberts officially began its mission as one of the world's largest training sites in March 1941. The Camp hosted an Infantry Replacement Training Center and a Field Artillery Replacement Training Center. A peak population reached 45,000 troops in 1944, with thousands of soldiers quartered in large tent cities. On July 1, 1946, with the out-processing of WWII soldiers complete, Camp Roberts reverted to 'caretaker' status and inactivated, with a skeleton crew to maintain it. Reserve units conducted their 15-day summer training cycles, and it remained so until the outbreak of the Korean War.

In June 1950, North Korea invaded South Korea, and the United Nations quickly responded. The following month, Camp Roberts re-activated for regular Army troop training, and soon added an Armor Replacement Training Center. The terrain resembled that found in Korea, and the famed 7th Armored Division was in charge of training. By the end of fighting in September 1953, approximately 300,000 troops had completed their training here. After returnee out-processing in early 1954, camp Roberts reverted once again to caretaker status, continuing to train National Guard and Army Reserve units' summer training periods.

During the Vietnam era, Camp Roberts was active. The installation was not 'officially' open, and thus earned the title "most active inactive post in the U.S." Many troops arrived from Fort Ord after in processing for their basic training and returned to Camp Roberts for graduation and

---

<sup>1</sup> CAARNG Statewide Operational Noise Management Plan September 2004

<sup>2</sup> <http://www.camprobertshistoricalmuseum.com/Mission.html>

assignment. Camp Roberts developed the Army's first satellite network during the 1960's, and the Army's Combat Development Experimental Command (CDEC) tested many vehicle and weapons. The Navy also trained crews for river patrol boats. Vietnam was the last era for Army Basic Training at Camp Roberts.

The US Army officially closed Camp Roberts in April 1970, and on April 2, 1971, the California Army National Guard (CAARNG) received control under license from the Army to establish a Reserve Component training and mobilization facility. Camp Roberts continues to operate in this fashion today. Military units from all service branches (and some foreign countries) continue to train here, along with hosting a large wheel and track maintenance school for reserve soldiers. In recent years, many National Guard units processed through Camp Roberts to meet the Nation's needs in the War on Terrorism and deployed throughout the Middle East and Eastern Europe.

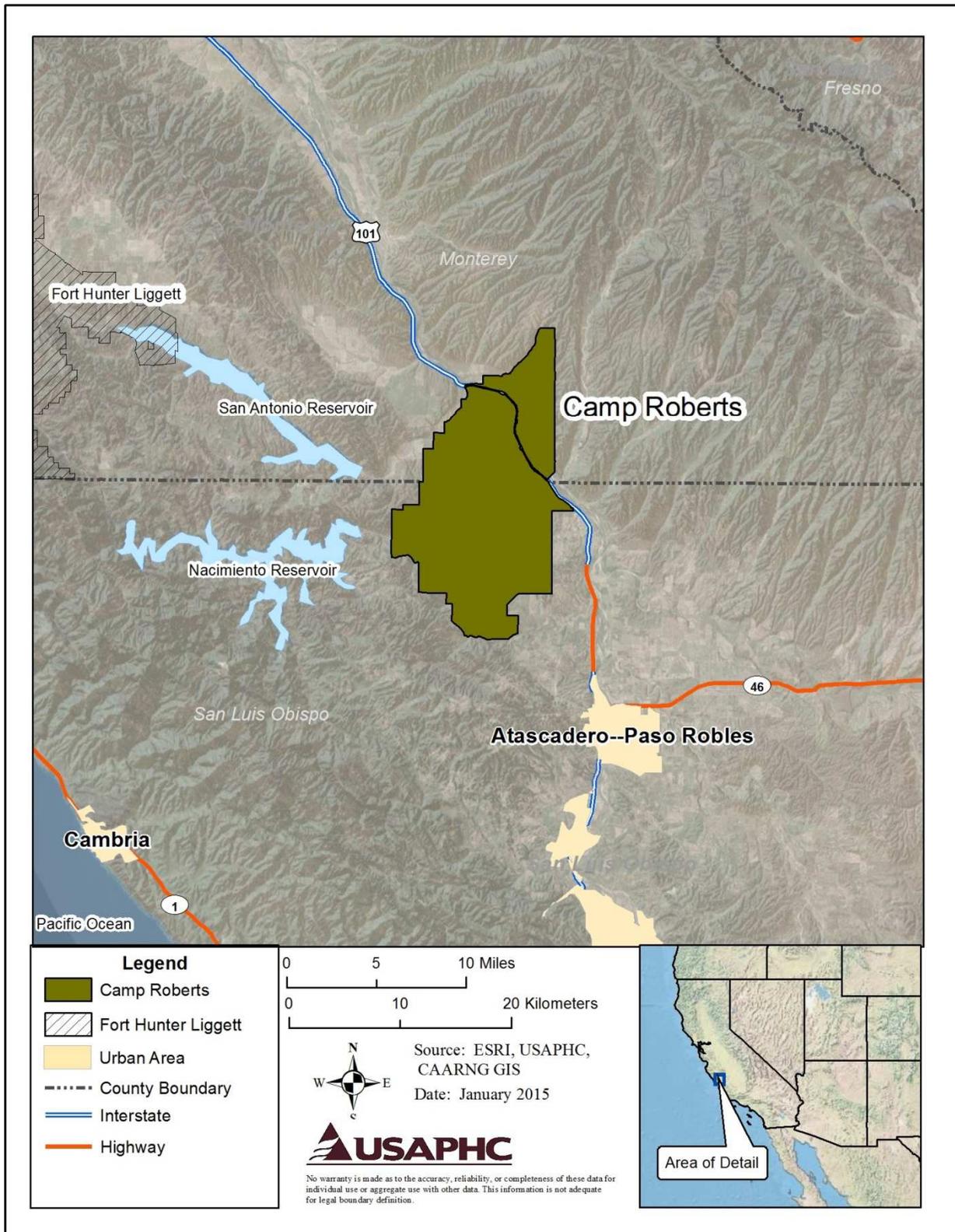


Figure 3-1. Camp Roberts General Location

### 3.3 MISSION AND STRUCTURE

The National Guard is unique in that it serves Federal (military response) and State (domestic response) missions. To serve these two missions, Camp Roberts has a two-part mission statement:

The Federal mission is to “command, operate, manage and administer the use of resources of a Maneuver Training Center-Heavy (MTC-H) to provide year-round customer service through administrative, engineering, logistical, training and operations support to assigned, attached, transient, or tenant units and joint forces activities for up to and including brigade sized elements.”

The State mission is to “Protect the public safety of the citizens of California by providing military support to the civil authority during natural disasters and other emergencies.” Camp Roberts provides emergency support services for the State of California in the event of an emergency, disaster, or social unrest, such as an earthquake, flood, or the 1992 Los Angeles riots.

The California National Guard (CNG) serves as the state’s military department under the direction of the Governor of California. The CNG is comprised of the CAARNG and the California Air National Guard (CAANG). In 2012, the CAARNG had listed 16,537 soldiers consisting of the following major units:<sup>3</sup>

- CNG Headquarters
- CNG Medical Detachment
- 40<sup>th</sup> Combat Aviation brigade
- 40<sup>th</sup> Infantry Division
- 49<sup>th</sup> Military Police Brigade
- 79<sup>th</sup> infantry Brigade Combat Team
- 100<sup>th</sup> Troop Command
- 115<sup>th</sup> Regional Support Group
- 223<sup>rd</sup> Regional Training Institute (CA)
- 224<sup>th</sup> Sustainment Brigade
- 1106<sup>th</sup> Theater Aviation Sustainment Maintenance Group

### 3.4 TRAINING FACILITIES AND RANGES<sup>4</sup>

Camp Roberts is the largest CAARNG training area and supports live-fire training, aerial gunnery, drop zones, and limited airfield training operations on two airfields. The camp serves as a major Maneuver Training Center for heavy and light equipment. This includes repair, maintenance, and modification for National Guard vehicles, equipment, and munitions. Unique to Camp Roberts is its design with a Main Garrison and an East Garrison for heavy artillery and maneuver training. Currently the East Garrison is where the Maneuver Area Training and

<sup>3</sup> California National Guard Year in Review, 2012

<sup>4</sup> Camp Roberts Regulation 350-1, Use of Facilities and Training Areas, May 2014

Equipment Site (MATES) conduct operations and maintain equipment, which includes up to 20 tracked vehicles for year-round weekend and annual training operations.

The 40<sup>th</sup> Infantry Division performs federal mission of conducting pre- and post- mobilization training, deployments, in addition to conducting stability and support operations including state missions. Camp Roberts has the following training facilities:

- 11 basic marksmanship ranges.
- 2 collective live fire ranges.
- 4 direct fire gunnery ranges.
- 3 mortar firing points
- 39 artillery firing points (11 are dry fire only)
- 5 special live fire areas
- 28 light maneuver areas
- 7 heavy maneuver areas
- 20 other non-live fire facilities

Camp Roberts training areas consist primarily of three separate areas utilized for maneuver training. Additionally, a tank trail running along the north side of San Antonio Reservoir connects Camp Roberts to Fort Hunter Liggett.

1. The East Garrison maneuver area consists of lightly wooded rolling hills suited for all types of training.
2. The southern portion of the training center is rugged and heavily wooded and therefore most suited for dismounted training.
3. The central area, or combined arms maneuver area, is well suited for multiple use. This area can accommodate two to three maneuver battalion size elements simultaneously.

Camp Roberts is divided into 22 training areas varying in size from 357 to 10,046 acres. The Training Areas O, P, and Y are divided into numbered sub-areas. Table 3-1 and Figure 3-2 provides a description and figure of the TAs at Camp Roberts. Table 3-2 and Figure 3-3 provides a description and figure of the ranges at the camp. Restricted Operating Zone (ROZ) Mike (M) is also included in Figure 3-3 for air to ground activity.

Table 3-1. Camp Roberts Training Area Descriptions

Training Area	Description
A	Cantonment and industrial operations, driver training courses
B	Bivouac sites, land navigation course
C	Cantonment and industrial operations, driver training courses
G	MATES, Roberts Army Heliport
H	Mechanized infantry, armor, artillery and combat service
I	Mechanized infantry, armor, artillery and combat service
J	Company size bivouac site, tactical maneuver, helicopter operations
K	Company size bivouac site, tactical maneuver, helicopter operations
L	Bivouac sites, tactical maneuver, helicopter staging and refueling. Fifteen (15) small arms ranges/complexes, three (3) firing points
M	Dedicated live fire impact area, Combined arms live fire exercises (CALFEX) up to company size and live fire ranges.
N	Limited squad-level tactical training.
O	Tactical training, bivouac sites, and combined arms maneuver area for company and battalion units. Four (4) artillery-firing points. Heavily wooded, rolling terrain.
P	Bivouac sites, tactical maneuver, river crossing site and air assault landing/drop zones. Training area is flat and open with heavily wooded areas adjacent to the Nacimiento River.
Q	Tactical training and dismounted operations, bivouac sites, basic mountaineering training. Very mountainous and rugged terrain.
R	Tactical and dismounted operations, bivouac sites
S	Tactical and dismounted operations, bivouac sites
T	Tactical and dismounted operations, bivouac sites, two artillery-firing points.
U	Tactical and dismounted operations, bivouac sites
V	Tactical training and bivouac sites, helicopter staging areas and landing zones
W	Tactical training and bivouac sites, helicopter staging areas and landing zones
X	Tactical training and bivouac sites, helicopter staging areas and landing zones
Y	Prime maneuver area for battalion and up to brigade size combined arms training. Supports airborne operations and has 26 artillery firing points. Terrain is mostly gentle rolling hills, medium wooded.

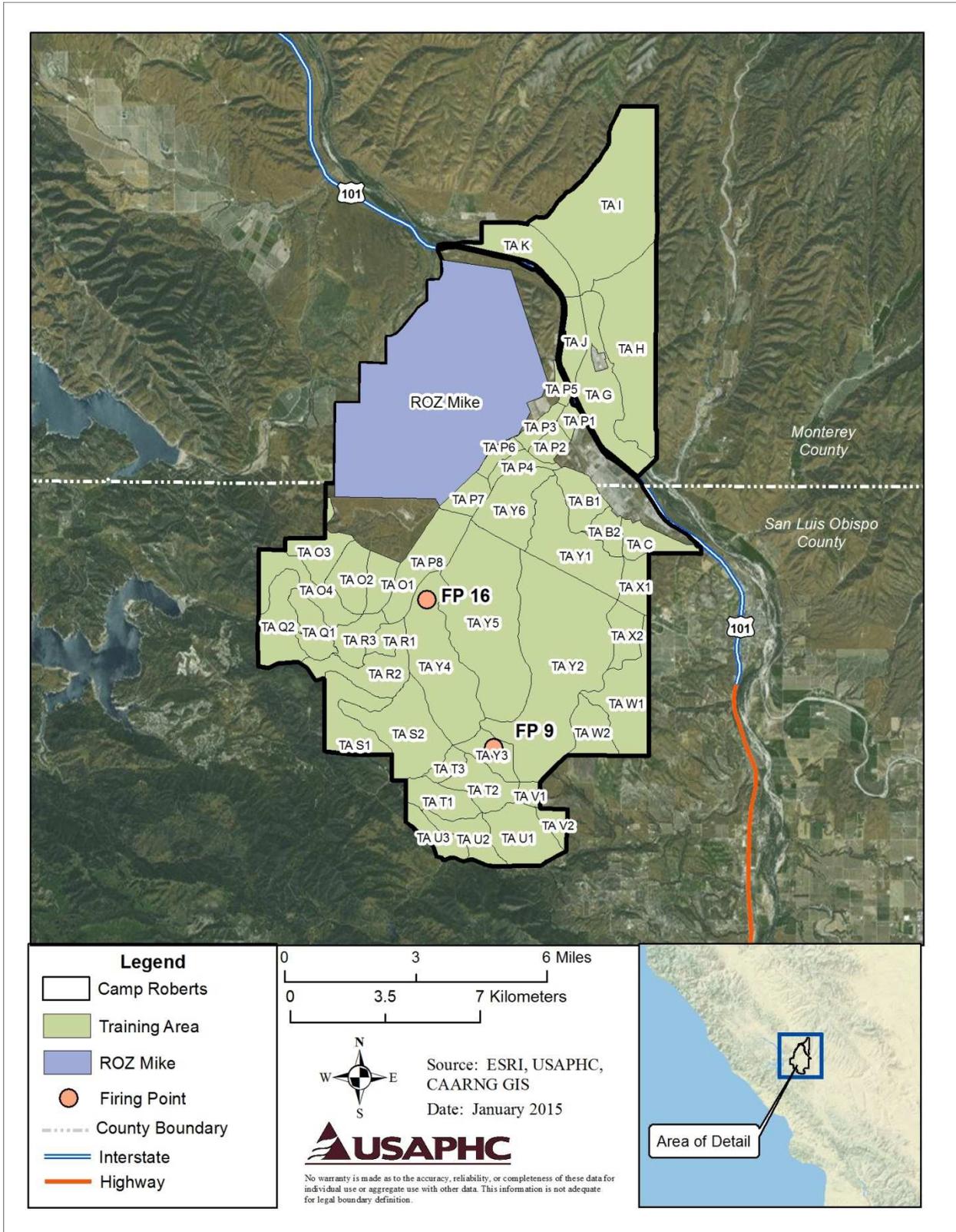


Figure 3-2. Camp Roberts Training Areas, ROZ, and Firing Points (9 and 16)

Table 3-2. Camp Roberts Range Descriptions

<b>Range</b>	<b>Description</b>
Range 2	Hand Grenade Qualification Course (Practice)
Range 3	Hand Grenade Familiarization (Live)
Range 4	Known Distance (KD) Zero
Range 5	Modified Record Fire (RETS)
Range 6	Basic 10-Meter / 25-Meter Firing Range (Zero)
Range 7	Non Standard Small Arms Range
Range 8	Basic 10-Meter / 25-Meter Firing Range (Zero)
Range 9	Basic 10-Meter / 25-Meter Firing Range (Zero)
Range 9A	Basic 10-Meter / 25-Meter Firing Range (Zero)
Range 10	Automated Combat Pistol/ MP Firearms Qualification Course
Range 11	Urban Assault Course
Range 12	Grenade Launcher Range
Range 13	40mm (Grenade) Machine Gun Qualification Range
Range 14	Automated Infantry Squad Battle Course
Range 15	Multi-Purpose (non-RETS)
Range 16	Infantry Platoon Battle Course
Range 18	Multi-Purpose (non-RETS)
Range 19	Mortar Range
Range 20	Mortar Range
Range 21	Mortar Range
Range 22	Automated Multi-Purpose Machine (MPMG) Range
Range 37	Light Anti-armor Weapons Range
Range 39	Light Demolition Range
CACTF	Combined Arms Collective Training Facility

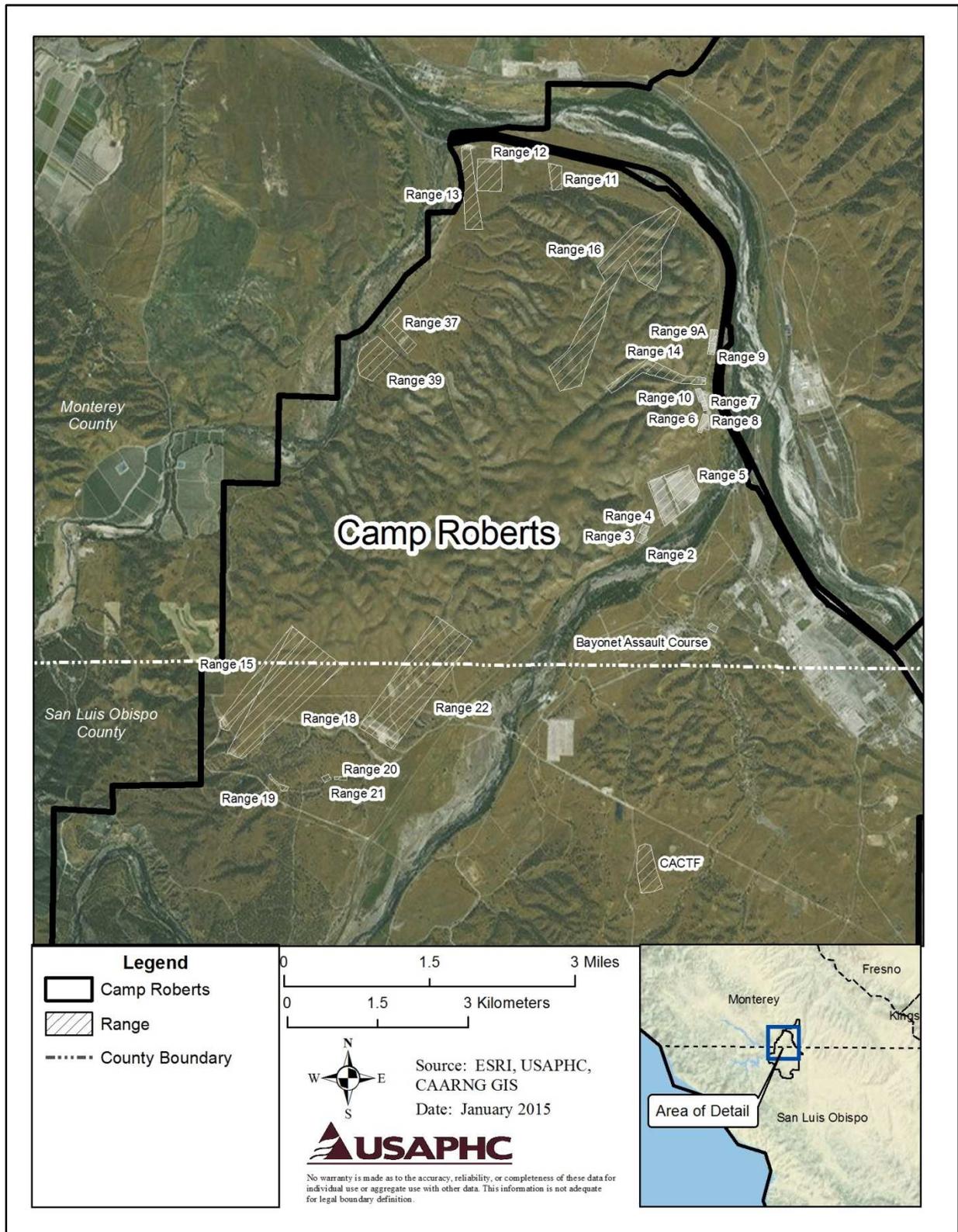


Figure 3-3. Camp Roberts Ranges

### 3.5 LOCAL COMMUNITIES

The area around Camp Roberts is primarily rural and agricultural except for several nearby communities (Figure 3-4). The largest is the incorporated City of El Paso de Robles (Paso Robles) which is located 12 miles due south in San Luis Obispo County. The other communities (unincorporated) consist of Bradley, which borders to the north, San Miguel to the east and the Lake Nacimiento/Heritage Ranch communities to the southwest.<sup>5</sup> Figure 3-5 indicates the population density per square mile for 2013 surrounding the camp. The density is assessed using block group data obtained from ESRI Geographic Information Systems (GIS). The land surrounding the camp remains exceedingly low population density (<25 persons per square mile) with the exceptions of San Miguel bordering to the east, and several small areas bordering southwest (<50 person per square mile) in the Lake Nacimiento/Heritage Ranch area. There are also several scattered residences less than 2.5 miles due west in farmland areas.

Table 3-3. Population Surrounding Camp Roberts

	2000	2010	% Change
Bradley	120	93	-22.5%
San Miguel	1,427	2,336	63.7%
Lake Nacimiento	2,176	2,411	10.8%
El Paso de Robles	24,297	29,793	22.6%
Monterey County	401,762	415,057	3.3%
San Luis Obispo County	246,681	269,637	9.3%
California	33,871,648	37,253,956	10.0%
United States	281,421,906	308,745,531	9.7%

Source: U.S. Census Bureau

<sup>5</sup> Camp Roberts JLUS Final June 2013

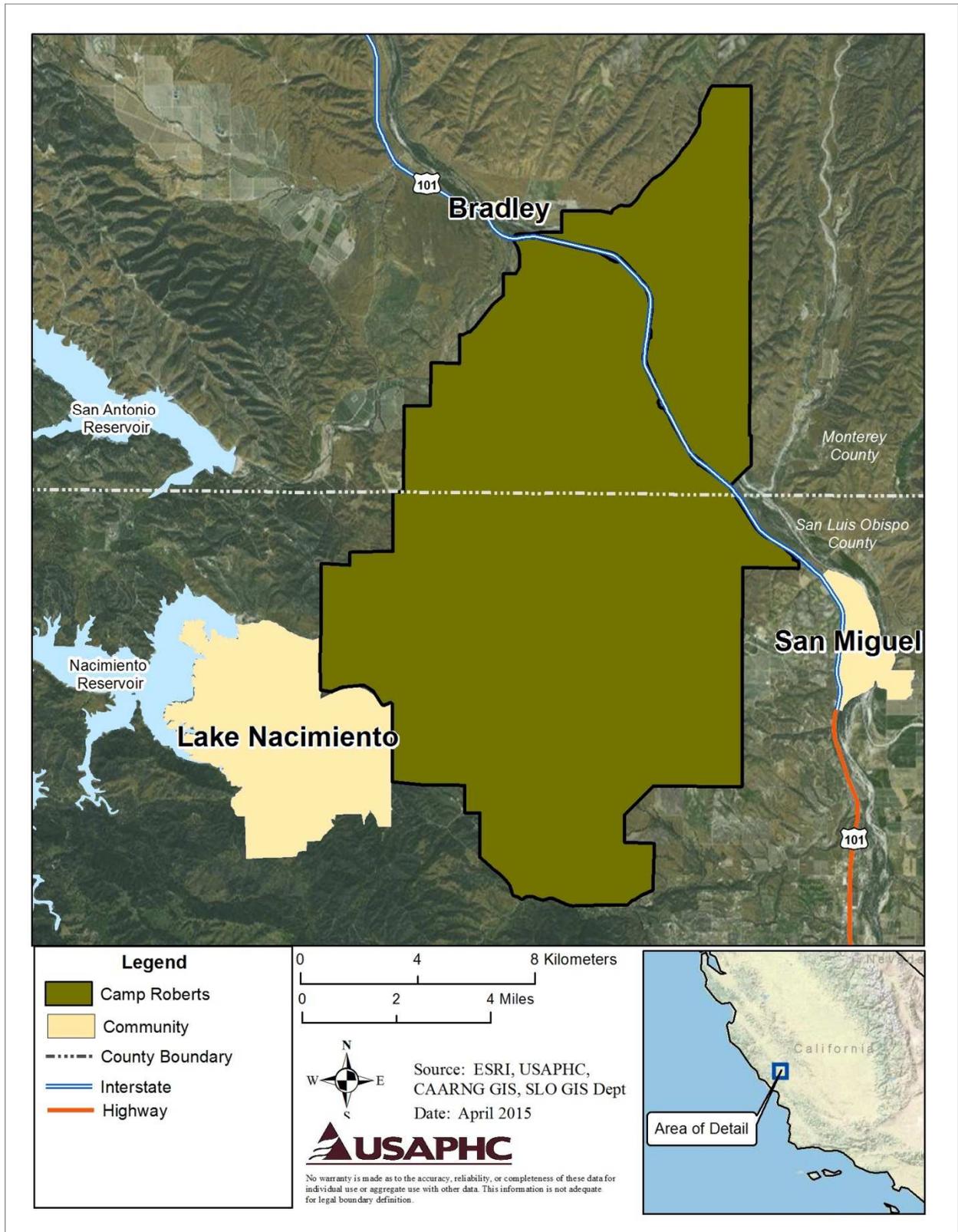


Figure 3-4. Camp Roberts Nearby Communities

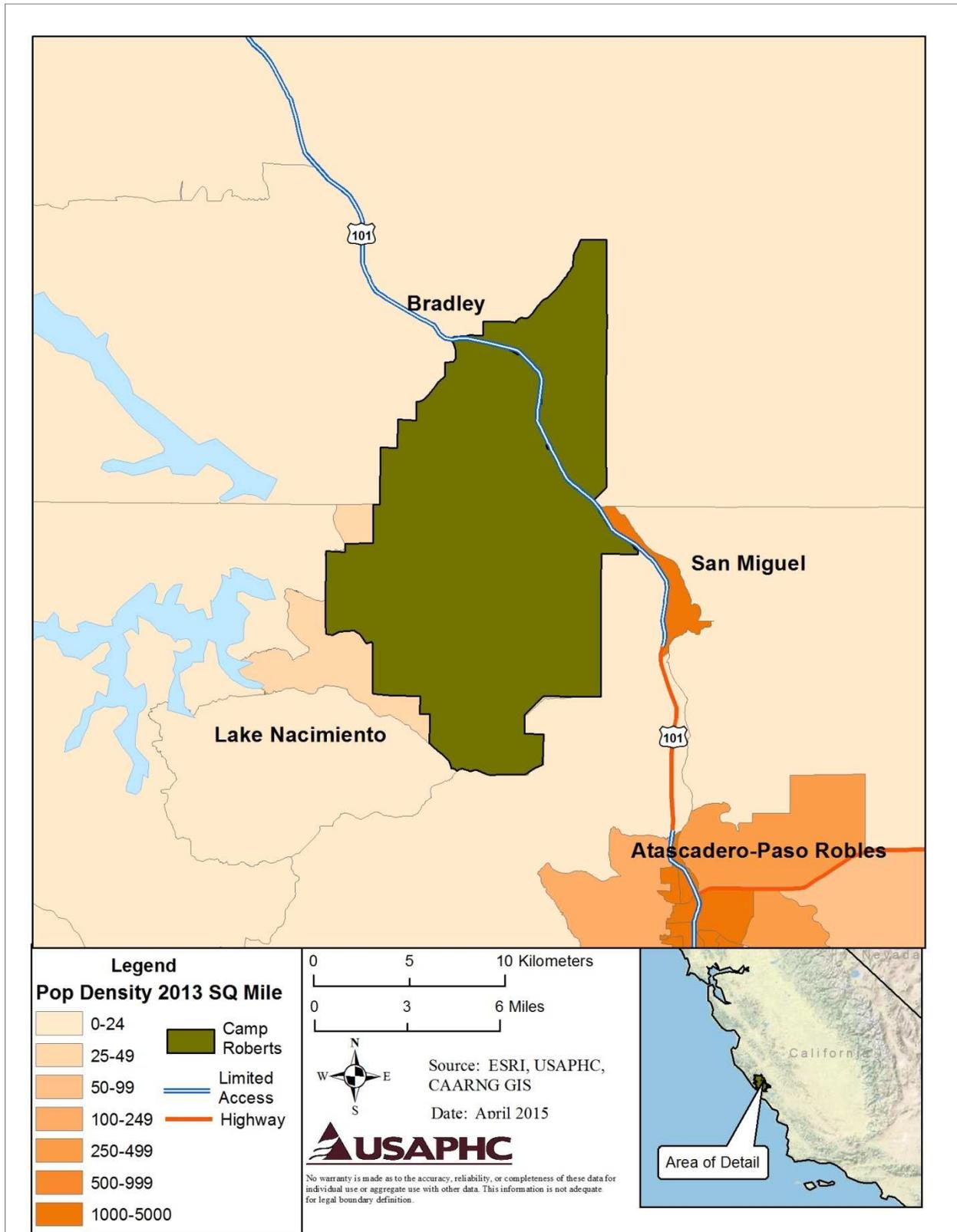


Figure 3-5. Camp Roberts Surrounding 2013 Population Density (Per Square Mile)

## 4 CAMP ROBERTS RANGE NOISE ASSESSMENT

### 4.1 SMALL ARMS NOISE

Small arms include weapons of .50 caliber or less. Camp Roberts ranges fire with 5.56 mm rifles, 7.62 mm machine guns, 9 mm pistols, .45 caliber pistols, 12 gauge shotguns, or .50 caliber machine guns. Each weapon produces a distinct noise signature when fired. Small arms noise analysis within the ICUZ is divided into subsections based on the type of facility:

- Small Arms Range - a defined area with fixed firing points and/or targets.
- Non-Fixed Firing Points – training area or range with non-fixed firing points and/or targets.

The SARNAM model calculates and plots the peak noise levels based on the loudest weapon at each range from the operations data described in Appendix C. Specific firing point and target point locations are input into SARNAM to generate noise contours. With the absence of specific firing point and target point locations, noise contours for small arms firing in the training areas and on non-fixed ranges cannot be modeled. Facilities without set firing points or target point locations thus use predicted peak noise levels.

#### 4.1.1 SMALL ARMS RANGES

The small arms ranges at Camp Roberts are utilized year round depending upon training mission requirements, such as the type of training, the unit, and deployment status. Figure 4-1 illustrates the Noise Zones for small caliber firing activity. The noise represents a maximum small caliber-training scenario (all ranges actively firing) and represents live fire operations.

Zone III extends 325 meters off post in one small area due west, but there are no noise-sensitive land uses. Zone II extends beyond the western boundary approximately 2,500 meters due west and 800 meters due north in a single small area. The areas consist of grazing, farmland, and rural areas with the exception of several scattered residences due west. The majority of the land within Zone II is not noise-sensitive with the exception of farmlands with 40 to 160 acre minimum size plots. On post, the Zone II does not encompass any noise-sensitive areas.

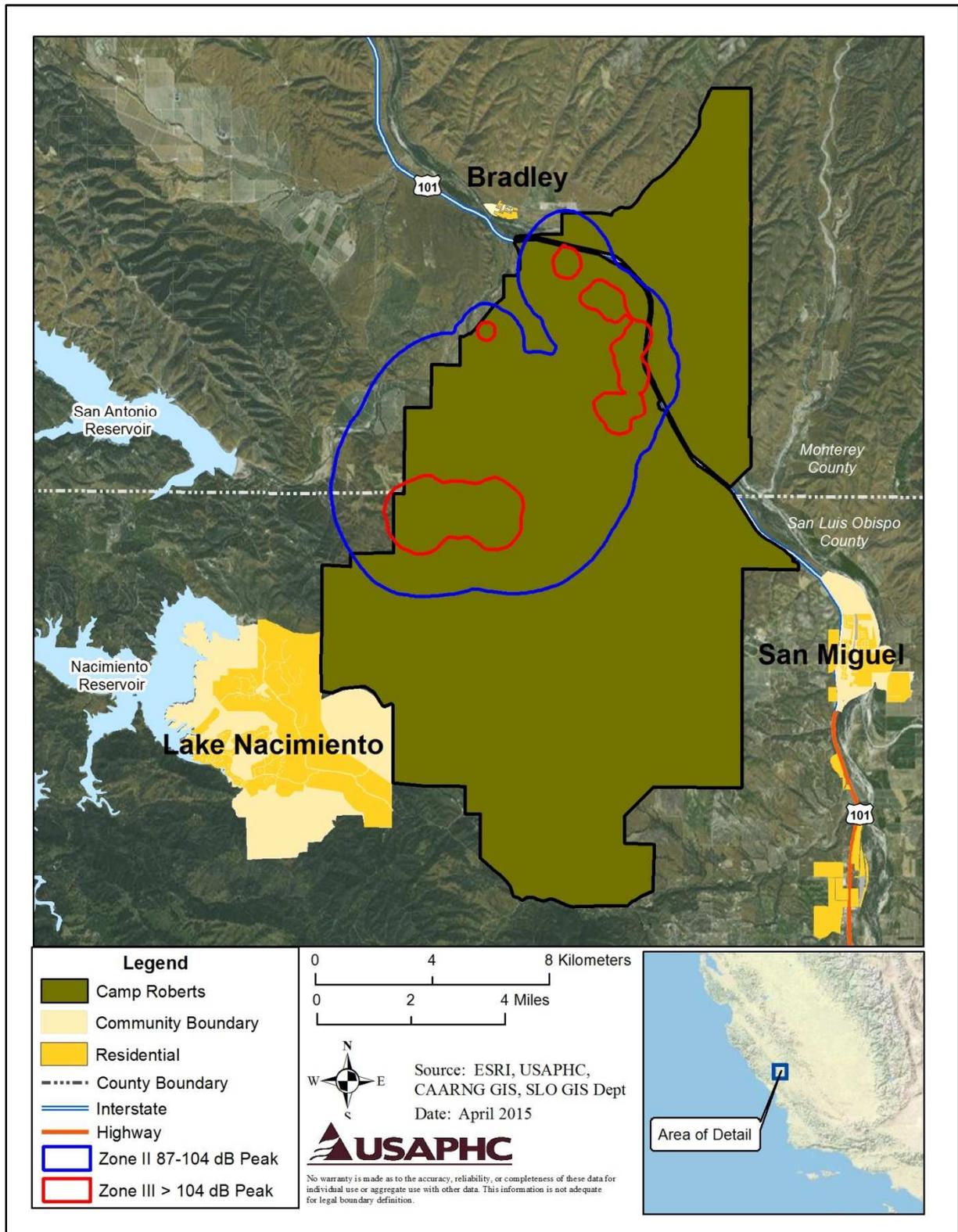


Figure 4-1. Noise Zones for Small Arms Operations

**4.1.2 NON-FIXED FIRING POINT RANGES AND TRAINING AREAS**

As mentioned in the previous section, in addition to the small arms ranges on Camp Roberts, troops conduct non-fixed small arms training. Per the Range Operations Manager, all Training Areas at Camp Roberts can accommodate up to .50 cal blank firing with a standoff distance of 250 meters from the boundary line.<sup>6</sup>

**4.1.2.1 NON-FIXED FIRING POINT NOISE EXPOSURE**

With the absence of specific firing and target point locations, noise contours for small arms firing in the training areas and on non-fixed ranges cannot be modeled. However, by looking at predicted peak levels we can attempt to assess the noise exposure from these training activities.

Tables 4-1 through 4-3 predict the peak levels for the 5.56mm blank, 7.62mm blank, and .50 Cal blank. In each column, the upper limit levels would occur under weather conditions that enhance sound propagation (unfavorable), such as the wind blowing toward the receiver. The lower limit levels occur under favorable weather conditions, such as the wind blowing away from the receiver. The azimuth angle is the direction of fire, i.e. 0 degrees is directly in front of the weapon and 180 degrees is directly behind the weapon.

When combining these two variables, the highest peak levels occur when rounds are fired in the direction of the receiver (0-degree azimuth) and under unfavorable weather conditions, (exception is 5.56 mm). As an example, Table 4-1 indicates that under unfavorable weather conditions, a Zone II noise level [87 dBP] extends approximately 200 meters for the 5.56mm blank round at all three given azimuth angles. Thus, a 200-meter buffer around the firing location of the 5.56mm blank would indicate areas exposed to Zone II levels under these conditions.

Table 4-1. Predicted Peak Levels for 5.56 mm Blank Round

Distance, meters	Predicted Level, dBP Azimuth		
	0°	90°	180°
100	87-97	86-96	87-97
200	80-90	79-89	80-90
400	69-79	68-78	69-79

Note: the 0° is directly in front of the weapon and the 180° azimuth is directly behind the weapon.  
 Blank is defined as a round that contains propellant but no bullet.  
 Blue cells indicate where noise approaches/exceeds Zone II levels.

<sup>6</sup> Email correspondence with Range Operations Manager at Camp Roberts, 22 April 2015.

Table 4-2. Predicted Peak for 7.62 mm Blank Round

Distance, meters	Predicted Level, dBP Azimuth		
	0°	90°	180°
100	109-119	106-116	101-111
200	103-113	100-110	94-104
400	92-102	89-99	85-95
800	84-94	81-91	77-87

Note: the 0° is directly in front of the weapon and the 180° azimuth is directly behind the weapon  
 Blank is defined as a round that contains propellant but no bullet.  
 Blue cells indicate where noise approaches/exceeds Zone II levels.

Table 4-3. Predicted Peak for .50 Caliber Blank Round

Distance, meters	Predicted Level, dBP Azimuth		
	0°	90°	180°
100	116-126	110-120	111-121
200	109-119	103-113	104-114
400	97-107	92-102	91-101
800	89-99	84-94	84-94
1200	84-94	79-89	84-94
1600	81-91	75-85	75-85

Note: the 0° is directly in front of the weapon and the 180° azimuth is directly behind the weapon.  
 Blank is defined as a round that contains propellant but no bullet.  
 Blue cells indicate where noise approaches/exceeds Zone II levels.

Based on the locations of the non-fixed firing activity, firing of 7.62 mm blank and .50 cal blank within 1,000 meters of the boundary may be audible by residences adjacent to the camp. The noise-sensitive areas exposed may be the residential areas of Bradley to the north and Lake Nacimiento/Heritage Ranch to the southwest.

## 4.2 LARGE ARMS, DEMOLITION, AND OTHER IMPULSIVE NOISE

For noise modeling, large arms include weapons that fire 20 mm or larger ammunition and explosive charges. At Camp Roberts, large arms training consists of a multitude of weapons including artillery, mortars, aerial gunnery, mines, rockets, grenade launchers, and explosive charges. Appendix C lists the quantity of large arms rounds fired annually at Camp Roberts by range and type.

### 4.2.1 DEMOLITION AND LARGE CALIBER NOISE ZONES

Figure 4-3 depicts the Noise Zones for Camp Roberts. All large caliber ground training and air-to-ground exercises are included. Range operations indicate that all training occurred 60% during the daytime, 30% evening, and 10% at night.<sup>7</sup> The BNOISE program included topography during calculations.

Noise Zone III extends beyond the boundary in three small areas due west, with the furthest distance being 1,350 meters. There is a very small area of farmland within Zone III, but imagery indicates no residences within this Zone. The majority is rural and agricultural. Noise Zone II extends a maximum of 4,000 meters beyond the boundary due west. There are several residences within Zone II but the majority of the land is rural and agricultural. The farms are on a minimum of 40 to 160 acre plots of land. The LUPZ extends a maximum of 6,400 meters beyond the installation boundary due west and 900 meters due east in a single small area. The LUPZ encompasses residential areas of Bradley and Lake Nacimiento/Heritage Ranch to the north and southwest. On post, the LUPZ encompasses the cantonment area on the eastern side of the camp but there is no full time housing.

Figure 4-4 depicts a forecasted 20% increase in large arms and air-to-ground training. This resulted in 22 percent, 17 percent, and 16 percent increases in LUPZ, Zone II, and Zone III acreage off post.

---

<sup>7</sup> Email correspondence with Camp Roberts Range Operations Manager 28 April 2015

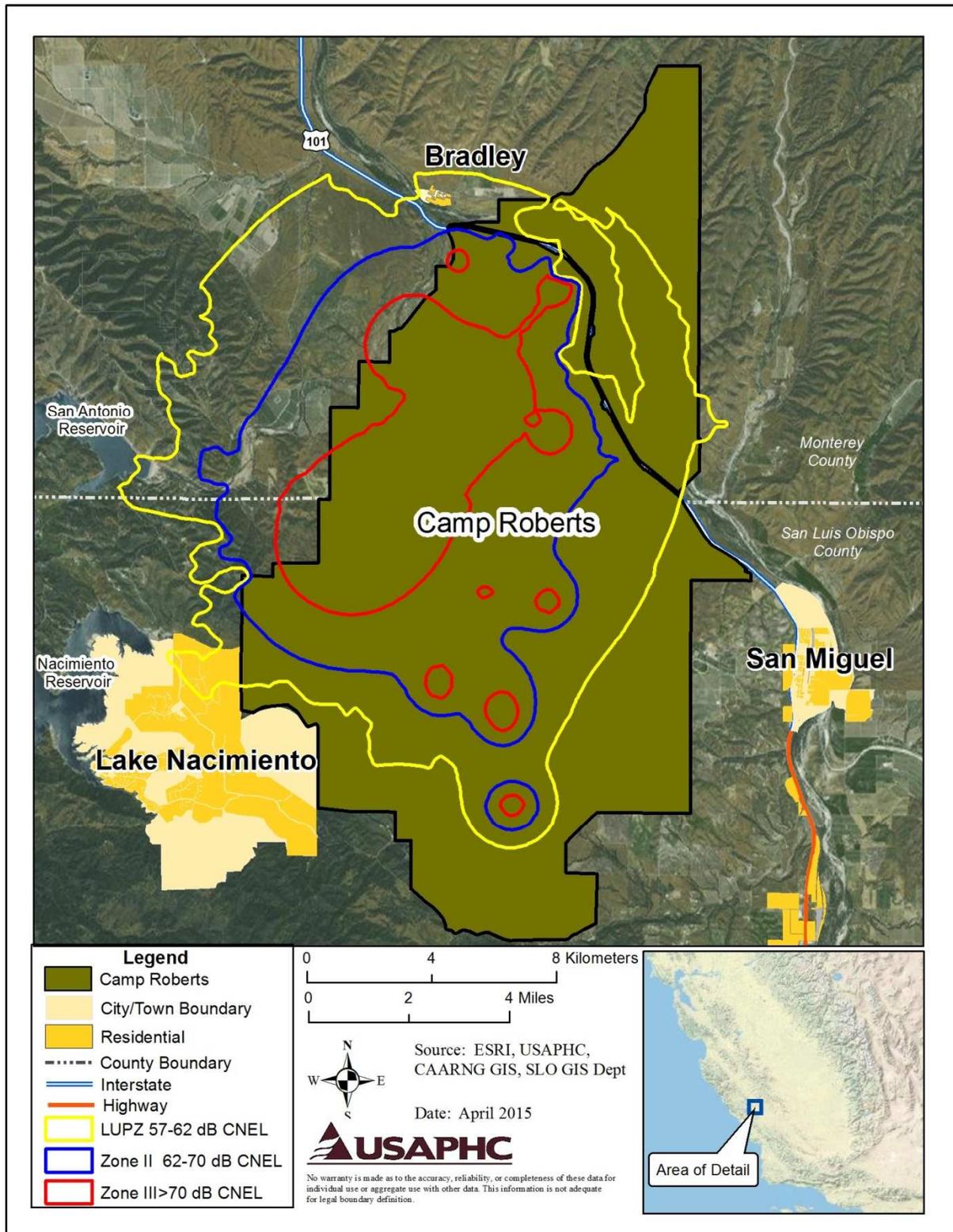


Figure 4-2. Explosives and Large Arms Operations CNEL Noise Zones (C-Weighted)

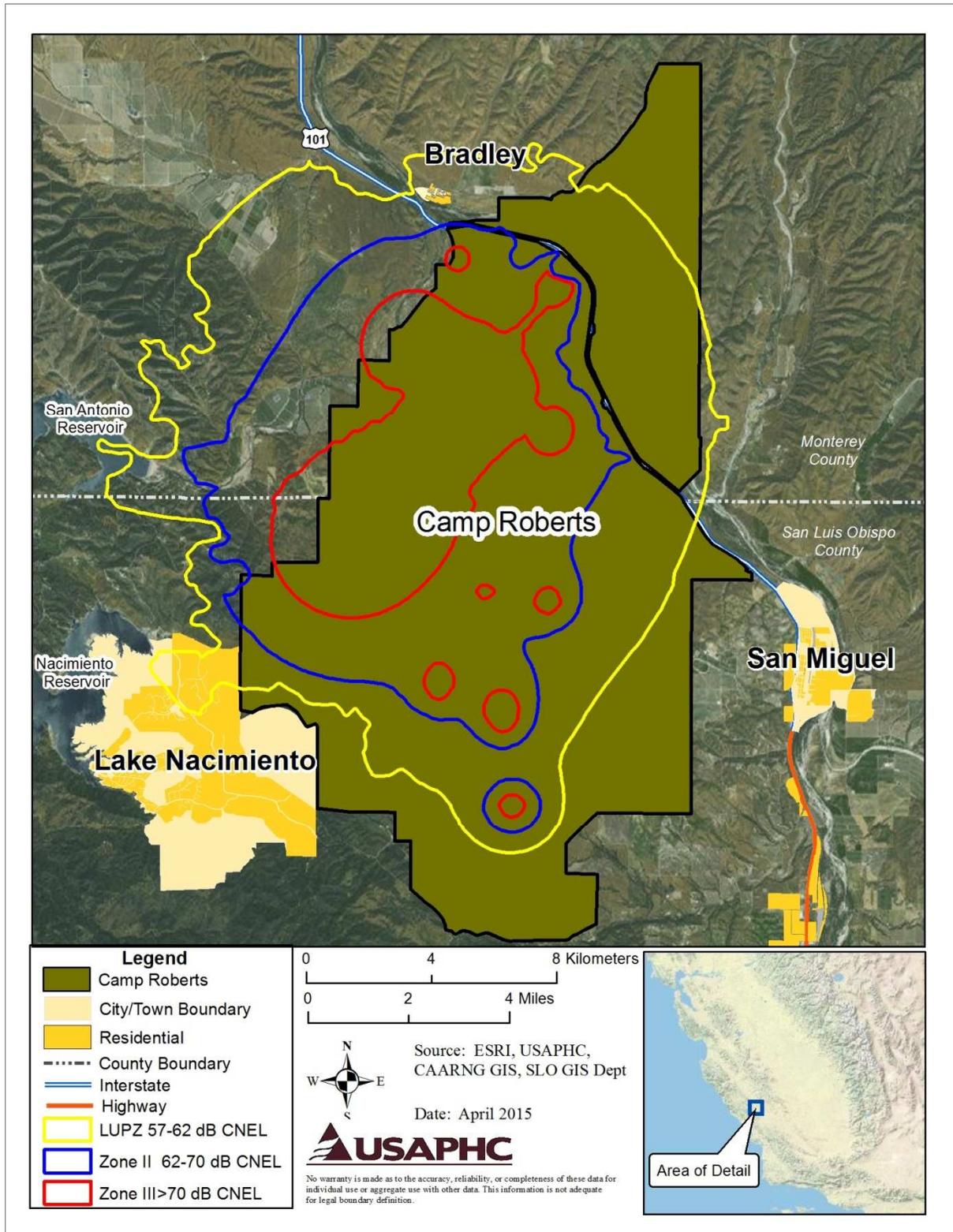


Figure 4-3. Projected Explosives and Large Arms Operations CNEL Noise Zones (20% Increase)

#### 4.2.2 LARGE ARMS AND DEMOLITION COMPLAINT RISK POTENTIAL

Annual average noise levels assist in planning for long-term land uses. However, noise complaints typically are attributable to a specific event rather than annual average noise levels. Peak levels are useful for estimating the risk of receiving a noise complaint as they correlate with the receiver's perception of an event. Table 4-4 lists the Army's Complaint Risk Guidelines.

Table 4-4. Complaint Risk Guidelines

Perceptibility	dB Peak	Risk of Receiving Noise Complaints
Audible	< 115	Low
Noticeable, Distinct	115 - 130	Moderate
Very Loud, May Startle	> 130	High

Peak levels can vary significantly for the same activity dependent on weather conditions. Therefore, the ICUZ presents two sets of complaint risk areas:

- **Unfavorable Weather Conditions:** PK15(met) is the peak sound level, factoring in the statistical variations caused by weather, that is exceeded only 15 percent of the time (i.e., 85 percent certainty that sound will be within this range). This "85 percent solution" gives the installation and the community a means to consider the areas possibly impacted by training noise at times under unfavorable weather conditions that enhance sound propagation.
- **Neutral Weather Conditions:** PK50(met) is the Peak level that would be expected 50 percent of the time. These levels may exist during "average" or "neutral" weather conditions.

The unfavorable weather conditions [PK15(met)] complaint risk area indicates areas that may periodically be exposed to high noise levels. When land use planning programs such as real estate disclosure, a Joint Land Use Study or the Army Compatible Use Buffer are implemented, the PK15(met) complaint risk areas can be used to delineate focus areas. However, since the complaint risk areas are based on individual event levels and are not dependent on the number of events, planners should also consider frequency of operations when making land use decisions.

Figures 4-4 and 4-5 depict the complaint risk areas from Camp Roberts demolition and large arms activity under unfavorable and neutral weather conditions. These complaint risk areas illustrate how influential meteorological conditions can be in regards to sound propagation.

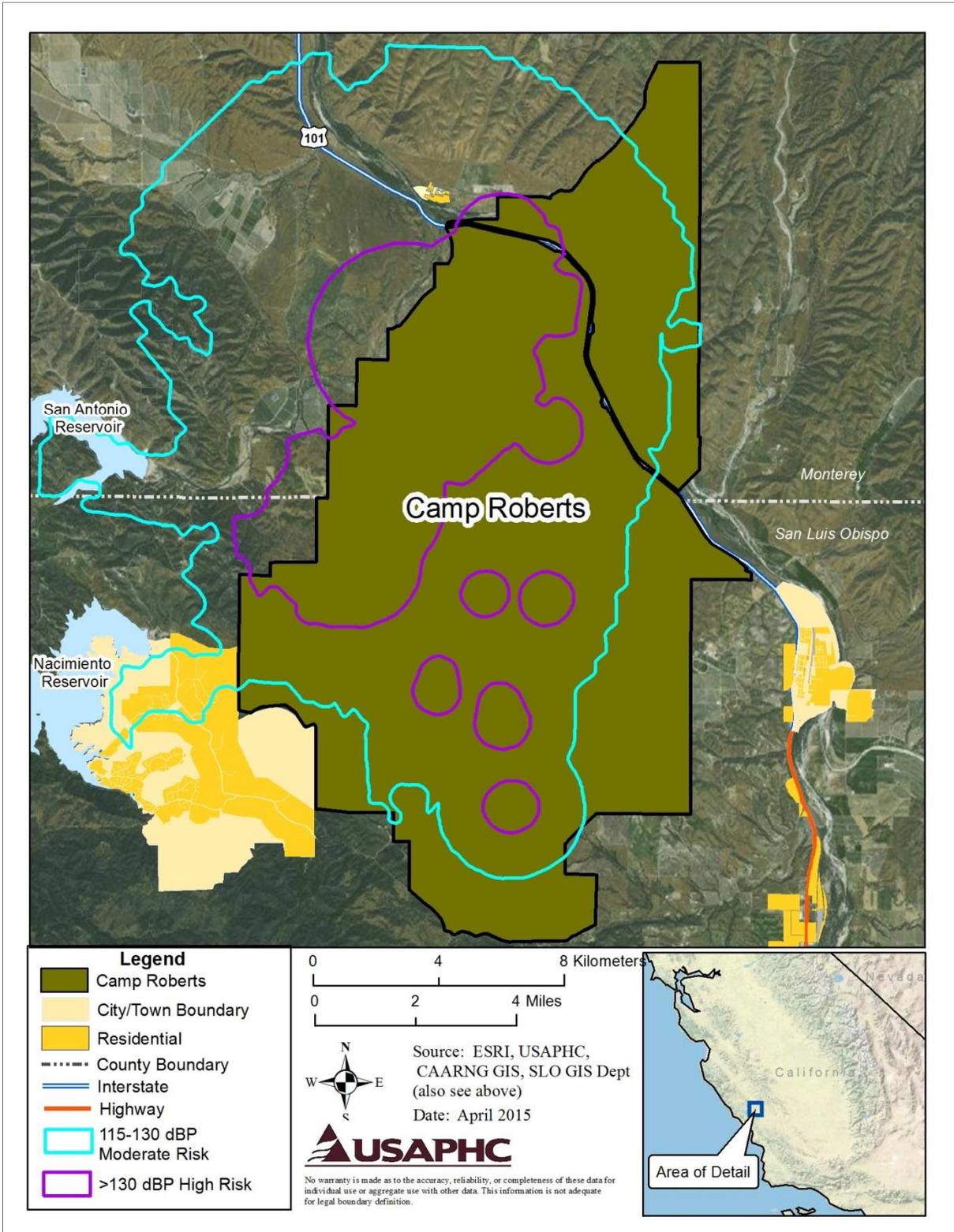


Figure 4-4. Explosives and Large Arms Operations Complaint Risk Areas (Unfavorable Weather Conditions)

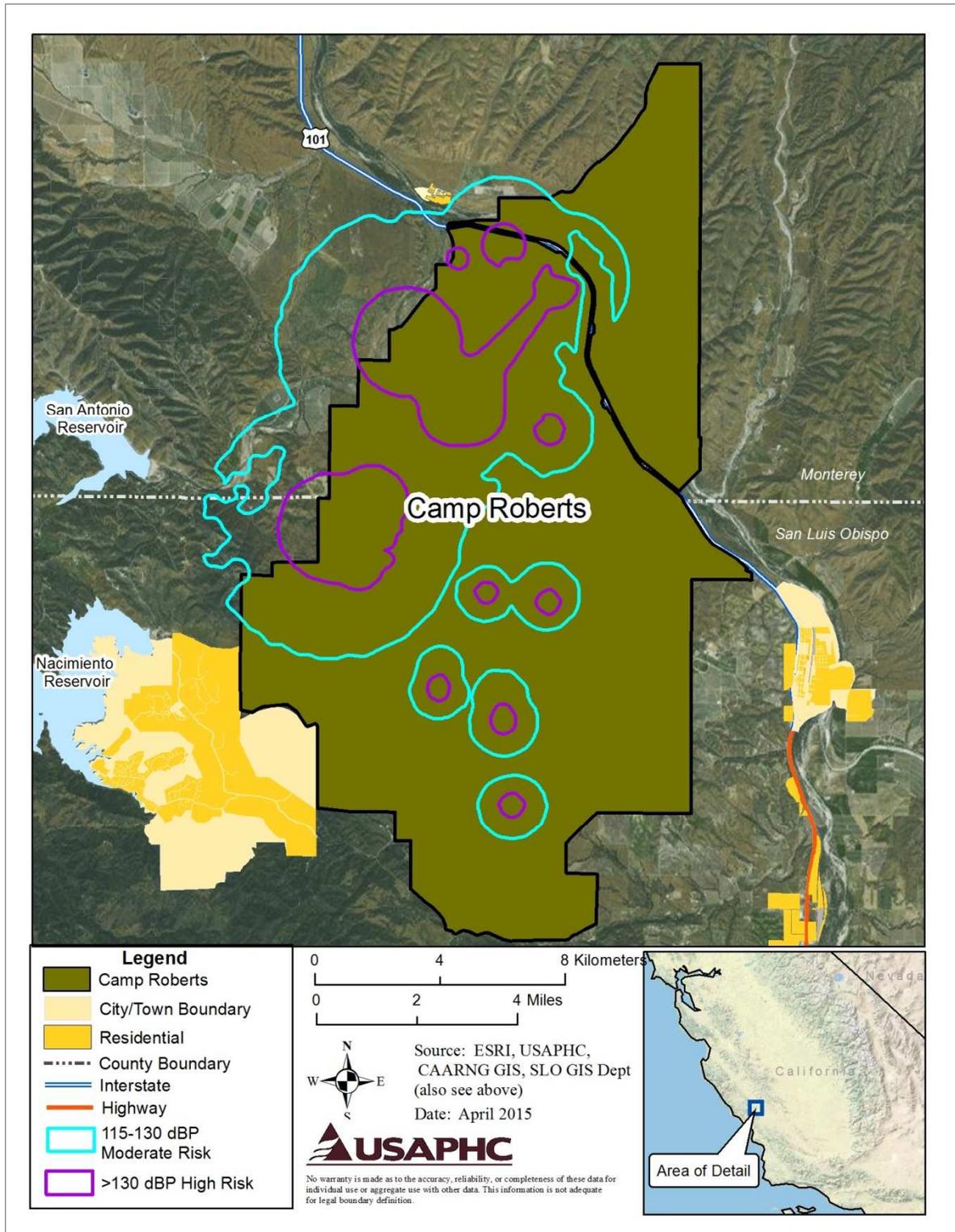


Figure 4-5. Explosives and Large Arms Operations Complaint Risk Areas (Neutral Weather Conditions)

The unfavorable weather Moderate Complaint Risk (115-130 dBP) (Figure 4-4) area extends beyond the northern boundary 5,400 meters and to the west approximately 9,200 meters. The High Complaint Risk (>130 dBP) area extends beyond the northern boundary approximately 700 meters in one small area and 2,700 meters due west in two larger areas. Residential areas of Bradley and Lake Nacimiento/Heritage Ranch are within the Moderate Complaint Risk area. Based on the current land uses and complaint risk guidelines, the risk of complaints from large caliber activity during unfavorable weather conditions is moderate.

The neutral weather Moderate Complaint Risk area (Figure 4-5) extends beyond the installation boundary to the north 1,200 meters and 3,600 to the west, but contains very few noise-sensitive residences. The High Complaint Risk area extends beyond the western boundary a maximum of 1,300 meters in three small areas. Based on the complaint risk guidelines, the risk of complaints from large caliber activity during neutral weather conditions is minimal.

### **4.3 AIRCRAFT NOISE ASSESSMENT**

#### **4.3.1 GENERAL**

Camp Roberts supports two airfields, two heliports, and several helipads (Figure 4-6). A broad range of aviation training includes Nap-of-the-Earth (NOE) flights, Night Vision Devices (NVD) flights, parachute operations, forward area arming and refueling points, air assault operations, and aerial gunnery. In addition, Camp Roberts also has two Drop Zones (DZ).

#### **4.3.2 EAST GARRISON AIRFIELD AND CAMP ROBERTS ARMY HELIPORT (CRAH)**

The East Garrison Airfield has a designated runway (14-32) that is 2,760 feet long and 75 feet wide at an elevation of 630 feet Mean Sea Level (MSL). The runway is currently closed to fixed-wing aircraft and Unmanned Aerial Systems (UAS) operations but is being evaluated for future fixed-wing and UAS operations, principally by C-130 and MQ-9 aircraft. Army rotary-wing aircraft are supported via the Camp Roberts Army Heliport (CRAH) located at the airfield. The heliport consists of four helipads, however, there are no aircraft assigned. Personnel at the airfield indicate the following aircraft use the CRAH:

- UH-60 Blackhawk
- CH-47D Chinook
- UH-72 Lakota

Annual Training (AT) at Camp Roberts requires heavy usage of the CRAH over a short period ranging from a single week to one month during the summer. Outside this timeline, heliport use is very seldom, with an estimate of one UH-60 per month and one CH-47 every three months.<sup>8</sup> The Camp Roberts Airspace Information Center (AIC) estimated 40 takeoff and landings per day over a 10-day period during the most recent AT, with 90% of activity

---

<sup>8</sup> Phone interview with Air Traffic Control Specialist, SSG Munoz, Camp Robert Airspace Information Center, 29 April 2015

between 7:00 am and 10:00 pm, and the rest being completed by 11:30 pm. The aircraft types included the UH-60 and CH-47 during the day and UH-60 at night. When averaged over 365 days, the low number of heliport operations is not high enough to generate a Zone II or Zone III, yet there is the potential that individual helicopter overflights could annoy people near the flight tracks especially during the AT cycle. Section 4.3.6 discusses annoyance potential from helicopter overflights.

### **4.3.3 CAMP ROBERTS PARADE FIELD HELIPORT AND MISCELLANEOUS HELIPADS**

The Camp Roberts Parade Field Heliport (CRPRH), also named the Troop Medical Clinic (TMC), consists of two helipads with an estimated 1 to 2 flights per month. Three other miscellaneous helipads are located at Camp Roberts with the following estimated activity<sup>9</sup>:

- Range Control- 1 flight every 3 months
- Headquarters - No activity in last two years
- Ranch House - No activity in last two years

### **4.3.4 MCMILLAN AIRFIELD**

McMillan Airfield is located in the southern area of Camp Roberts and is only available for Unmanned Aerial System (UAS) missions. The models include Shadow and smaller sized UAS along with test models such as the Zephyr. Shadow UAS assist in offensive operations (including raids), patrolling roads looking for Improvised Explosive Devices (IEDs), and watching areas where enemy activity is expected.

All UAS climb to mission altitude as quickly as possible at Camp Roberts. Based on the general mission altitudes, most UAS operations would have a low risk of annoyance or potential to generate complaints outside the installation boundary. Within a 2 km radius of the airfield, UAS are restricted to a 6,000 ft AGL altitude on normal days and a 3,000 ft AGL restriction on windy days.

---

<sup>9</sup> Phone interview with Air Traffic Control Specialist, SSG Munoz, Camp Robert Airspace Information Center, 29 April 2015

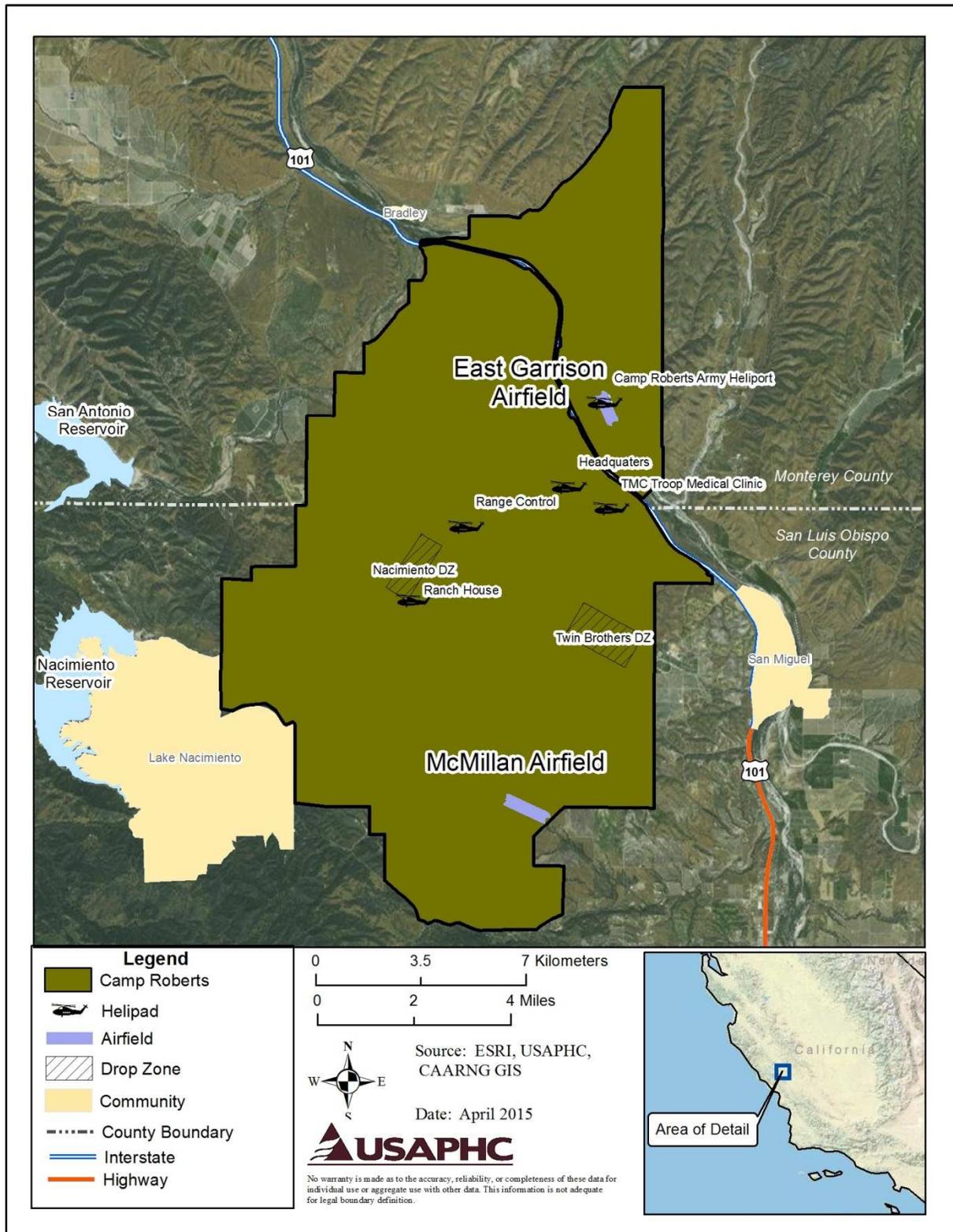


Figure 4-6. Camp Roberts Airfields, Helipads, and Drop Zones

### 4.3.5 FLIGHT CORRIDORS, NOISE ABATEMENT AND LOCAL FLYING AREAS

Figure 4-7 depicts the rotary-wing aircraft flight corridors when approaching or departing Camp Roberts. These corridors are the only routes authorized for entering and exiting the camp. Camp Roberts Military Installation Air Procedure Guide defines the procedures, minimum flight altitudes and No-Fly Areas such that:

- Minimum altitude while flying over the Camp Roberts Military Installation is 500 feet Above Ground Level (AGL) unless otherwise approved by the airfield commander.
- Traffic patterns at CRAH and Camp Roberts heliports are to be performed IAW AR 95-1.
- The Camp Roberts noise abatement policy prohibits the over-flight of populated areas and aircraft must remain above 1,000 feet AGL when in the vicinity of Bradley, San Miguel, Paso Robles, Templeton, and Atascadero.
- Aviators/aircraft will maintain a minimum 1,000 feet AGL when in the vicinity of the Nacimiento and San Antonio Reservoirs.
- Aviators/aircraft will not over-fly Hearst Castle and will remain five (5) nautical miles away from the site.
- When over-flying the Pacific Coastline refer to the minimum altitudes as listed on appropriate Sectional Aeronautical Chart.
- Aviators/aircraft will maintain a minimum of 1,000 feet AGL while over-flying populated and noise sensitive areas depicted in the local notice to airmen.<sup>10</sup>
- Specific No-Fly Areas within Camp Roberts:
  - Camp Roberts cantonment area
  - The area designated as impact area (Training Area M).
  - Ammunition Supply Point (ASP)
  - Camp Roberts Headquarters
  - SATCOM site. Aircraft will remain 0.5km from the site.
  - Training Areas O2 and O3 are designated no-fly areas for small UAS due to endangered plant species Purple Amole.
  - Bald Eagle nesting sites: GE 0010563411 and FE 9769059592

The high volume of air traffic operating in and around Camp Robert's Restricted Airspace (R-2504) occasionally generates noise complaints. Aircrews will take precautions to avoid over flights of private properties and communities. Aircrews operating outside R-2504 or other authorized training areas will operate at or above 500 ft AGL in unpopulated areas, 1,000 ft over populated, avoid all structures and personnel, and comply with FAR avoidance criteria for built up areas, National Parks, etc.

Due to the remote nature of Camp Roberts, there have been very few noise complaints received. Aircraft pilots avoid flying over houses and noise-sensitive areas and are up to date in the Fly Neighborly program.

<sup>10</sup> Camp Roberts Military Installation Air Procedure Guide, 8 July 2013 (Draft)

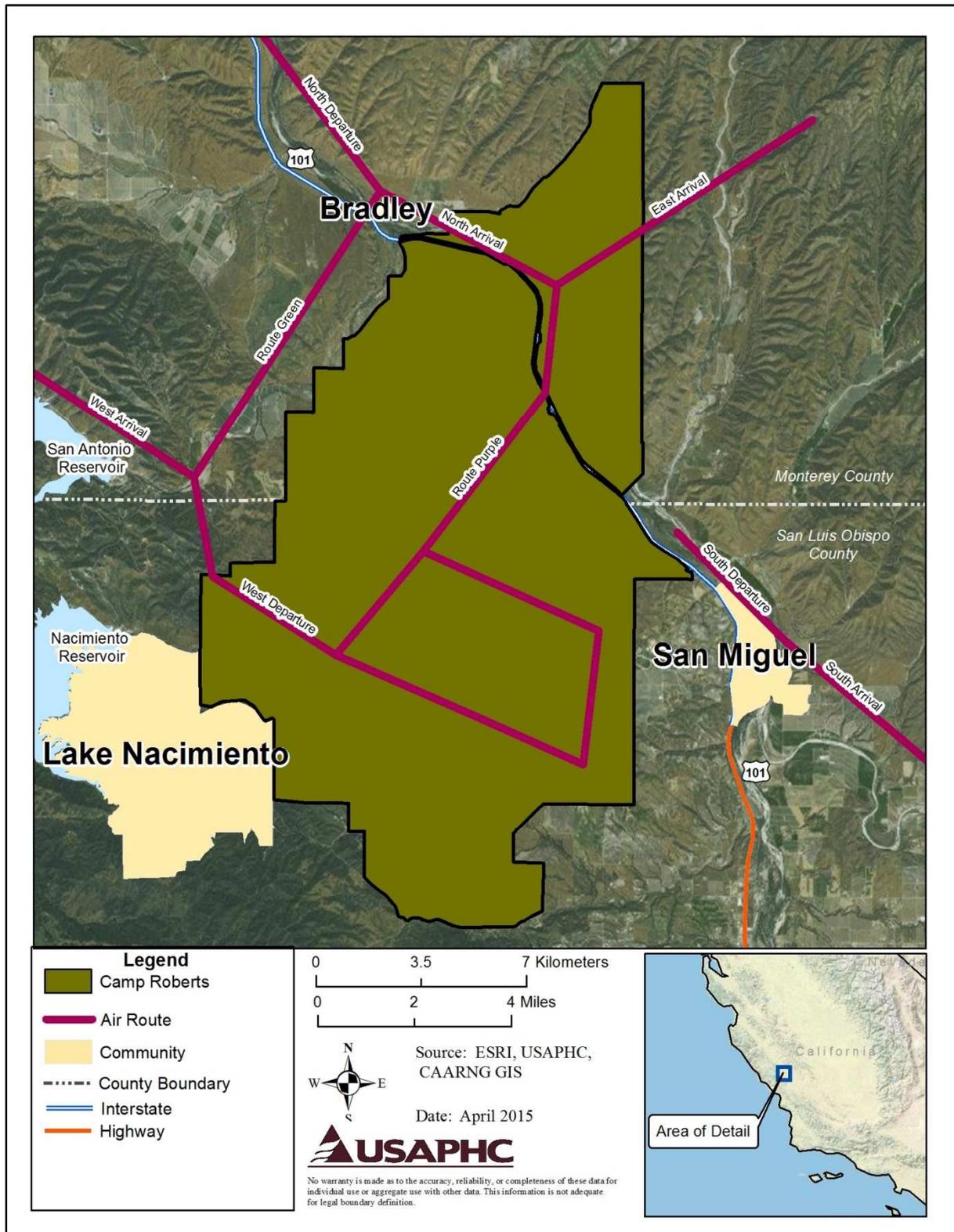


Figure 4-7. Camp Roberts Flight Routes

### 4.3.6 ANNOYANCE POTENTIAL FROM OVERFLIGHTS

Although aircraft Noise Zones do not exist at Camp Roberts, there are many instances where individual aircraft overflights, operating in the airspace beyond the boundary, can generate noise levels that some individuals might find disruptive and/or annoying. As is the case with range noise, singular aircraft overflight is often the culprit of noise complaints received by an installation. Therefore, this section examines annoyance potential from singular overflights.

#### 4.3.6.1 ROTARY WING AND FIXED WING AIRCRAFT

Scandinavian Studies (Rylander 1974) found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the three loudest events. While annoyance levels may be lower along less-frequented flight routes and corridors, the Rylander study serves as an indicator for annoyance potential from intermittent overflights. Table 4-5 lists the maximum noise levels for rotary wing aircraft, and Table 4-6 lists the maximum noise levels for fixed wing aircraft that occasionally utilize Camp Roberts airspace. On average, there are 10-15 fixed wing flights per quarter at Camp Roberts.

The maximum levels from Table 4-5 and Table 4-6 compare the levels listed in Table 4-7 to determine the percent of the population that would consider itself highly annoyed from overflight. These levels assume a ground track distance of zero (source directly overhead of the receiver).

Table 4-5. Maximum A-Weighted Sound Levels for Rotary-Wing Aircraft

Slant Distance (feet)	Maximum Level, dBA		
	CH-47	UH-60	UH-72
200	92	88	84
500	84	80	75
1,000	78	73	69
1,500	74	69	65
2,000	71	66	62
2,500	68	63	59

Table 4-6. Maximum A-Weighted Sound Levels for Fixed-Wing Aircraft

Slant Distance (Feet)	Maximum Sound Level by Aircraft Type (dBA)			
	C-130*	F-18**	AV-8	Cessna
250	98	108	n/a	86
500	92	101	101	79
1,000	85	94	93	73
1,500	80	90	88	69
2,000	77	86	n/a	67
2,500	75	83	n/a	65
5,000	66	74	n/a	n/a

\*970 C TIT 170 kts

\*\*80% N2 200 kts

Table 4-7. Percentage of Population Highly Annoyed from Aircraft Noise

Maximum, dBA	Highly Annoyed
90	35%
85	28%
80	20%
75	13%
70	5%

Taking the Rylander correlation one step further, the SelCalc Program (U.S. Air Force 2005) was used to calculate the distance in ground track from zero (aircraft directly overhead) to where the maximum A-weighted noise level would decay to 70 dBA or below (threshold for annoyance). This takes into account not only those directly under a flight path but also those to the side of a passing aircraft, where noise levels may remain high enough to cause annoyance up to one-half mile away.

The following pages provide rotary and fixed-wing annoyance potential according to ground track distance. Figure 4-8 provides an example of ground track distance versus flight annoyance potential for the CH-47. Table 4-7 on the following page provide these levels for rotary-winged aircraft utilized at Camp Roberts and Table 4-7 provides for occasional fixed-wing aircraft.

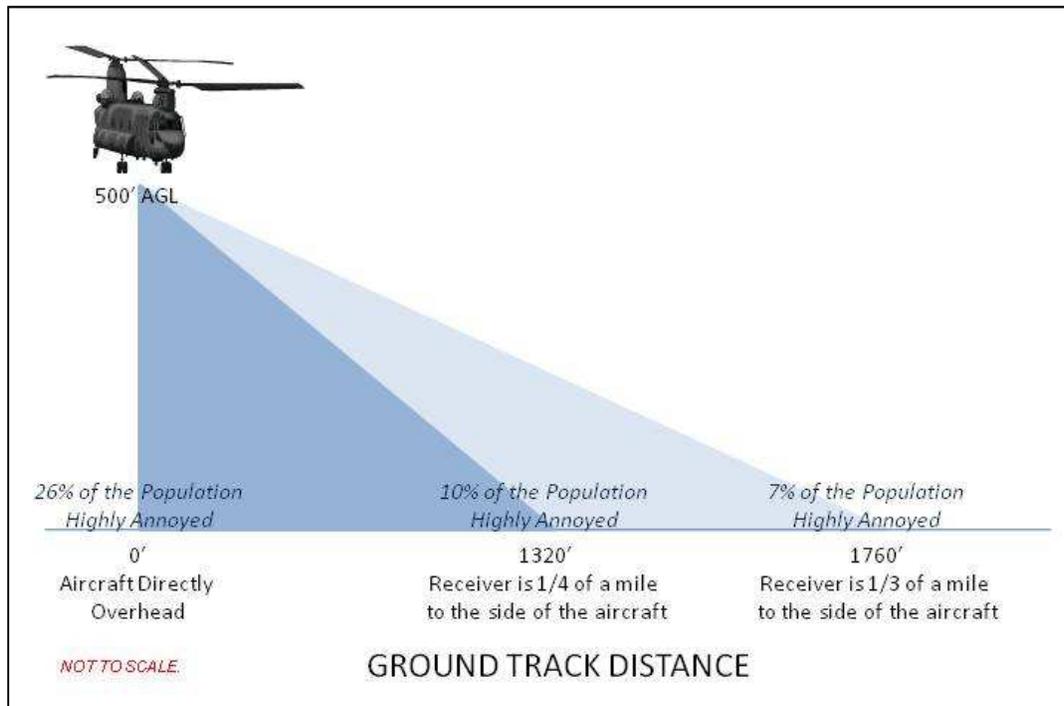


Figure 4-8. Example of Ground Track Distance versus Flight Annoyance Potential (CH-47)

**DEFINITIONS:**

*Above Ground Level (AGL).* Distance of the aircraft above the ground.

*Ground Track Distance.* The distance between receiver and the point on the Earth at which the aircraft is directly overhead.

*Slant Distance.* The line-of-sight distance between the receiver and the aircraft. The slant distance is the hypotenuse of the triangle represented by the altitude of the aircraft and the distance between the receiver and the aircraft's ground track distance.

Table 4-8. Rotary-Wing Overflights Annoyance Potential<sup>1</sup>

Source	Ground Track Distance <sup>2</sup>	dBA Maximum <sup>3</sup>	Population Highly Annoyed <sup>4</sup>
CH-47 – 500’ AGL	0’	84	26%
	1320’ (1/4 mile)	73	10%
	1760’ (1/3 mile)	71	7%
	2640’ (1/2 mile)	66	<1%
CH-47 – 1000’ AGL	0’	77	16%
	1320’ (1/4 mile)	72	8%
	1760’ (1/3 mile)	70	5%
	2640’ (1/2 mile)	66	<1%
UH-72– 500’ AGL	0’	75	13%
	1320’ (1/4 mile)	70	5%
	1760’ (1/3 mile)	65	<1%
UH-72 – 1000’ AGL	0’	69	4%
	1320’ (1/4 mile)	67	1%
	1760’ (1/3 mile)	63	<1%
UH-60 – 500’ AGL	0’	80	20%
	1320’ (1/4 mile)	69	4%
	1760’ (1/3 mile)	66	<1%
UH-60 – 1000’ AGL	0’	73	10%
	1320’ (1/4 mile)	68	2%
	1760’ (1/3 mile)	65	<1%

Percent annoyance shown is based upon 50 to 200 overflights per day. (Rylander 1974)

<sup>2</sup> Distance between receiver and the point on Earth at which the aircraft is directly overhead.

<sup>3</sup> Obtained via SelCalc Program (U.S. Air Force 2005b)

<sup>4</sup> Calculated percentage based upon regression using the known values in Table 4-9.

+ 35% The Rylander studies did not include sampling in excess of 90 dBA.

Table 4-9. Fixed-Wing Overflights Annoyance Potential<sup>1</sup>

Source	Ground Track Distance <sup>2</sup>	dBA Maximum <sup>3</sup>	Population Highly Annoyed <sup>4</sup>
C-130 – 500’ AGL	0’	92	+35%
	1320’ (1/4 mile)	80	20%
	1760’ (1/3 mile)	77	16%
	2640’ (1/2 mile)	72	8%
	5280’ (1 mile)	62	<1%
C-130 – 1000’ AGL	0’	85	28%
	1320’ (1/4 mile)	79	19%
	1760’ (1/3 mile)	77	16%
	2640’ (1/2 mile)	72	8%
	5280’ (1 mile)	64	<1%
C-130 – 2000’ AGL	0’	77	16%
	1320’ (1/4 mile)	75	13%
	1760’ (1/3 mile)	74	11%
	2640’ (1/2 mile)	71	7%
	5280’ (1 mile)	64	<1%
AV-8B – 500’ AGL	0’	101	+35%
	1320’ (1/4 mile)	88	32%
	1760’ (1/3 mile)	84	26%
	2640’ (1/2 mile)	78	17%
	5280’ (1 mile)	67	1%
AV-8B – 1000’ AGL	0’	93	+35%
	1320’ (1/4 mile)	86	29%
	1760’ (1/3 mile)	84	26%
	2640’ (1/2 mile)	79	19%
	5280’ (1 mile)	68	2%
AV-8B – 2000’ AGL	0’	84	26%
	1320’ (1/4 mile)	82	23%
	1760’ (1/3 mile)	80	20%
	2640’ (1/2 mile)	77	16%
	5280’ (1 mile)	69	4%
AV-8B – 2500’ AGL	0’	81	22%
	1320’ (1/4 mile)	80	20%
	1760’ (1/3 mile)	78	17%
	2640’ (1/2 mile)	76	14%
	5280’ (1 mile)	68	2%

<sup>1</sup> Percent annoyance shown is based upon 50 to 200 overflights per day. (Rylander 1974)

<sup>2</sup> Distance between receiver and the point on Earth at which the aircraft is directly overhead.

<sup>3</sup> Obtained via SelCalc Program (U.S. Air Force 2005)

<sup>4</sup> Calculated percentage based upon regression using the known values in Table \_\_\_\_.

+35% The Rylander studies did not include sampling in excess of 90 dBA.

## **4.4 LAND USE COMPATIBILITY GUIDELINES AND NOISE ASSESSMENT - CAMP ROBERTS**

### **4.4.1 INTRODUCTION**

Land use planning and control is a dynamic, rather than a static process. The specific characteristics of land use determinants will always reflect, to some degree, the changing conditions of the economic, social, and physical environment of a community, as well as changing public concern. The planning process accommodates this fluidity in which decisions are normally not based on boundary lines, but rather on more generalized areas.

### **4.4.2 LAND USE**

Data obtained from ArcGIS Online for Monterey and San Luis Obispo Counties and Camp Roberts developed land use figures presented in this Section. The most current data available was used. For the purpose of noise assessment, multiple zoning categories were grouped or generalized into one of the following categories:

- Residential: includes all types of residential activity, such as single- and multi-family residences and mobile homes.
- Agricultural: includes agricultural industrial, open space, grazing and other types of agricultural land uses.
- Farmlands: includes farmlands 40 to 160 acres minimum. This land use is separate from the agricultural land use. Satellite imagery indicates scattered residences on these land uses.
- Recreational: includes recreational, public and quasi-public land uses.
- Commercial: includes general commercial, heavy commercial and other types of commercial land uses.
- Industrial: includes industrial and heavy industrial land uses.

### **4.4.3 SMALL ARMS**

Figure 4-9 indicates the majority of the small arms Noise Zones remain on post. The encompassed areas off post are not noise-sensitive and consist of rural and agricultural lands with the exception of several scattered homes due west within Zone II. These homes reside on farming land uses that consist of 40 to 160 acre minimum plots of land. On post, the Zone II encompasses part of the cantonment area on the eastern side of the camp, but there is no full time housing. Table 4-10 lists the percentage of acres off post within the Zones.

Table 4-10. Small Caliber Noise Zones Acreage

Noise Zone	Total Acreage	Off-Post Acreage	Percentage Off-Post Acreage
Zone II	13,679	2,720	19.9%
Zone III	2,723	95	3.5%

#### 4.4.4 EXPLOSIVE AND LARGE ARMS OPERATIONS

Figure 4-10 indicates that the Noise Zone III extends beyond the boundary in three small areas due west, with the furthest distance being 1,350 meters. Noise Zone II extends a maximum of 4,000 meters beyond the boundary due west. The LUPZ extends a maximum of 6,400 meters beyond the installation boundary due west and 900 meters due east in a single small area. There is a very small area of farming land use within Zone III, but imagery indicates no residences within this Zone. The majority is agricultural and rural. There are several residences within Zone II, but the majority of the land is rural and agricultural. The farms are on a minimum of 40 to 160 acre plots of land. The LUPZ encompasses residential areas of Bradley and Lake Nacimiento/Heritage Ranch to the north and southwest. On post, the LUPZ encompasses the cantonment area on the eastern side of the camp, but there is no full-time housing.

Table 4-11. Large Caliber Noise Zones Acreage

Noise Zone	Total Acreage	Total Off-Post Acreage	Percentage Off-Post Acreage
LUPZ	17,649	7,708	43.7%
Zone II	14,354	4,256	29.7%
Zone III	8,621	977	11.3%

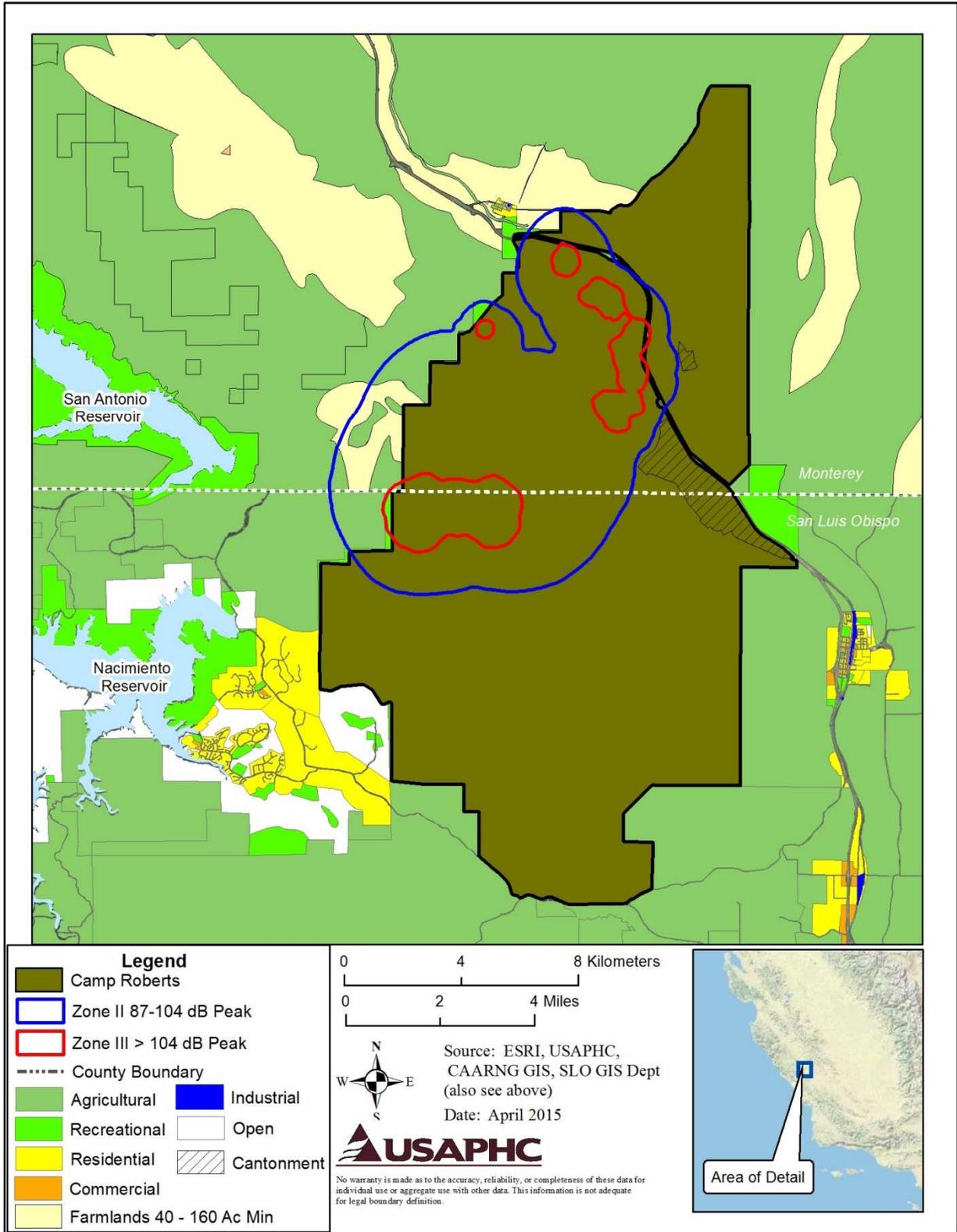


Figure 4-9. Small Arms Noise Zones with Surrounding Generalized Land Use

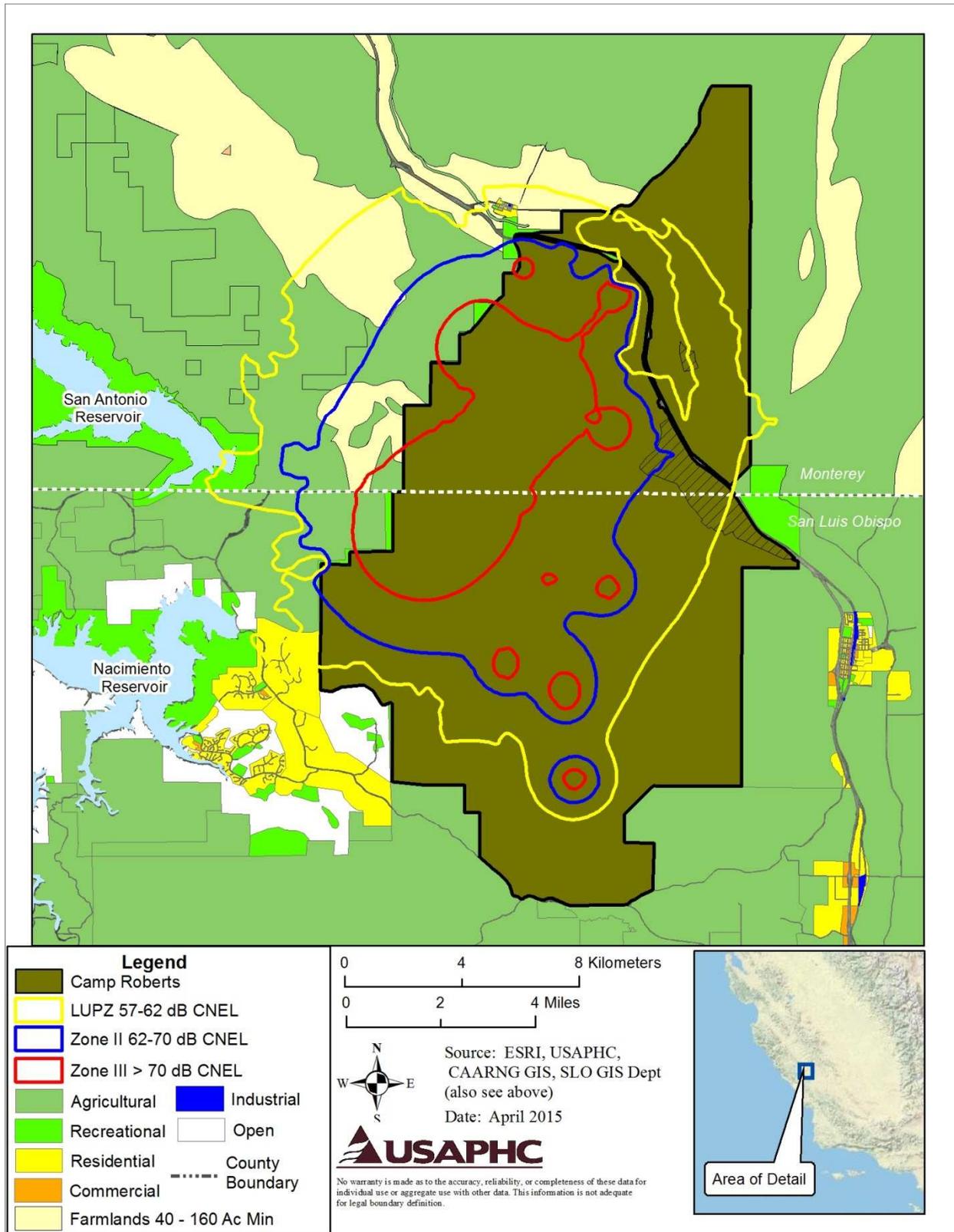


Figure 4-10. Explosives and Large Arms Noise Zones with Surrounding Generalized Land Use

## 5 CAMP SAN LUIS OBISPO

### 5.1 LOCATION AND PHYSICAL DESCRIPTION

Camp San Luis Obispo (CSLO) is approximately 5,300 acres in size and located in San Luis Obispo County on the central coast of California. CSLO is about 7 miles from the Pacific Ocean on State Highway 1. The nearest cities are San Luis Obispo to the south and southeast and Morro Bay and Los Osos to the west of the camp. The majority of the camp consists of mountains, canyons, grassland, wooded grassland, woodland, and brush. The area in the north-northeastern portion of the site is woodland (National Forest).<sup>11</sup>

### 5.2 HISTORY

Originally named Camp Merriam, CSLO opened in 1928. The camp is the original home of the CAARNG and served as an infantry division camp and cantonment area for the U.S. States Army during World War II. The camp originally comprised 6,274 acres, and further acquired 9,159 acres during 1941. During World War II, the camp had quarters for 1,523 officers and 19,383 enlisted personnel.<sup>12</sup> The US Army used the camp during the Korean War, from mid-1950 to late 1953, for signal corps training. There was eight weeks of basic combat training, shorter than the usual 16 weeks for combat arms. Then there were technical schools covering perhaps all aspects of the signal corps, from lineman and teletype, to cryptography. The decrease in acreage at CSLO has come about through land sales and trades since the Korean War, in particular after the ownership of Camp San Luis Obispo was returned to the state of California in 1965. Cuesta College opened for classes in 1965 on a southwest portion of the camp, rented from the California National Guard (CNG). The Cuesta College Board of Trustees purchased 160 acres of the camp and 20 acres adjoining for a permanent campus. Construction started in 1970 and the transfer from the temporary site completed in 1978. Bordering to the west, El Chorro Regional Park opened in 1972 when San Luis Obispo County donated over 700 acres. The park contains recreational facilities, a softball field, volleyball courts and camping sites. Dairy Creek Golf Course is located in the southwestern portion of the park. In 2011, portions of CLSO converted to a certified law enforcement facility by the California State Parks.

---

<sup>11</sup> <http://www.globalsecurity.org/military/facility/camp-san-luis-obispo.htm>

<sup>12</sup> Stanton, Shelby L. (1984). *Order of Battle: U.S. Army World War II*. Novato, California: Presidio Press. p. 602.

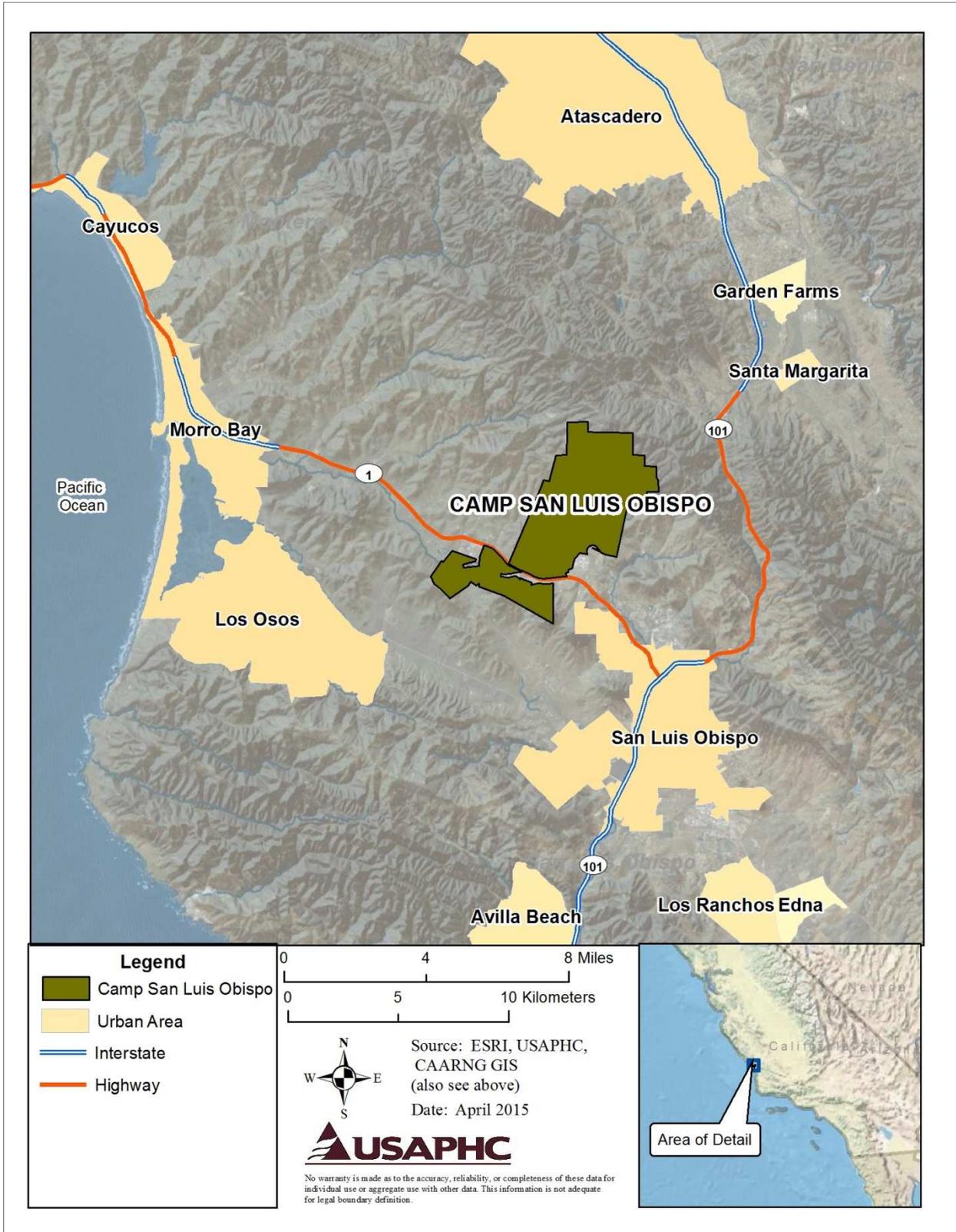


Figure 5-1. Camp San Luis Obispo Location

### **5.3 MISSION AND STRUCTURE**

In addition to CAARNG training (223<sup>rd</sup> Regiment), CSLO provides operational, training and logistical support to a wide variety of civilian and military agencies at the federal, state and local levels. These agencies include the California Air National Guard, U.S. Army Reserve, U.S. Coast Guard Reserve, California Conservation Corps, National Interagency Counterdrug Institute, California Specialized Training Institute, Cuesta Community College and the California Department of Transportation.

### **5.4 TRAINING AREAS AND RANGES<sup>13</sup>**

Figure 5-2 shows the Training Areas (TA) at CLSO. The TAs consists of two separate areas utilized for maneuver training. The southern maneuver areas of J, K, K-1, and L constitute an estimated 970 acres and contain parts of Cerro Remauldo and Chumash Peak Hills, each having peaks over 1,200 feet. The terrain is heavily wooded and steep and is suitable for dismounted training. The northern portion of CSLO is rugged and sparsely wooded, suitable for dismounted training of an estimated 1,850 acres.

---

<sup>13</sup> Regulation 350-1, Training at Camp San Luis Obispo, 02 January 2012

Table 5-1. CSLO Training Area Description

Training Area	Description
G	Military Operations in Urban Terrain (MOUT) Mock Village
H	Tactical Training, Land Navigation
I	Bivouac, Challenge Courses
J	Tactical Training
K	Tactical Training, Basic Land Navigation, Convoy Operations
K-1	Warrior Task Testing, Basic Land Navigation, Rope Bridge Crossing Course
L	Basic Land Navigation, Tactical Training, Rappelling, Mountaineering, Fort Merriam
M	Obstacle Course
N	Tactical Training, Intermediate Land Navigation
O	NBC Chamber
P	Parade Ground and Hudleson helicopter Landing Zone (LZ)
R	Tactical Training, Land Navigation
S	APFT (Army Physical Fitness Test) Area
T, U, V, W, X	Tactical Training
Y	O'Sullivan Army Heliport

There are eight ranges at Camp SLO located in the northwestern region adjacent to the El Chorro Regional Park (Figure 5-3). These ranges consist of training for M4/M16, M24, M60, M203 TPT, M249, shotguns, pistols, hand grenades, and demolitions (up to 40 lb maximum). Table 5-2 provides a description of each range.

Table 5-2. CSLO Range Description

Range	Description
A	10/25 meter. 7.62 mm and below
B	CP/MPFQC. Pistols only
C	Multi-purpose range. 7.62 and below
D	10/25 meter. 7.62 mm and below
E	Hand Grenade and Light Demolition Range (¼ pound or less)
F	Multi-purpose Range. 600 meters. 7.62 mm and below, M203 (TP only) Demolition Range (40 LB charge max)
F-1	MOUT Assault Course (MAC), 5 stations. 5.56 mm and below, M203 (TP only).
F-2	Multi-purpose Range, 7.62mm and below

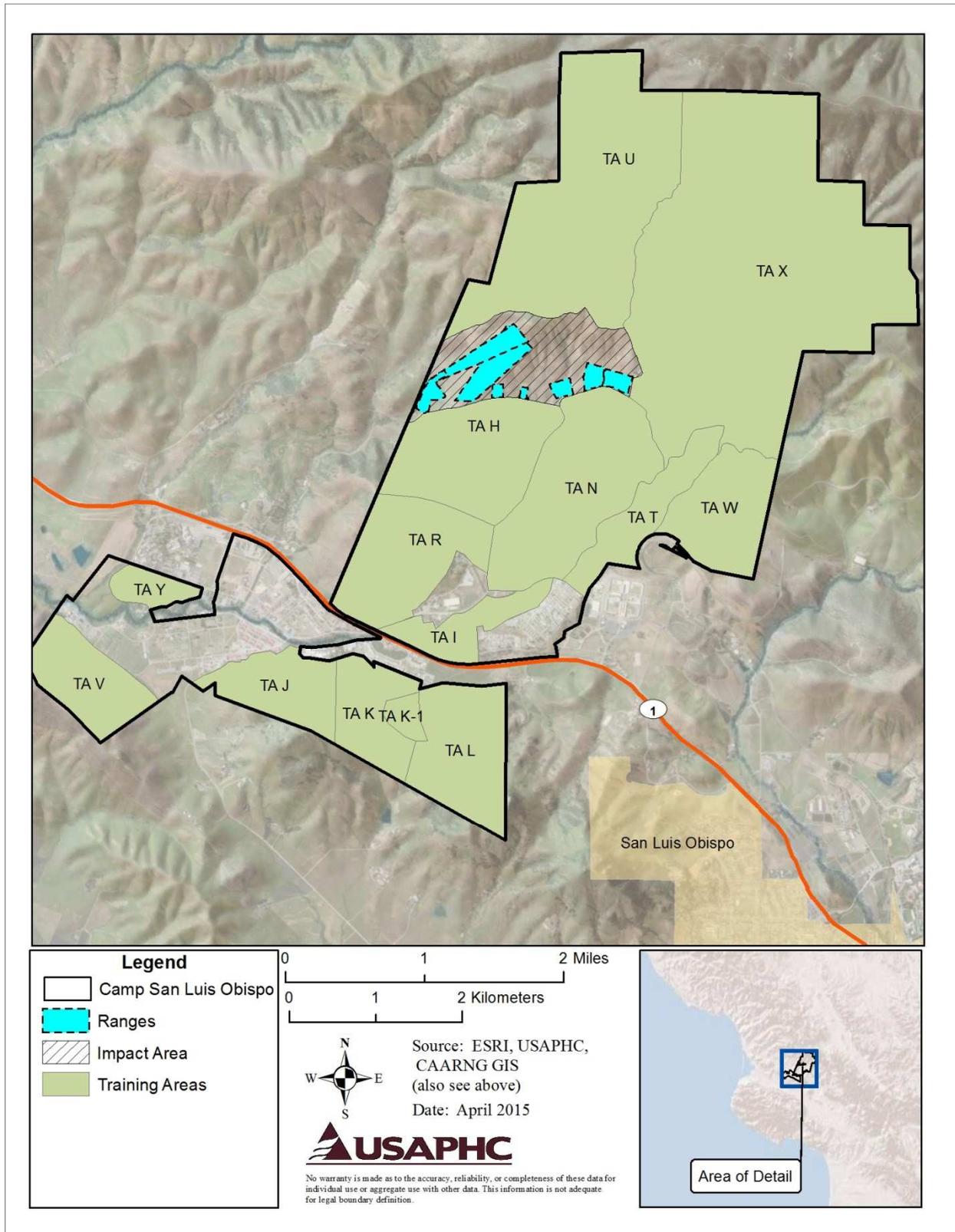


Figure 5-2. Camp San Luis Obispo Training Areas

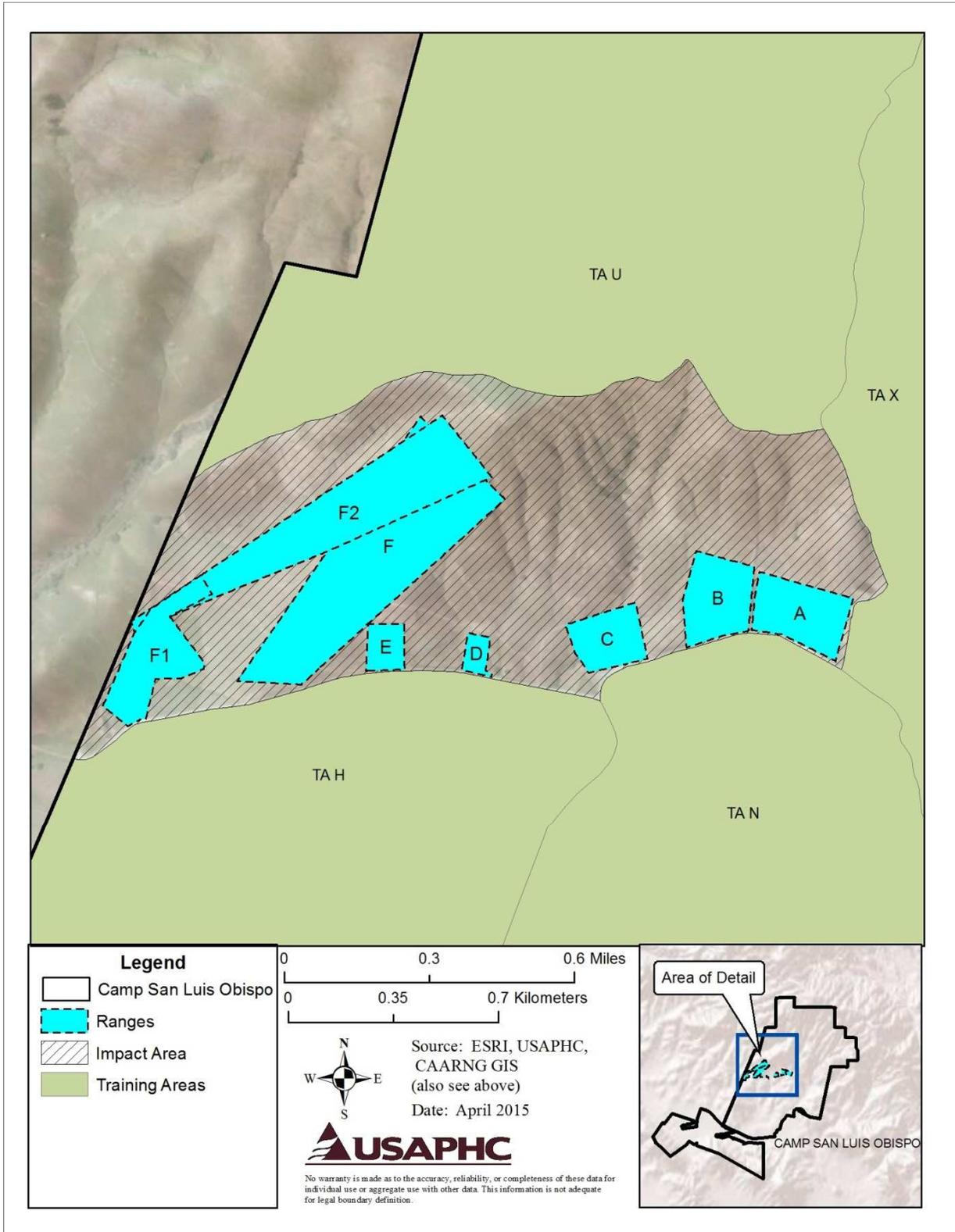


Figure 5-3. Camp San Luis Obispo Ranges

## 5.5 LOCAL COMMUNITIES

The nearby towns of San Luis Obispo and Morro Bay indicate relatively small population changes between 2000 and 2010. The changes are significantly lower than the San Luis Obispo County and the State of California growth rate along with the national rate. In addition, the estimated 2013 populations for San Luis Obispo and Morro Bay were 46,377 and 10,461 respectively, which are a 2.8% and 2.2% increase since 2010.

Table 5-3. Population Surrounding CSLO

	2000	2010	% Change
San Luis Obispo	44,174	45,119	2.1%
Morro Bay	10,350	10,234	-1.1%
San Luis Obispo County	246,681	269,637	9.3%
California	33,871,648	37,253,956	10.0%
United States	281,421,906	308,745,531	9.7%

Source: U.S. Census Bureau / censusviewer.com

Figure 5-4 indicates the 2013 population density (per square mile) surrounding CSLO. The largely rural and agricultural lands surrounding the camp indicate a population density less than 50 people per square mile. To the southeast, the urban areas of San Luis Obispo and the California Men's Colony (prison) indicate much higher density rates.

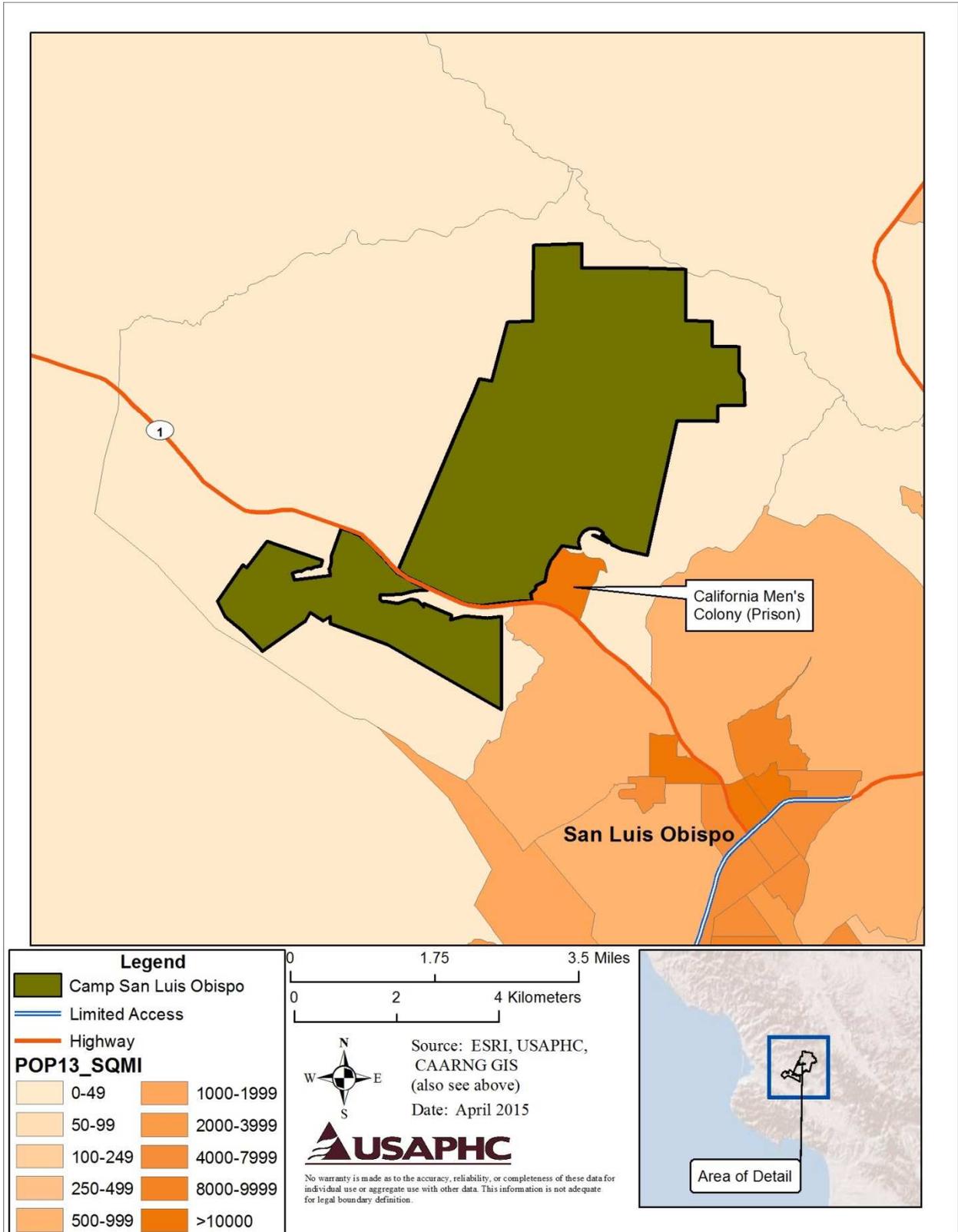


Figure 5-4. Camp San Luis Obispo 2013 Population Density (Per Square Mile)

## 6 CAMP SAN LUIS OBISPO RANGE NOISE ASSESSMENT

### 6.1 SMALL ARMS NOISE

Small arms at Camp San Luis Obispo (SLO) include machine guns firing 7.62 mm live ammunition or less and .50 caliber blanks. The active ranges include A, B, C, D, F, F-1, and F-2. Small arms noise analysis within the ICUZ is divided into subsections based on the type of training:

- Small Arms Range - a defined area with fixed firing points and/or targets.
- Non-Fixed Firing Points – an area or range with non-fixed points and/or targets (active) such as a MOUT site.

The SARNAM model calculates and plots the peak noise levels based on the loudest weapon at each range from the operations data described in Appendix C. Specific firing point and target point locations entered into the SARNAM program generate noise contours. With the absence of specific firing point and target point locations, noise contours for small arms firing in the training areas and on non-fixed ranges cannot be modeled. Facilities without set firing points or target point locations thus use predicted peak noise levels.

#### 6.1.1 SMALL ARMS RANGES

Figure 6-1 illustrates the Small Arms Noise Zones. The noise represents a maximum live fire small caliber-training scenario with all ranges actively firing.

Zone III and Zone II extends off post a maximum of 300 meters and 1,350 meters due west respectively. The encompassed areas off post consist of recreational (El Chorro Park), rural and agricultural lands. There are no noise-sensitive lands uses within the Noise Zones. On post, there is no full time housing located at the camp.

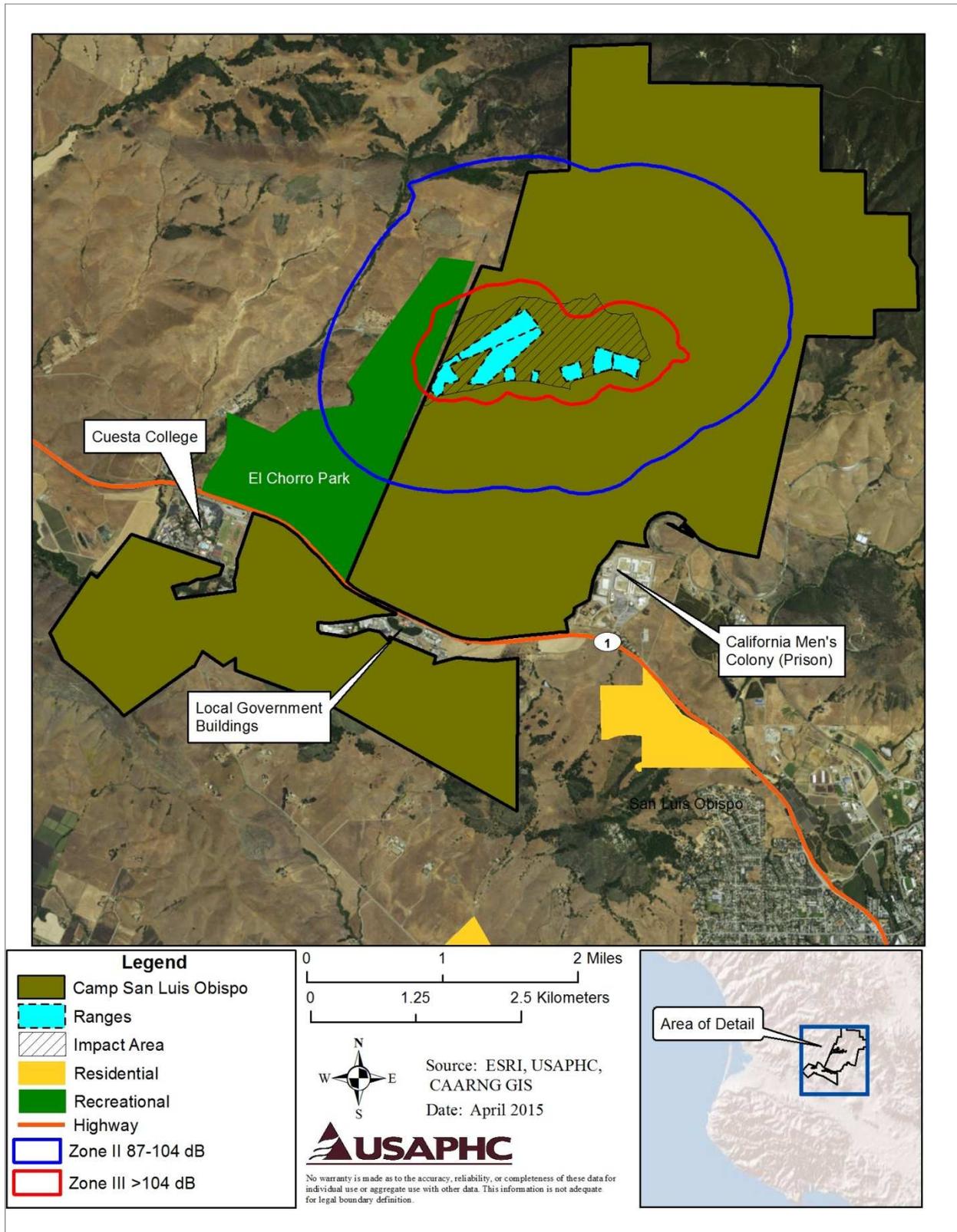


Figure 6-1. Camp San Luis Obispo Small Arms Noise Zones

### 6.1.2 NON-FIXED FIRING POINTS

With the absence of specific firing point and target point locations, noise contours for small arms firing in the training areas and on non-fixed ranges cannot be modeled. The areas at CSLO include non-fixed blank firing on the Training Areas (TA). The exceptions include TAs T, Y, and I due to proximity of the cantonment area, Cuesta College and California Men's Colony Prison. The largest round fired is the 7.62mm rifle blank which have no established restrictions; restrictions are dependent upon the training and other entities that are on post during the training period.

Range personnel indicated 101,898 rounds of 5.56mm blank and 7.62mm blank fired over a 75-day training period accounting for an entire year at CLSO.<sup>14</sup> The training includes inactive duty training (ADT) and annual training (AT) at the non-fixed firing areas. The majority (92%) of the blank rounds fired were 5.56mm (93,900) with the remainder 7.62mm (8000). Looking at the predicted peak levels in Chapter 4 (Table 4-1 and Table 4-2), we can attempt to assess the noise exposure from these training activities for the non-fixed points.

Table 4-1 indicates that under unfavorable weather conditions, Zone II noise levels [87 dBP] extend approximately 200 meters for the 5.56mm blank round at all three given azimuth angles. Table 4-2 indicates that under unfavorable weather conditions, Zone II noise levels extend approximately 800 meters for 7.62mm blank firing.

CLSO have taken precaution by restricting blank firing in TAs T, Y, and I due to proximity of the cantonment area, Cuesta College and California Men's Colony prison. In addition, CSLO Regulation 350-1 indicates, "every effort must be made to be a good neighbor near the boundary of CLSO. Avoid activities near installation boundaries that may cause unacceptable noise levels off the installation."<sup>15</sup> However, even if this training were to take place in close proximity to the boundary, levels associated with Zone II limits would not affect noise-sensitive land uses.

### 6.1.3 LARGE ARMS AND DEMOLITION COMPLAINT RISK POTENTIAL

There are no large caliber weapons ranges at CSLO, only a single demolition site on Range F. From March 2014 to March 2015, demolition activity was limited to three 1 lb. TNT detonations and therefore modeling would not produce Noise Zones.

However, noise complaints typically are attributable to a specific event rather than annual average noise levels. Peak levels are useful for estimating the risk of receiving a noise complaint as they correlate with the receiver's perception of noise levels. Found earlier in this document, Table 4-4 lists the Army's Complaint Risk Guidelines. Under unfavorable (Figure 6-2) and neutral weather (Figure 6-3), the Moderate Complaint Risk (115-130 dBP) area extends beyond the western boundary. The High Complaint Risk (>130 dBP) area also extends beyond the western boundary, but only during unfavorable conditions. However, since there are no noise-sensitive receptors within the areas, the complaint risk from demolition activity is minimal

<sup>14</sup> Email correspondence with MSG Wilson, CLSO, Post OPS NCO, May 2015

<sup>15</sup> CSLO Regulation 350-1, Training at Camp San Luis Obispo, 02 January 2012

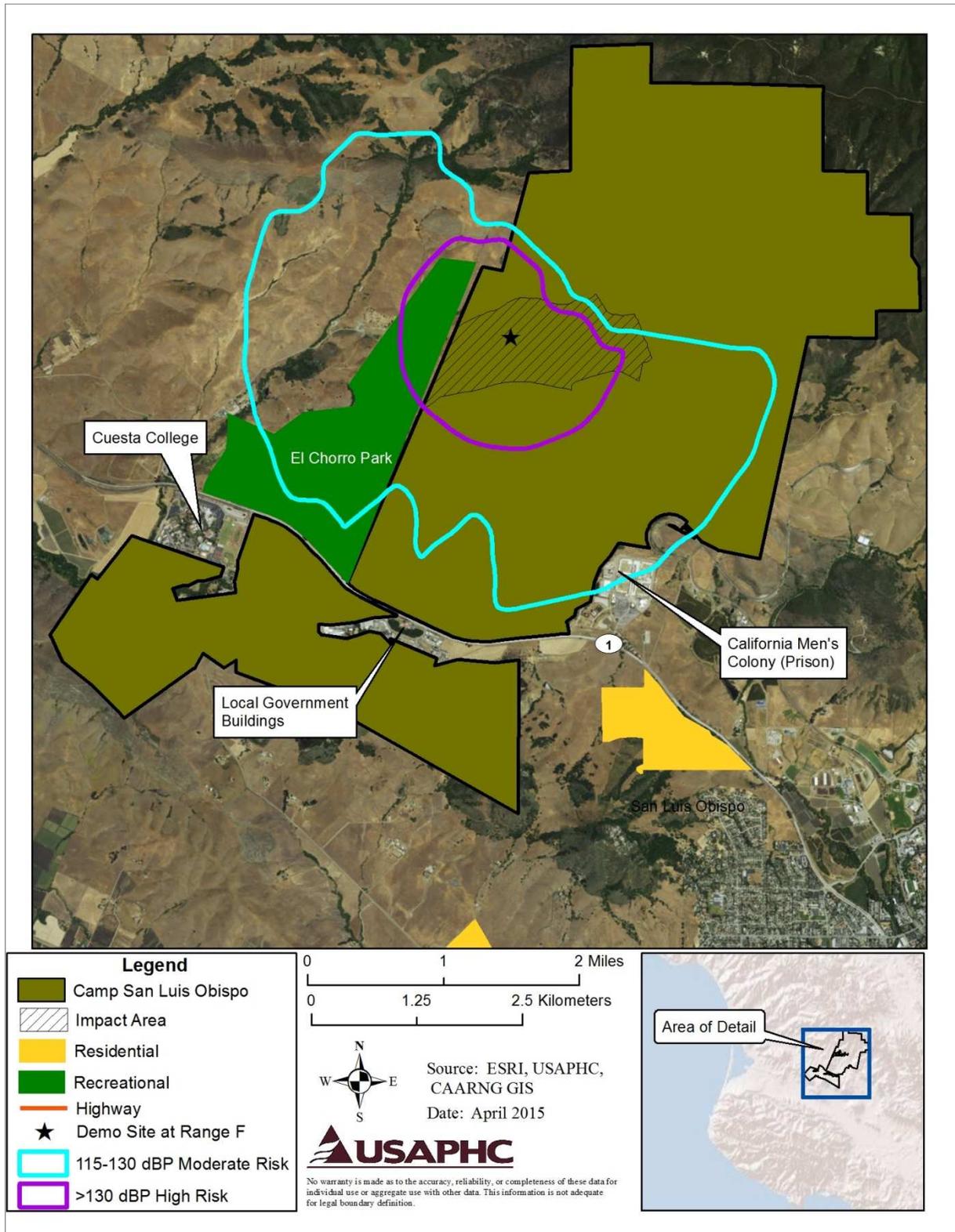


Figure 6-2. Demolition Complaint Risk Areas (Unfavorable Weather Conditions) 1 lb. TNT

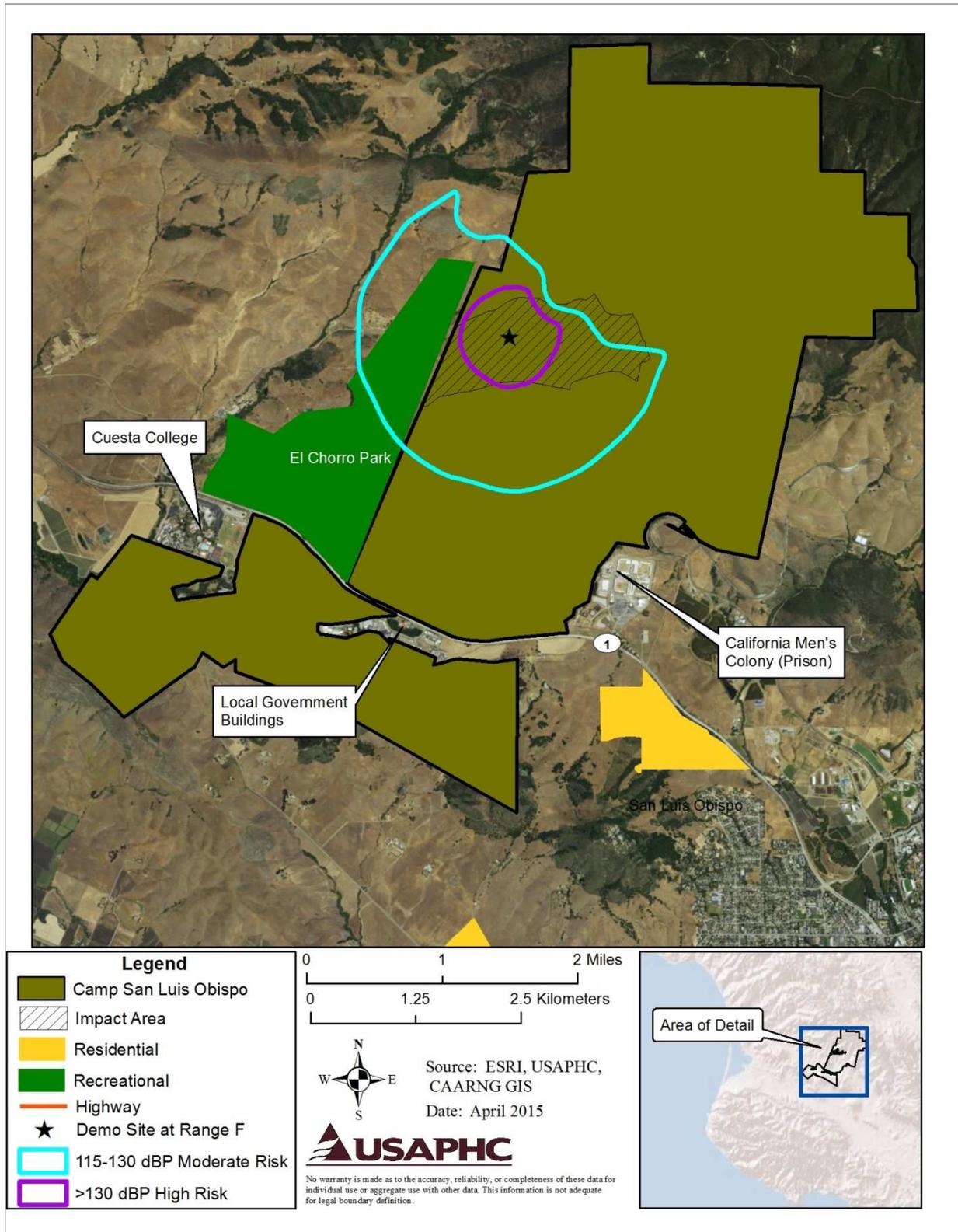


Figure 6-3. Demolition Complaint Risk Areas (Neutral Weather Conditions) 1 lb. TNT

**6.1.4 SIMULATOR NOISE COMPLAINT RISK POTENTIAL**

Simulator noise levels will vary a few decibels depending on the type (i.e. artillery, ground burst, and grenade). Table 6-1 provides an approximation of noise levels under average weather conditions and under weather conditions that favor sound propagation. The BNOISE2 computer program predicted levels which were then verified against various noise monitoring studies (U.S. Army 1983, U.S. Army 1984, U.S. Army 1989). Based on the levels below, under neutral/average weather conditions, the risk of complaints will be low beyond 500 meters (<115 dBP). Under unfavorable weather conditions, such as during a temperature inversion, or when there is a strong wind blowing in the direction of the receiver, the distance increases to approximately 800 meters (<115 dBP).

CSLO detonated 316 simulator rounds over a one-year period in TAs N, H, K, and K-1. The areas encompassed off post in the moderate complaint risk areas would include recreational areas (El Chorro Park) to the west and San Luis Obispo office buildings just north of TA K and K-1. The office buildings on Kansas Avenue include San Luis Obispo County Jail, Sheriff Office, Animal Services, and Coroner.

Table 6-1. Predicted Peak Noise Levels for Typical Army Simulators

Distance from source (meters)	Neutral/Average Weather Conditions (PK50(met))	Unfavorable Weather Conditions (PK15(met))
100	134	136
200	125	130
300	120	127
400	117	123
500	114	121
600	111	118
700	109	116
800	107	114

## 6.2 AIRCRAFT NOISE ASSESSMENT

### 6.2.1 O’SULLIVAN ARMY HELIPORT

Figure 6-4 depicts the location of O’Sullivan Army Heliport at CSLO. The heliport supports rotary-winged aircraft, but does not have assigned Army Aviation units. The heliport is unmanned and has very few helicopter flights; typically no more has more than 2 flights per month.<sup>16</sup> UH-60 along with an occasional UH-1 will land at the helipad.

### 6.2.2 NOISE ABATEMENT<sup>17</sup>

Although the airspace at CSLO is unrestricted, aircraft control procedures designed to avoid or reduce noise include:

- Use of established traffic patterns, corridors and routes, and designated altitudes.
- Avoidance of residences, buildings, and farm-related facilities by at least 500 feet slant range while maintaining the appropriate altitude.
- Avoidance of towns, cities and villages, except when operating in approved corridors.
- Avoidance of livestock and recreational areas.

---

<sup>16</sup> Email correspondence with MSG Wilson, Post OPS NCO, CSLO 19 May 2015.

<sup>17</sup> Statewide Operational Noise Management Plan, CAARNG September 2004.

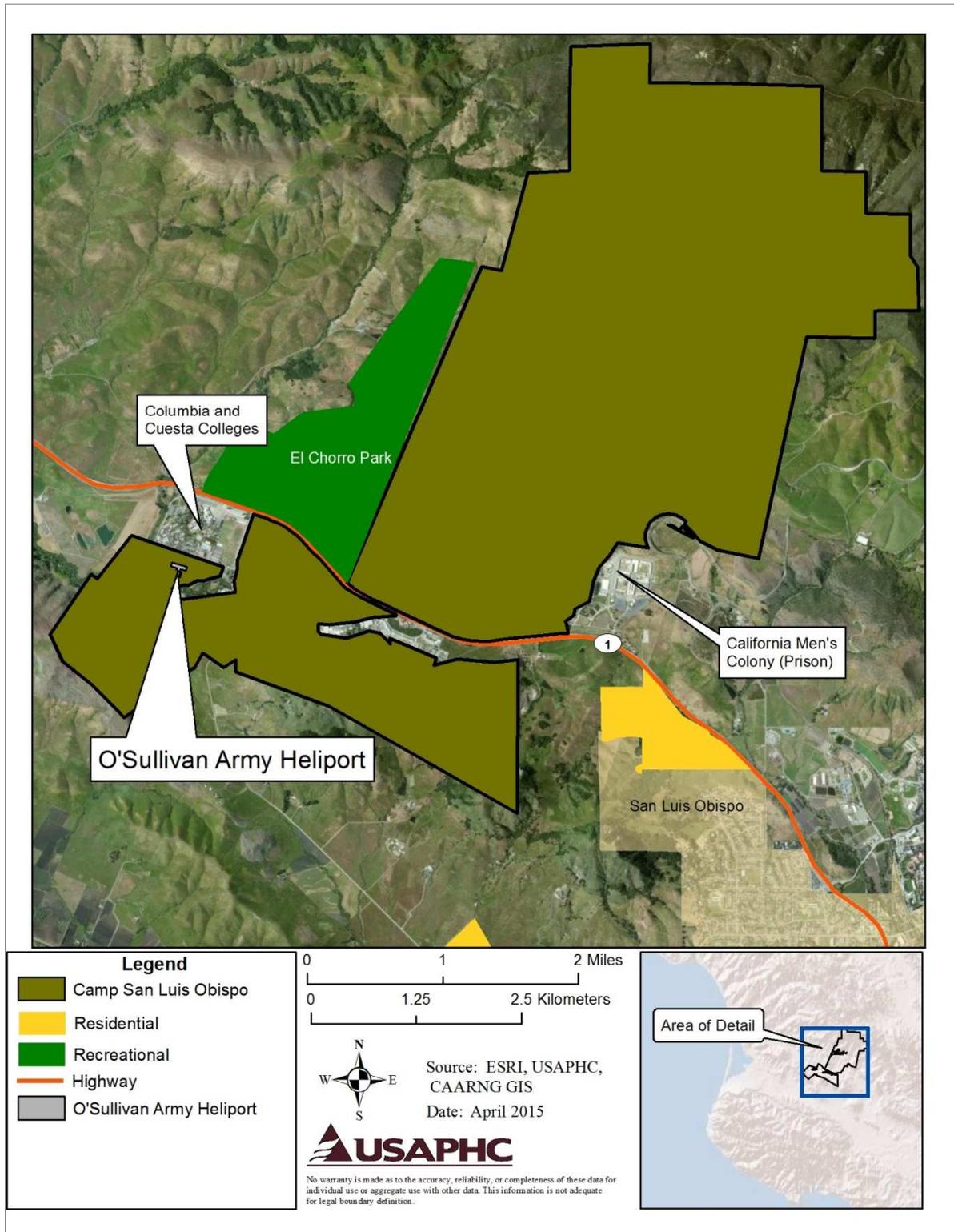


Figure 6-4. O'Sullivan Army Helipoint

### 6.3 LAND USE COMPATIBILITY GUIDELINES AND ASSESSMENT - CAMP SAN LUIS OBISPO

#### 6.3.1 LAND USE

The land use figures presented in this Section use data obtained from ArcGIS Online for San Luis Obispo County and the most current GIS layers for Camp San Luis Obispo. Land Use categories are one of the following categories:

- Residential: includes all types of residential activity, including Residential Rural.
- Agricultural: includes farmlands, grazing and other types of agricultural land uses.
- Public Facility: includes schools, police stations, jail, sheriff office, animal services, coroner, etc.
- Open Space

#### 6.3.2 SMALL ARMS

CSLO is a training area surrounded by agricultural, recreational, public and open space land uses. Table 6-2 provides a breakout of Noise Zone acreage on and off post. According to Army guidelines, off post there would be 736 acres within Zone II and 51 acres within Zone III. These areas consist of agricultural, recreational, public facility, and open space and are not noise-sensitive. On post, there is no full-time housing located at the camp. See Figure 6-5 for detail.

Table 6-2. Population Exposure in Small Caliber Noise Zones

Noise Zone	Total Acreage	Off-Post Acreage	Percentage Off-Post Acreage
Zone II	2353	736	31.3%
Zone III	558	51	9.1%

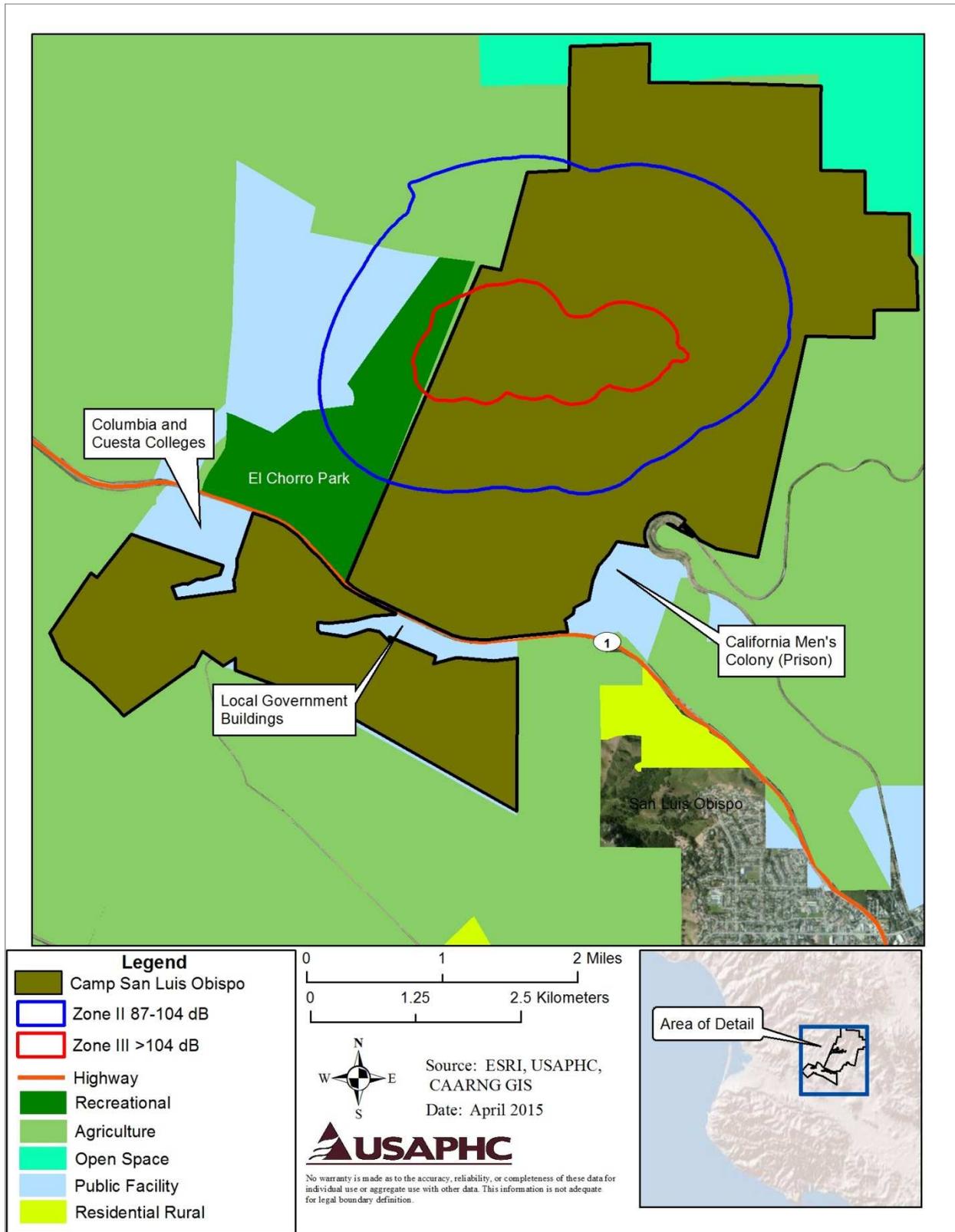


Figure 6-5. Small Arms Noise Zones and Land Use

## 7 LOS ALAMITOS JOINT FORCES TRAINING BASE

### 7.1 BACKGROUND

The Los Alamitos Joint Forces Training Base (JFTB) is home to the largest Army airfield (Los Alamitos Army Airfield (LAAAF)) operated by the Army National Guard (ARNG). LAAAF is the sole remaining military airfield in the greater Los Angeles and Orange County area (Figure 7-1). The training base is located in the North West area of Orange County and is 11 miles west of the City of Santa Ana, bordered on the north and within the City of Los Alamitos. The airfield is one of the busiest Department of Defense (DOD) aviation operations in the continental United States and is located in one of the most congested and heavily flown airspace systems in the U.S. Heavy urban development also surrounds the base. With the CAARNG operating the training base, the ICUZ study will include all air traffic (military and civilian) at the airport. This section will also include air operations at the Army Aviation Support Facility (AASF) #1 co-located at the training base.

### 7.2 HISTORY<sup>18</sup>

The U.S. Navy purchased land for a Naval Air Station (NAS) in 1939 and NAS Los Alamitos opened in early 1942. Los Alamitos was used extensively for aviation training by the Navy in World War II and provided alert aircraft to patrol and defend the California coast. After the war, the Naval Air Station supported Naval Reserve Aviation activities, and during the 1950s and 1960s, NAS Los Alamitos was the largest Naval Air Reserve organization on the west coast. Additionally, Los Alamitos supported mobilizations for Korea and Vietnam. In August 1973, DOD directed that NAS Los Alamitos be redesigned Los Alamitos Armed Forces Reserve Center. Concurrently it was directed that the CAARNG would operate LAAAF operations and the Air Traffic Control (ATC) facilities. On 29 July 1977, the training base was transferred from the Navy to the Army. On 13 August 1977, the CAARNG was directed to be the host and assigned operational control of the new installation. In July 2000, the training base was renamed the “Los Alamitos Joint Forces Training Center”.

### 7.3 MISSION AND STRUCTURE

The mission of Los Alamitos JFTB is to “operate a military installation and airfield that meets Army standards, and provide support and training facilities for military units and other National, State, and local organizations, to include emergency operations.”<sup>19</sup> The 1,400-acre installation has 160 buildings and encompasses about 1.5 million square feet of space. The two all-weather runways (8000 ft and 6000 ft) are capable of accommodating all U.S. military aircraft except the B-2 and B-52 bombers. However, the airfield often lands C-5, C-17, and other large transport aircraft and has hosted the President’s Boeing 747, Air Force One, on numerous occasions.

---

<sup>18</sup> JFTB Regulation 95-1, Flight Regulations for Los Alamitos Army Airfield, 19 October 2012

<sup>19</sup> <http://www.calguard.ca.gov/JFTB-LosAl>

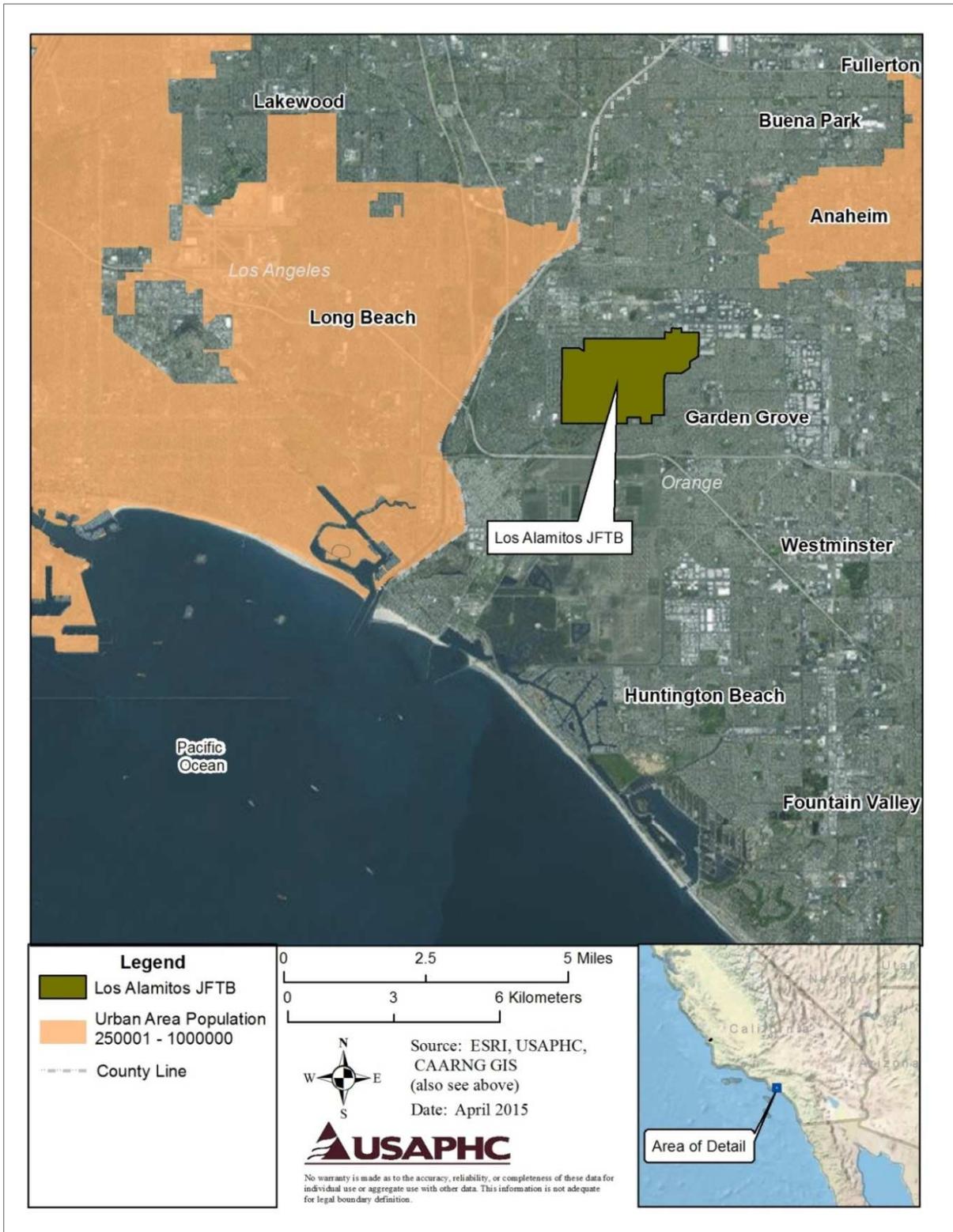


Figure 7-1. Los Alamitos Joint Forces Training Base General Location

There are more than 45 tenant organizations at Los Alamitos JFTB with an estimated 1,000 military and civilian assigned on a full-time basis. The major tenants include:

- Army Aviation Support Facility (CAARNG AASF #1)
- 3rd Battalion, 363rd Regiment
- 63rd Regional Support Command
- HQ 40th Infantry division (M)
- 1st Squadron, 18th Cavalry Regiment
- 1st Battalion, 140th Aviation Regiment
- 6th Battalion / 52nd Aviation Regiment
- 640th Military Intelligence Battalion
- California State Military Reserve
- Civil Air Patrol
- HQ Southern Region Office of Emergency Services

Currently, 20 helicopters of the 40th Combat Aviation Brigade (CAB) are stationed at Los Alamitos. Several Army Reserve C-12 airplanes and UH-60 helicopters are also assigned, and the U.S. and California Departments of Agriculture operate about a dozen aircraft that support the Medfly/Mexfly eradication program. The airfield includes a fully staffed Army air traffic control tower, crash/rescue fire department, and jet fuel farm with aviation refueling and a weather office. The base has supported various mobilizations and deployments including Operation Desert Shield/Storm, Bosnia, and most recently, Operation Iraqi Freedom and Operation Enduring Freedom. The airfield operations is open Tuesday through Friday, 6:00 am to 10:00 pm, and Saturday through Monday, 7:30 am to 4:00 pm, for flight planning and support.

#### 7.4 LOCAL COMMUNITIES

Table 7-1 indicates the population growth for the local communities bordering the base. The area surrounding Los Alamitos JFTB is heavily populated (Figure 7-2), but the growth rate has been minimal between 2000 and 2010. Orange County has experienced approximately half the growth rate of California and the United States.

Table 7-1. Population Surrounding Los Alamitos JFTB

	2000	2010	% Change
Los Alamitos	11,536	11,449	-0.8%
Seal Beach	24,157	24,168	0.0%
Garden Grove	165,196	170,883	3.4%
Cypress	46,229	47,802	3.4%
Orange County	2,846,289	3,010,232	5.8%
California	33,871,648	37,253,956	10.0%
United States	281,421,906	308,745,531	9.7%

Source: U.S. Census Bureau / censusviewer.com

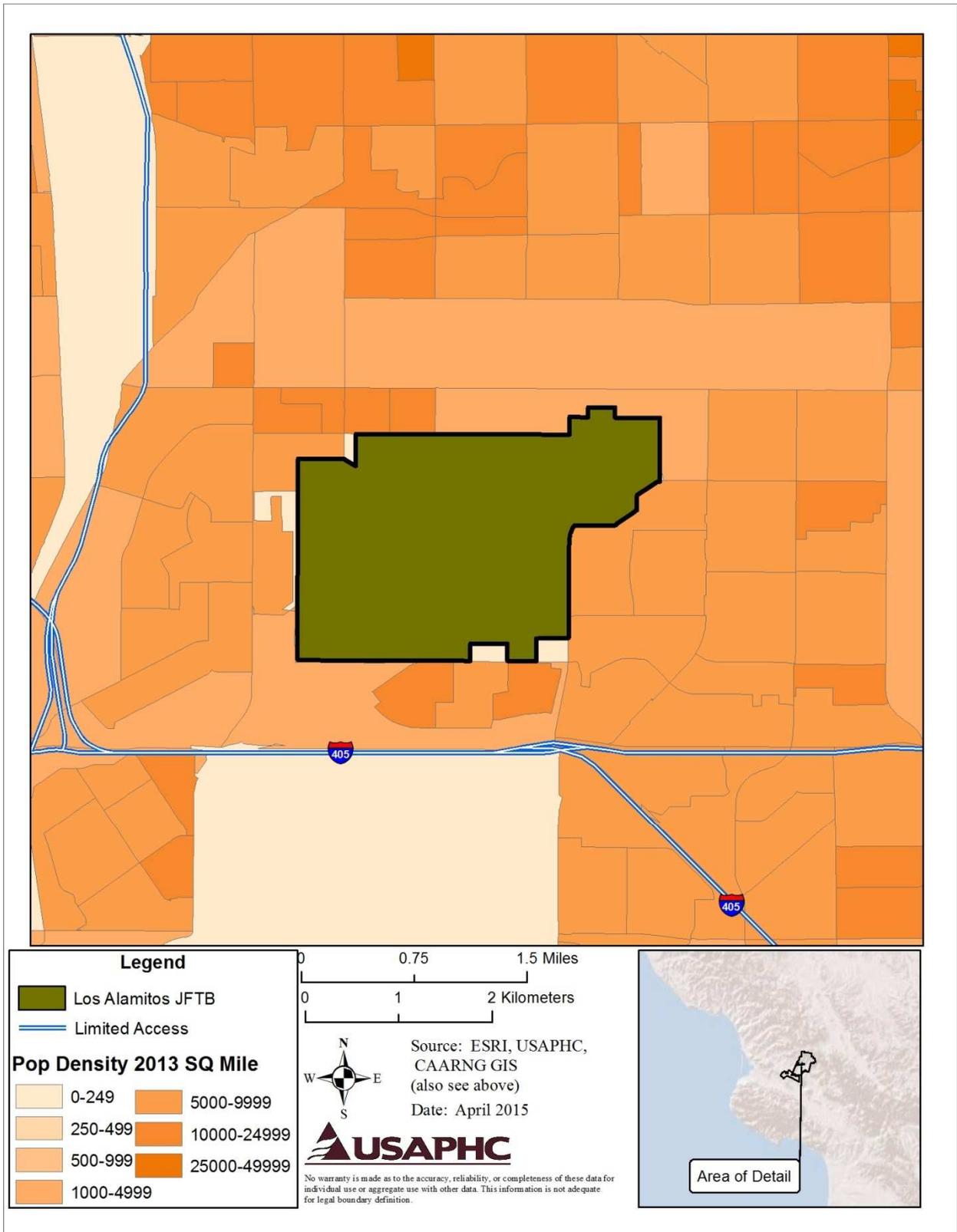


Figure 7-2. Population Density Surrounding Los Alamitos JFTB

#### 7.4.1 FLIGHT CORRIDORS AND NOISE ABATEMENT

Figure 7-3 represents the closed pattern and noise-sensitive areas and Figure 7-4 presents the arrival/departure flight tracks used by aircraft operating at LAAAF. The location of each track is approximate since the precise flight track may vary due to air traffic control, weather, and other reasons (e.g., one pilot may fly the track on one side of the depicted track, while another pilot may fly the track slightly to the other side).

LAAAF traffic patterns incorporate the following noise abatement procedures:

- North and South Traffic Pattern (closed)
  - 800' AGL (increase from 700', 100' more altitude)
  - Airspeed usually below 100 knots
- North Arrival
  - 1000' AGL inbound
  - LAAAF's Class D airspace begins/ends at 605/91 FWY Interchange. Remain east side of I-605 FWY Southbound. Turn Downwind (East) over Cerritos Ave. Turn Base, over Valley View ST, to Final over Industrial Complex, east of Valley View ST, and line up for approach or enter Traffic Pattern.
- North Departure
  - 1500' AGL outbound
  - Depart KSLI on a 04 heading until crossing Costco parking lot. Turn Downwind in-between Katella Ave and Cerritos Ave. Turn North bound before crossing the I-605 FWY remaining on the east side of the freeway.
- South Arrival
  - 1000' AGL inbound
  - Overfly the Seal Beach Naval Weapons Station, remain east of Seal Beach Blvd, enter the traffic pattern overflying the Old Ranch Golf Course at 800' AGL
- South Departure
  - 700' AGL Outbound
  - Fly over the Old Ranch Golf Course, over the Seal Beach Naval Weapons Station, and then to Anaheim Bay breakwater reefs turning on course.
  - NOTE: A/C on LGB ILS approach will be at 1600' AGL over BECCA NDB (overhead in and out of Long Beach).
- Katella Arrival
  - 1500' AGL inbound
  - Track over Katella Blvd (industrial areas, no homes)
- Katella Departure
  - 1500' AGL outbound
  - Track over Katella Blvd (industrial areas, no homes)

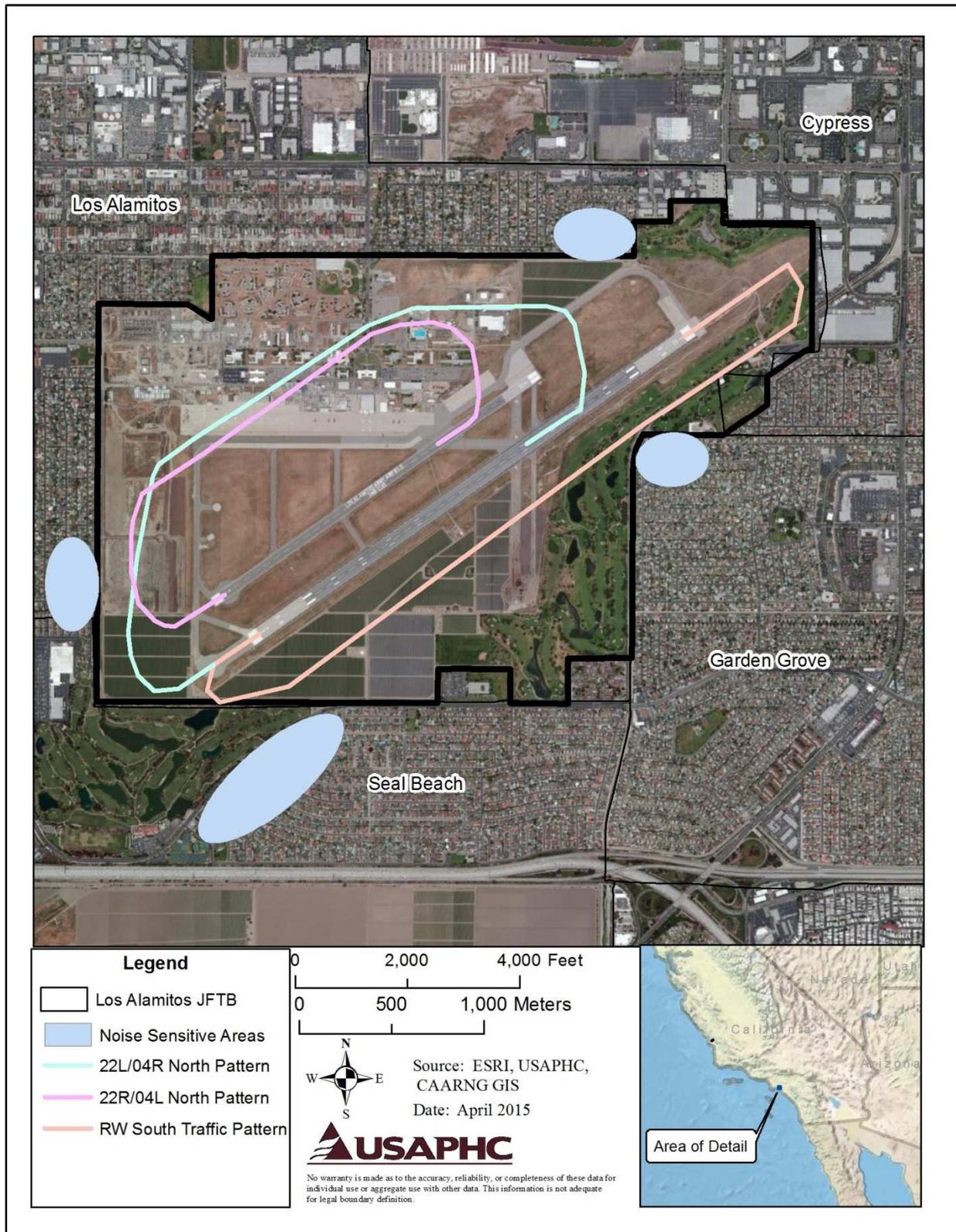


Figure 7-3. LAAAF Closed Traffic Pattern and Noise-Sensitive Areas

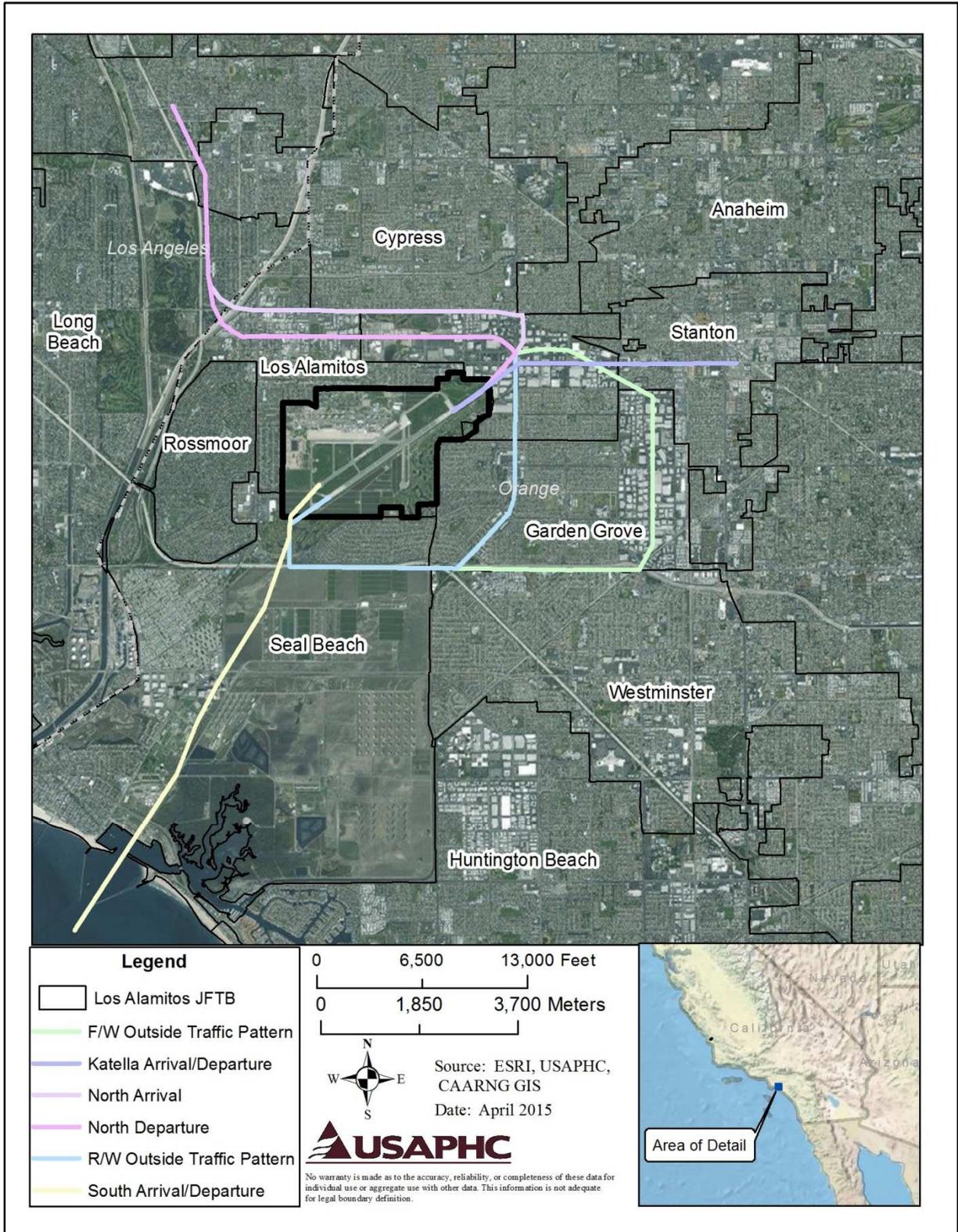


Figure 7-4. LAAF Inbound and Outbound Flight Routes

## 7.4.2 AIRCRAFT NOISE ZONES

Although the number of military and civil aircraft operations at an installation usually varies from day to day, NOISEMAP requires input of the specific numbers of daily flight operations. For this assessment, operations are calculated for an average annual day (AAD), meaning that operations are averaged across all 365 days of the year. DoD Instruction 4165.57 (DoD May 2011) states that airfield noise will use AAD to calculate noise contours, unless the Services determine an extenuating circumstance.

Based on a 3-month traffic count from June to August 2014, an estimate of 46,016 aircraft operations occur annually at LAAAF. This averages to 126 flights per day consisting of military, police, and miscellaneous aircraft. An aircraft operation equates to one takeoff/departure, or one approach/landing. A closed pattern consists of two portions, a takeoff/departure and an approach/landing, i.e., two operations. A sortie is a single military aircraft flight from the initial takeoff through the termination landing. The minimum number of aircraft operations for one sortie is two operations, one takeoff (departure) and one landing (approach).

Appendix C summarizes total operations by individual aircraft used for the Noise Zones. Flights from LAAAF occur in two designated time blocks, daytime (7:00 am to 7:00 pm) and evening (7:00 pm to 10:00 pm). The Air Traffic Control at LAAAF indicated 85 percent of operations take place during daytime and 15 percent during the evening. There are no flights between the hours of 10:00 pm and 7:00 am.

Figure 7-5 illustrates the Noise Zones for LAAAF operations. The LUPZ and Zone II do not extend beyond the installation boundary, thus this ICUZ study does not assess the surrounding land uses. On-post, the Noise Zones do not contain soldier or family housing areas. Although the Noise Zones indicate land use compatibility, individual overflights may annoy people and have generated complaints. Section 7.4.3 details annoyance from individual overflights.

The majority (98%) of CAARNG noise complaints result from Los Alamitos JFTB airfield operations. Between 2010 and 2014, there were 130 noise complaints, averaging 26 per year.

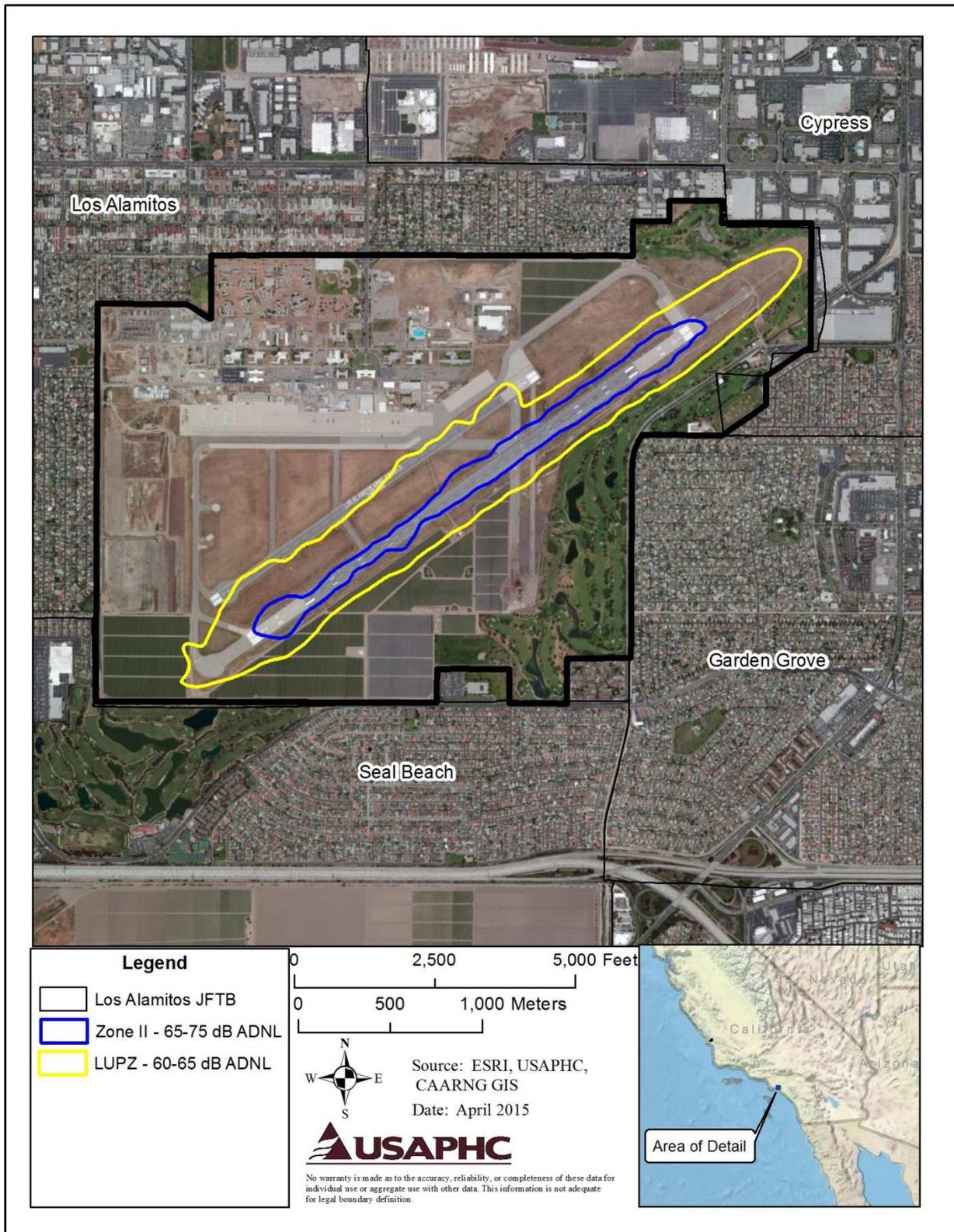


Figure 7-5. LAAAF Aircraft ADNL Noise Zones

**7.4.3 ANNOYANCE POTENTIAL FROM OVERFLIGHTS**

Although the aircraft Noise Zones address the annual noise dose at Los Alamitos JFTB, there are many instances where individual aircraft overflights, operating in the airspace beyond the airfield, generate noise levels that some individuals might find disruptive and/or annoying. As with range noise, singular aircraft overflight is often the culprit of noise complaints received by an installation. Therefore, the following section examines annoyance potential from singular overflights.

**7.4.3.1 HELICOPTER AND FIXED-WING AIRCRAFT**

Scandinavian Studies (Rylander 1974) found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the three loudest events. While annoyance levels may be lower along less-frequented flight routes and corridors, the Rylander study serves as an indicator for annoyance potential from intermittent overflights.

The maximum levels from the Table 7-2 (Rotary-Wing) and Table 7-3 (Fixed-Wing) are compared with the levels listed in Table 7-4 to determine the percent of the population that would consider itself highly annoyed from overflights. These levels assume a ground track distance of zero (i.e. source directly overhead of the receiver).

Table 7-2. Maximum A-Weighted Sound Levels for Rotary-Wing Aircraft

Slant Distance (feet)	Maximum Level, dBA						
	AH-1 <sup>1</sup>	CH-47	UH-60	CH-53	UH-1	CH-46	MV-22 <sup>2</sup>
200	93	92	88	102	91	93	98
500	85	84	80	94	83	85	89
1,000	79	78	73	88	76	78	82
1,500	75	74	69	84	73	74	78
2,000	72	71	66	81	70	72	75
2,500	69	68	63	78	68	69	73

<sup>1</sup> AS-350

<sup>2</sup> rotary flight levels during flyover at constant airspeed

Table 7-3. Maximum A-Weighted Sound Levels for Fixed-Wing Aircraft

Slant Distance (Feet)	Maximum Sound Level by Aircraft Type (dBA)			
	C-17	Twin Engine	Single engine	T-6 <sup>1</sup>
1,000	89	73	70	78
1,500	84	69	66	74
2,000	79	67	63	71
2,500	76	65	61	69
5,000	n/a	n/a	n/a	n/a
6,000	n/a	n/a	n/a	n/a

<sup>1</sup> 90% torque, 160 kts

Table 7-4. Percentage of Population Highly Annoyed from Aircraft Noise

Maximum, dBA	Highly Annoyed
90	35%
85	28%
80	20%
75	13%
70	5%

Taking the Rylander correlation one step further, the SelCalc Program (U.S. Air Force 2005b) was used to calculate the distance in ground track from zero (aircraft directly overhead) to where the maximum A-weighted noise level would decay to 70 dBA or below (threshold for annoyance). This takes into account not only those directly under a flight path but also those to the side of a passing aircraft, where noise levels may cause annoyance up to one-half mile away.

At Los Alamitos JFTB, the UH-60 is the most utilized Army aircraft with an estimated 5,000 flights per year. Table 7-4 indicates that at 500 feet AGL, 20% of the population would be highly annoyed by a UH-60 flight directly overhead. Increasing to 1,000 feet AGL, the annoyance would drop to 10%. Table 7-5 provides helpful information when comparing aircraft type, elevation, and ground track distance to annoyance. Figure 7-6 provides an illustration.

Table 7-5. Overflight Annoyance Potential<sup>1</sup>

Source	Ground Track Distance <sup>2</sup>	dBA Maximum <sup>3</sup>	Population Highly Annoyed <sup>4</sup>
CH-47 – 500’ AGL	0’	84	26%
	1320’ (1/4 mile)	73	10%
	1760’ (1/3 mile)	71	7%
	2640’ (1/2 mile)	66	<1%
CH-47 – 1000’ AGL	0’	77	16%
	1320’ (1/4 mile)	72	8%
	1760’ (1/3 mile)	70	5%
	2640’ (1/2 mile)	66	<1%
CH-53 – 500’ AGL	0’	94	+ 35%
	1320’ (1/4 mile)	83	25%
	1760’ (1/3 mile)	80	20%
	2640’ (1/2 mile)	76	14%
	5280’ (1 mile)	66	<1%
CH-53 – 1000’ AGL	0’	88	32%
	1320’ (1/4 mile)	82	23%
	1760’ (1/3 mile)	80	20%
	2640’ (1/2 mile)	76	14%
	5280’ (1 mile)	68	2%
UH-60 – 500’ AGL	0’	80	20%
	1320’ (1/4 mile)	69	4%
	1760’ (1/3 mile)	66	<1%
UH-60 – 1000’ AGL	0’	73	10%
	1320’ (1/4 mile)	68	2%
	1760’ (1/3 mile)	65	<1%
UH-1 – 500’ AGL	0’	83	25%
	1320’ (1/4 mile)	72	8%
	1760’ (1/3 mile)	70	5%
UH-1 – 1000’ AGL	0’	76	14%
	1320’ (1/4 mile)	71	7%
	1760’ (1/3 mile)	69	4%

<sup>1</sup> Percent annoyance shown is based upon 50 to 200 overflights per day. (Rylander 1974)

<sup>2</sup> Distance between receiver and the point on Earth at which the aircraft is directly overhead.

<sup>3</sup> Obtained via SelCalc Program (U.S. Air Force 2005)

<sup>4</sup> Calculated percentage based upon regression using the known values in Table 4-6

Table 7-5 Overflight Annoyance Potential<sup>1</sup> (continued)

Source	Ground Track Distance <sup>2</sup>	dBA Maximum <sup>3</sup>	Population Highly Annoyed <sup>4</sup>
C-17 – 500’ AGL	0’	97	+ 35%
	1320’ (1/4 mile)	84	26%
	1760’ (1/3 mile)	80	20%
	2640’ (1/2 mile)	73	10%
C-17 – 1000’ AGL	0’	89	34%
	1320’ (1/4 mile)	82	23%
	1760’ (1/3 mile)	79	19%
	2640’ (1/2 mile)	74	11%
CH-46 – 500’ AGL	0’	85	28%
	1320’ (1/4 mile)	74	11%
	1760’ (1/3 mile)	71	7%
	2640’ (1/2 mile)	67	1%
CH-46 – 1000’ AGL	0’	78	17%
	1320’ (1/4 mile)	73	10%
	1760’ (1/3 mile)	71	7%
	2640’ (1/2 mile)	67	1%
AH-1 – 500’ AGL	0’	85	28%
	1320’ (1/4 mile)	74	11%
	1760’ (1/3 mile)	71	7%
	2640’ (1/2 mile)	67	1%
AH-1 – 1000’ AGL	0’	79	19%
	1320’ (1/4 mile)	73	10%
	1760’ (1/3 mile)	71	7%
	2640’ (1/2 mile)	67	1%

Percent annoyance shown is based upon 50 to 200 overflights per day. (Rylander 1974)

2 Distance between receiver and the point on Earth at which the aircraft is directly overhead.

3 Obtained via SelCalc Program (U.S. Air Force 2005b)

4 Calculated percentage based upon regression using the known values in Table \_\_.

+ 35% The Rylander studies did not include sampling in excess of 90 dBA.

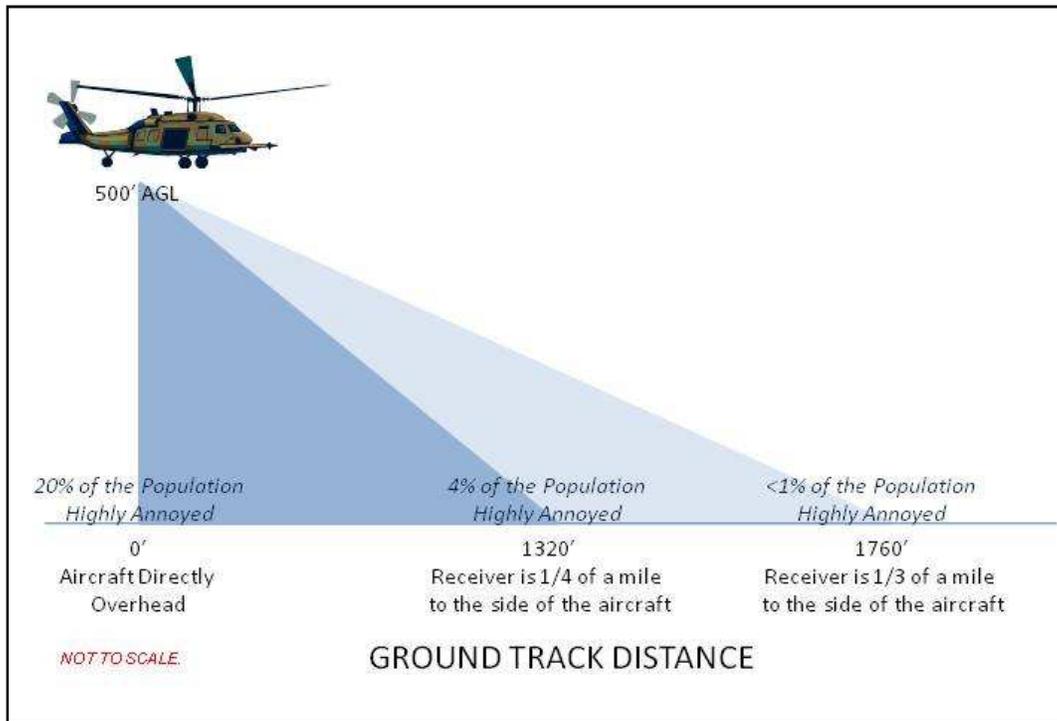


Figure 7-6. UH-60 Overflight Annoyance Potential

## **8 ARMY AVIATION SUPPORT FACILITIES AND ARMY AVIATION FLIGHT ACTIVITY**

This section covers the three Army Aviation Support Facilities (AASF) and single Army Aviation Flight Activity (AAFA) for the CAARNG. The low number of heliport operations at each facility do not generate a Zone II or Zone III, yet there is the potential that individual helicopter overflights could cause annoyance. The annoyance potential from overflights is in Section 4.3.6. Below details each facilities background, inventory, noise abatement procedures and complaints received.

### **8.1 AASF #1 LOS ALAMITOS**

(See Chapter 7, AASF #1 is included in the Los Alamitos Joint Forces Training Base section of the study.)

### **8.2 AASF #2 STOCKTON**

The Stockton Metropolitan Airport is located on the southern boundary of the city of Stockton in the heart of California's central valley. The airport is located between two major north-south thoroughfares: Interstate 5 (1.5 miles to the west) and State Highway 99 (which borders the airport on the east). Situated on 1,449 acres of land, the Stockton Metropolitan Airport has an 8,650 foot long, 150 foot wide primary runway, with a take-off distance available of 11,037 feet. The Stockton Metropolitan Airport also has a 4,458 foot long, 75 foot wide general aviation runway. Six air carrier gates adjoin the terminal building.

AASF #2 hosts the loudest helicopters in the Army Aviation Fleet, the CH-47F Chinook. Pilots assigned to Stockton have the opportunity to train in the foothills of the Sierra Nevada Mountains, east of Stockton, and in the Coast Range, south of Stockton. Access to these areas is primarily over open agricultural land of the San Joaquin Valley..

Currently, there are (12) CH-47 and (8) UH-72 Lakota rotary-wing aircraft based at the facility. Of the 146 total flight average per day at Stockton<sup>20</sup>, the CAARNG contributes only (6) flights per day (two CH-47 day, two CH-47 night, one UH-72 day, one UH-72 night) Tuesday thru Friday. In addition, one weekend a month there are typically (4) CH-47 and (2) UH-72 flights. The facility rarely has fixed-wing aircraft but sometimes receive transient rotary-winged assets from other AASF's.<sup>20</sup>

#### **8.2.1 NOISE ABATEMENT<sup>21</sup>**

The AASF restricts overflights near a single nearby residences during the day and within one nautical mile (NM) at night. Pilots also avoid the County Hospital while on the south pattern at

---

<sup>20</sup> Email correspondence with CW4 Rosamond at AASF#2 on 2 June 2015.

<sup>21</sup> Email correspondence with CW4 Rosamond at AASF#2 on 2 June 2015.

the airport at all times. The AASF follows a 3,500 feet Mean Sea Level (MSL) (1500 feet Above Ground Level (AGL)) restriction between several training areas when headed into Sierra Nevada mountainous regions located 20 NM from the airport. There are no flight restrictions for night operations but pilots train accordingly in the Fly Neighborly Program to avoid noise-sensitive areas. On average, the AASF receives one noise complaint per year.

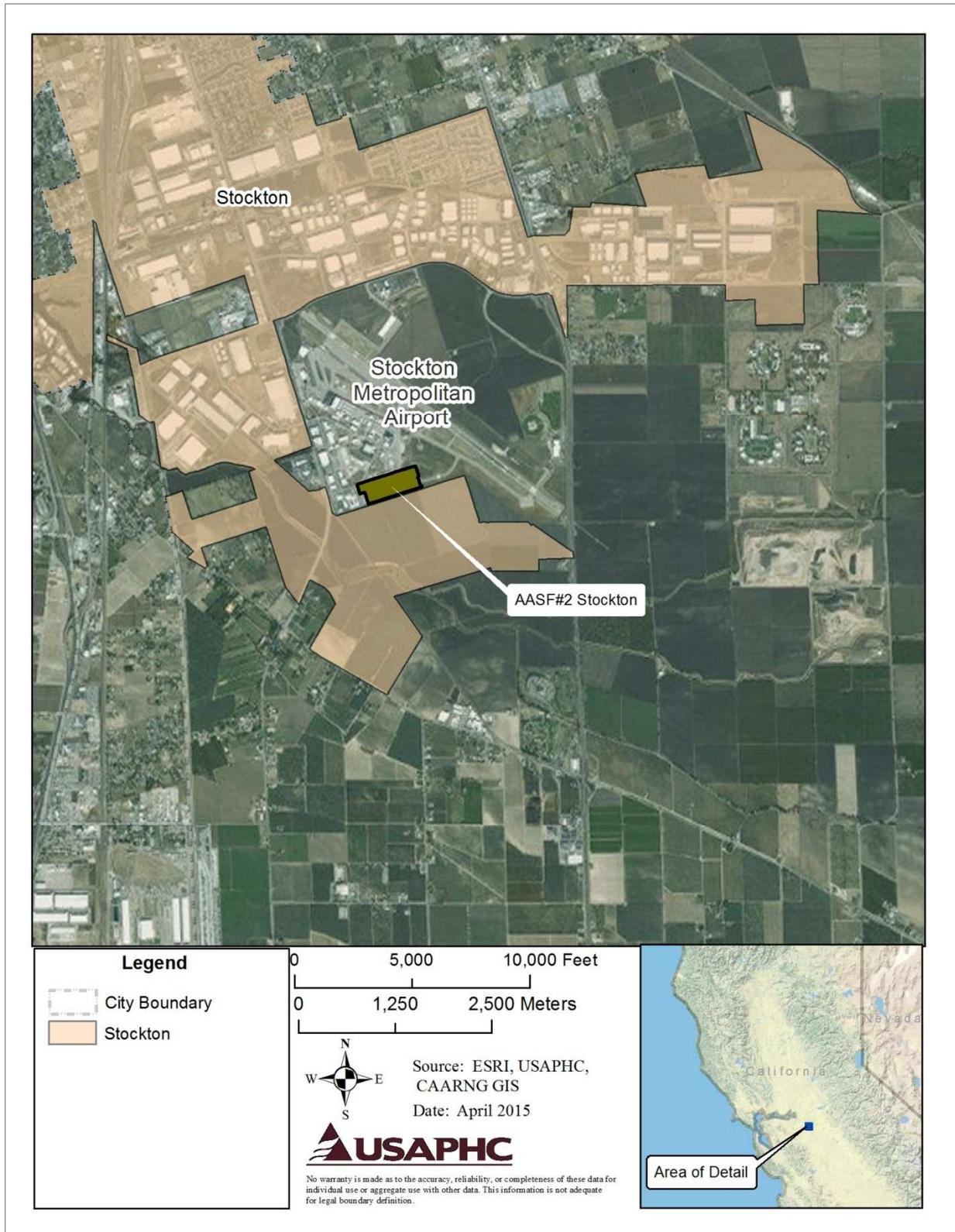


Figure 8-1. AASF #2 at Stockton Metropolitan Airport

### 8.3 AASF #3 SACRAMENTO

AASF #3 is co-located at the Sacramento Mather Airport, southeast of U.S. Highway 50 and about 12 miles east of downtown Sacramento. Interstate 5 provides north and south access and Interstate 80 provides east and west access. The facility (armory and hangars) reside on a 30-acre parcel located within the Mather Regional Park (business airport and light industrial development area). The armory and administrative building reside along MacReady Drive and Superfortress Avenue, just north of the AASF hangar and aircraft parking. Additional aircraft parking is located to the east of the armory. The taxiways and runways lie to the south of the facility.

The airport is a joint-use facility, with military operations located on the north side of the runways. The installation makes a positive contribution to the local economy in terms of salaried jobs and personnel purchases.

The mission of AASF #3 is to provide equipment, facilities and maintenance to support aviation units and personnel. Missions include: aircraft and administrative support, individual training programs, annual flight evaluations and aviation support to state agencies in the event of natural disaster, civil disturbance or other emergency operations. The units currently stationed at Sacramento AASF are C Company 1-168th GSAB and F Company 2 135th MEDEVAC companies. There are (11) UH-60 Blackhawks and (1) C-12 Huron based at the facility.<sup>22</sup>

The Sacramento Mather airport averages 226 flights per day, with the AASF contributing 2 to 3 flights per day. On an average week, 6 to 8 of the AASF flights occur at night Tuesday through Thursday. As needed, Monday night missions occur once each month. Drilling units conduct 6 to 8 training flights one weekend each month, with approximately 2 to 3 of the flights at night. Occasionally, CH-47 and UH-72 aircraft visit the facility an estimated two times per month. Additionally, the single C-12 fixed wing aircraft stationed at the AASF averages four missions per week.<sup>23</sup>

#### 8.3.1 NOISE ABATEMENT

The facility Standard Operating Procedure (SOP) contains procedures, including traffic pattern delineation, which mitigate noise. Although there are no nighttime flight restrictions, the facility still only averages one noise complaint per year. Additionally, the CAARNG has instituted a 1,000 meter no fly zone around the property to help mitigate future complaints.<sup>24</sup>

---

<sup>22</sup> <http://www.globalsecurity.org/military/facility/mather.htm>

<sup>23</sup> Email correspondence with CW4 Gatewood on 4 June 2015.

<sup>24</sup> Email correspondence with CW4 Gatewood on 4 June 2015.

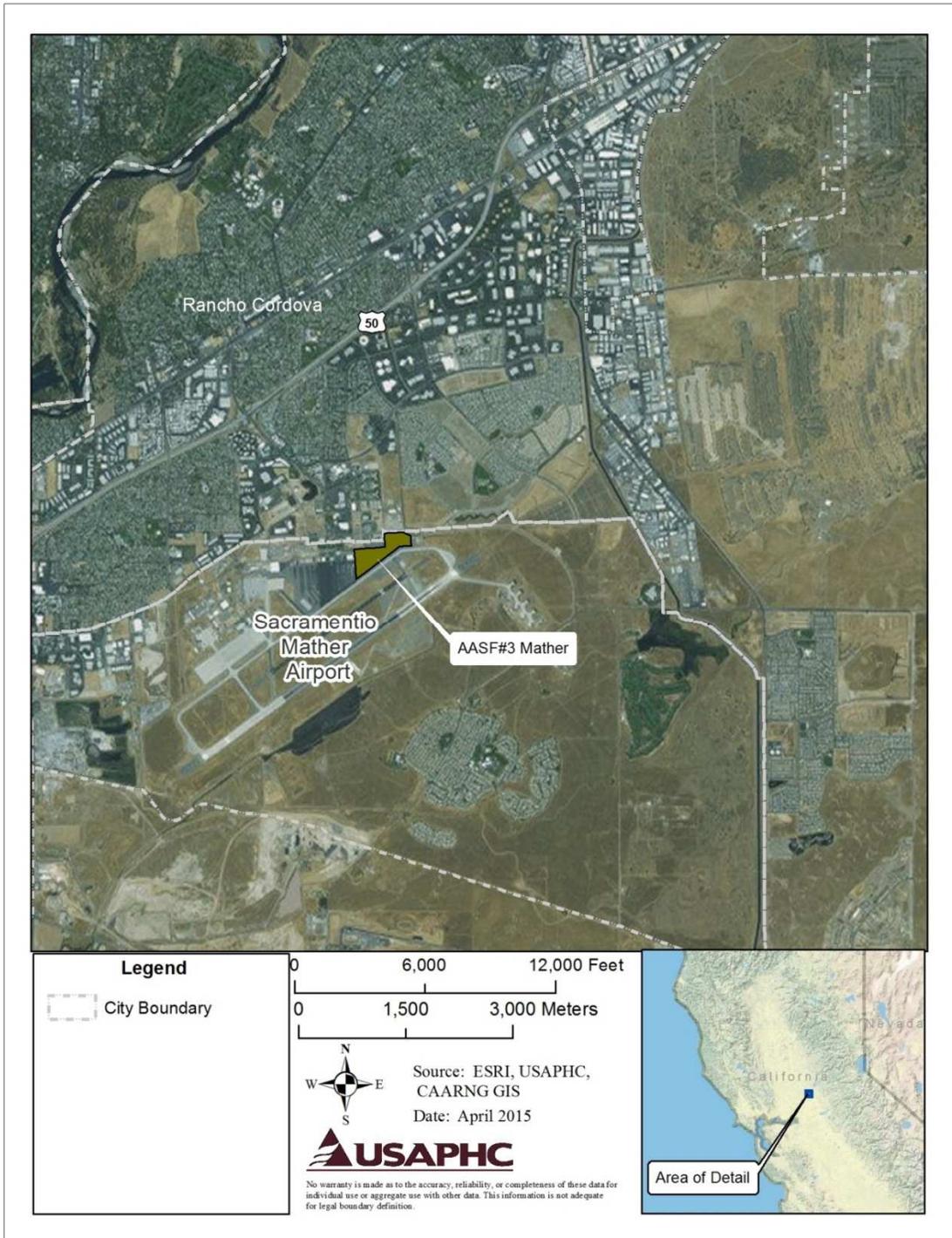


Figure 8-2. AASF #3 at Sacramento Mather Airport

## 8.4 FRESNO ARMY AVIATION FLIGHT ACTIVITY

The Fresno Army Aviation Flight Activity (FAAFA) is located at the Fresno Yosemite International Airport at the southwest corner of Peach and Dakota Avenues ( Figure 8-3). The facility supports three (3) UH-60 Blackhawks and two (2) CH-47 Chinook rotary-winged aircraft with an average of three (3) flights per day. Twenty-four hour scheduling is separated into two (2) day periods and one (1) night period that varies according to local sunset hours. The most common flight destinations include Mather, Stockton, Camp Roberts, Fort Hunter Liggett and Los Alamitos JFTB. Another common destination is an open ranchland north of Fresno for night vision goggle training.

In addition, the CAARNG operates an Aviation Classification Repair Depot (AVCRAD) on site. The 1106th AVCRAD provides services for UH-60, AH-64, and CH-47 helicopters in thirteen (13) western states, Alaska and Hawaii. Their mission is to provide quality service, support and products to customers in a timely manner while maintaining a level of expertise to sustain overall operational readiness. The depot supports about 400 rotary-wing aircraft and is vital to the operation of the Army National Guard.

The AVCRAD operates the Flexible Engine Diagnostic Test System (FEDS), for testing T-55 and T-700 helicopter engines. The FEDS is a state of the art turbo-shaft engine test stand using automated instrumentation and air dynamometer technology to test and verify flight readiness of helicopter engines. The FEDS is located on the southwest corner of the ramp behind the maintenance hangar. The T-700 dynamometer points to the east and the T-55 dynamometer points a few degrees south of east. FEDS testing only occurs during daytime hours. The FEDS stand is a year-round test stand and typically run five (5) times a week. Approximate run time is 4 to 6 hours for a normal test; however, a complete run for the T-55 engine is closer to 6 to 8 hours.

The USACHPPM measured noise levels from a FEDS testing of the T-700 and T-55 engines in June 1996 at Wheeler Army Airfield in Oahu, Hawaii. The A-weighted noise levels at distances between 50 and 500 feet for the 90 degree azimuth (0° is directly in front and 180° is directly behind the dynamometer) are listed in Table 8-1. Table 8-2 lists the levels at 50 feet for several azimuths to show how directivity can vary the sound level.

Table 8-1. A-Weighted Noise Levels for T-700 and T-55 Engines (90° Azimuth)

Distance in Feet	A-weighted Noise Level (dBA)	
	T-700 Engine	T-55 Engine
50	98.2	100.9
100	91.7	94.3
200	84.6	87.4
300	80.1	83.0
400	76.8	79.8
500	74.3	77.4

Table 8-2. A-Weighted Noise Levels at 50 Feet for Selected Azimuths

Azimuth, Degrees	A-weighted Noise Level (dBA)	
	T-700 Engine	T-55 Engine
0°	104.0	106.7
90°	98.2	100.9
180°	97.1	99.8

The current location of the Flexible Engine Diagnostic System (FEDS) testing is far enough to the interior of the airport to not impact on any noise-sensitive land use off the airport property. In addition, a maintenance hangar between the FEDS and residential areas due north provides a sound barrier. To date, officials indicate no complaints resulting from FEDS testing. The closest residential property, is approximately 400 meters (1,300 feet) due north. An estimate of the sound level would be 60 dBA or lower at the closest residential property. This value included spreading losses and barrier effects.

#### **8.4.1 NOISE ABATEMENT**

The FAAFA have an established noise abatement policy in addition to FAA airspace procedures. The aircraft operate no lower than 500 ft. AGL unless during takeoff or landing, and no lower than 700 ft. AGL around airports. The AVCRAD only operates during the daytime business hours. To date, there have been no complaints received at either facility.

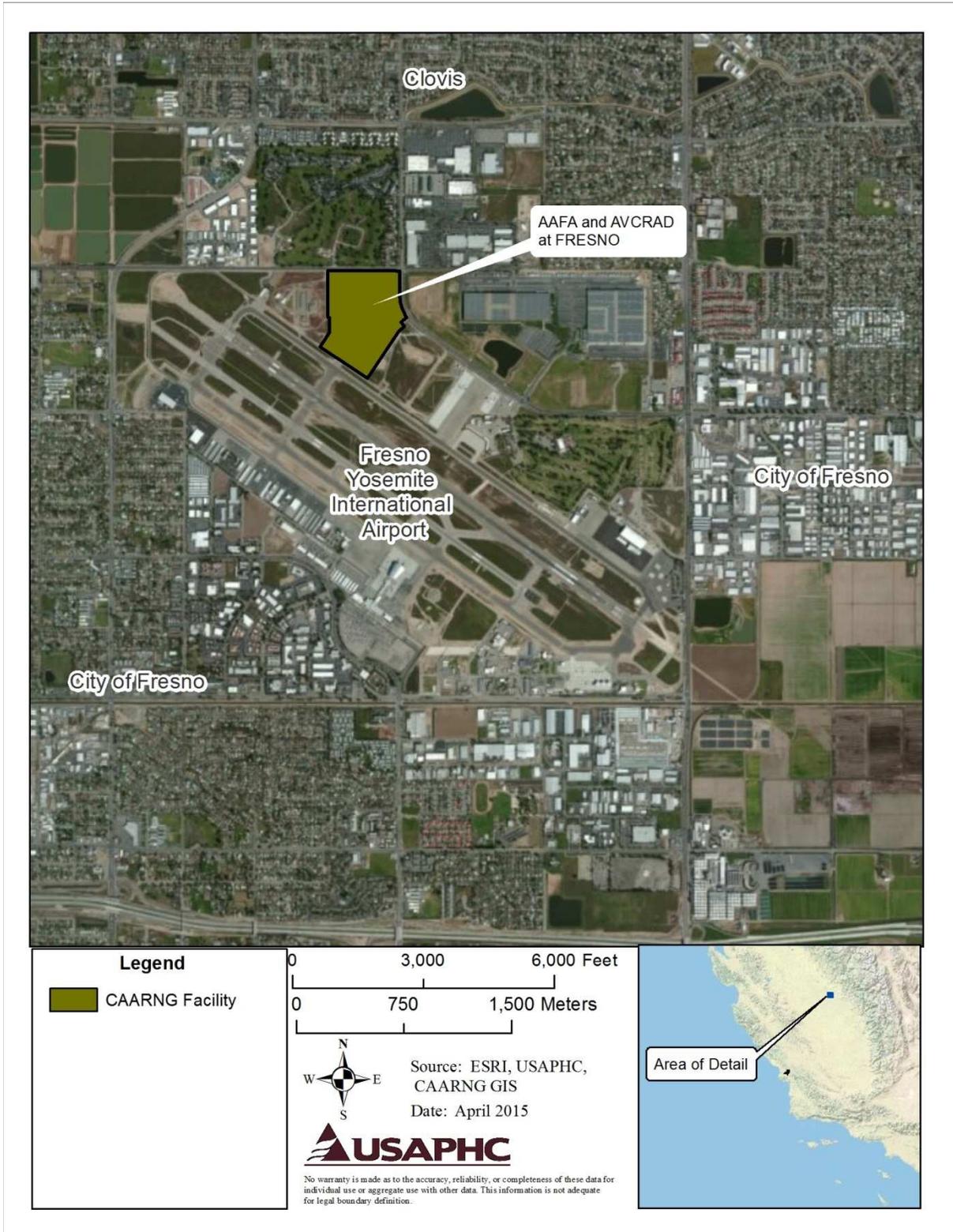


Figure 8-3. AAFA and AVCRAD at Fresno

## 9 NOISE RELATED LAND USE POLICY AND CONTROL

### 9.1 INTRODUCTION

Implementation of the ICUZ is intended be a joint effort between CAARNG and the adjacent communities. The role of CAARNG is to minimize noise impacts on the surrounding local communities by controlling operational activities on the installation. The role of the communities is to ensure that development in the surrounding area is compatible with accepted planning, zoning, and development principles and practices to protect the installation's mission. Sensible, proactive land use planning outside the installation's boundary can create a win-win situation for the military and its neighboring civilian communities.

### 9.2 ACHIEVING LAND USE COMPATIBILITY

Achieving land use compatibility requires flexibility and creativity from land use planners, installation commanders, and the citizenry. The previous sections of this document detailed the operational noise impacts. The following sections detail land use planning tools available to the installation and local communities.

### 9.3 LAND USE PLANNING OPTIONS

The following land use planning tools are available to help local governments create areas of compatible use around military installations. Many on the list are already in use; however, the installation and local governments are strongly encouraged to revisit and/or update the options to find the equitable solutions that best work for their situation. Planning tools may be used individually or in combination.

Zoning. The most common method of land use control is *zoning*, or the partitioning of areas into sections reserved for different purposes. This method is an exercise of the police powers of state and local governments that designates the uses permitted in each parcel of land. It normally consists of a zoning ordinance that delineates the various use districts and a zoning map based on the land use element of the community's comprehensive general plan.

Easements. Easements can be an effective and permanent form of land use control; in many instances, better than zoning when trying to resolve an installations compatibility issues. Easements are permanent (with the title held by the purchaser until sold or released), work equally well within different jurisdictions, are enforceable through civil courts, and may be acquired often at a fraction of the cost of the land value. Another consideration may be that the land is left free for full development with noise-compatible uses.

Subdivision Regulations. Subdivision regulations are a means by which local governments can ensure that proper lot layout, design, and improvements are included in new residential or commercial developments. These requirements may be anything from dictating the width of the roads to placement of the water and/or sewer systems. Since most local governments require some type of public dedication of open space when approving development plans, the installation

may lobby to have a provision added to the subdivision regulations that requires this open space to be located nearest the installation boundary to create a buffer.

Disclosure of Noise Levels. Since noise levels in a community can be effectively modeled, as well as measured and recorded, making noise level information readily available can sometimes be all it takes to discourage incompatible land uses. These noise levels can be disclosed in several ways, including ordinances (or amendments to existing ordinances), deeds, posting noise levels on any sale/lease/rent sign, and initiating voluntary programs among local realtors to provide potential buyers with installation-provided information and noise level/contour mapping.

Deed Restrictions/Covenants. A deed is a document conveying ownership of land from one party to another, and restrictions called *covenants* can be added to the deed to specify restrictions on the use of the land. These covenants are on top of the restrictions already imposed by the current zoning of the property and in many instances may supersede zoning by prohibiting specified uses that would otherwise be allowed. Restrictive covenants “run with the land;” that is, no matter how often the land is resold, these covenants remain in effect until the specified length of the covenant has expired (usually 20-30 years).

In order to utilize this option, the installation must already own or must acquire the property. Then, when reselling the property, the installation specifies which uses are permitted on the land thereby preventing incompatible uses (such as residential housing) for as long as the restrictions remain in effect.

#### **9.4 THE ARMY COMPATIBLE USE BUFFER (ACUB) PROGRAM**

Along with the aforementioned Noise Zones, the Army has a specific program designed to limit the effects of encroachment. The ACUB program was borne out of a 2002 expansion of the Private Lands Initiative (10 USC §2684a) allowing military departments to partner with private organizations to establish buffer areas around active installations. These partnerships benefit the citizens of the United States in a number of ways:

- Military readiness is maintained when training days are not lost to encroachment issues.
- Open spaces are protected from development and many times may be used by the public for recreational purposes.
- The military need not buy and maintain more land in order to meet its training needs.
- Critical habitat for threatened and endangered species can be preserved or created.

The ACUB benefits of conservation easements are as follows:

- To installation:
  - Manages development adjacent to and near installation
  - Protects effective training space to the installation boundaries

- Averts training restrictions
- Mitigates against noise and smoke complaints
- To Community Partners:
  - Protects installations mission and strength
  - Does not remove lands from tax base
  - Maintains agricultural lands and wild lands in California
- To Landowners:
  - Maintains current, compatible land uses
  - Provides cash in hand
  - Retain rights to ownership and management of land

## 9.5 JOINT LAND USE STUDY (JLUS)

The JLUS is a collaborative land use planning effort involving the military installation and adjacent local governments that evaluates the planning rationale necessary to support and encourage compatible development of land surrounding the installation. Stated another way, it is a means for the installation and local governments to develop a land use plan that effectively addresses the long-term land use needs of the of the surrounding communities, yet still provides the military with the mission flexibility it needs to meet training doctrine.

A JLUS for Camp Roberts completed in June 2013 and was prepared under contract with San Luis Obispo County and financial support from the Office of Economic Adjustment, Department of Defense. The Executive Summary and full study is located here:

<http://www.camprobertsjlus.com/>

The JLUS program is sponsored by the Department of Defense Office of Economic Adjustment (OEA) (DODI, 2004), and it provides technical and financial assistance to the planning agencies for developing master plans that are consistent, when economically feasible, with the noise, accident potential, and safety concerns from an installation's training and operations. The cost of the plan is split between the OEA and the jurisdictions involved.

The scope of the program divides into three major tasks:

1. Impact Analysis. Impact analysis provides an in-depth review of existing and proposed land use patterns; drainage (as it effects land use designations); mission encroachment (particularly noise); transportation improvements, existing and proposed routes; and noise/vibration.
2. Land Use and Mission Compatibility Plan. Examines the above findings to identify conflicts in land use and provide alternative land use solutions; to project

the impact on growth potential for adjacent areas; and to project the impact of military missions on the surrounding jurisdictions.

3. **Implementation.** Lists a series of actions and proposals for adoption by local jurisdictions to resolve land use conflicts and move toward a compatible land use plan for the installation, the adjacent counties, and the communities therein.

While the study report makes certain recommendations, each participating jurisdiction must decide which recommendations are best suited to their particular needs. Implementation follows the final recommendations at the discretion of elected officials in each jurisdiction and the installation military command.

## 9.6 STATEWIDE / LOCAL MILITARY POLICY

The following is from the State of California, Governor’s Office of Planning and Research (OPR) for Military Affairs<sup>25</sup>:

*As the state's comprehensive planning agency, OPR has statutory responsibilities to review general plans, prepare general plan guidelines, consider general plan extension requests, and provide other general technical assistance to planning agencies. OPR often acts as a liaison between state and local governments and between state agencies to encourage collaboration in the achievement of land use goals and objectives. OPR annually surveys local planning agencies and responds to thousands of requests for planning assistance from state and local government agencies. OPR, in its role as the state planning agency, provides technical assistance in the areas of land use planning and environmental review.”*

*The US military plays an important role in California. It is steward to approximately ten percent of California’s land, its operations and personnel contribute billions of dollars to our state economy and its military bases provide critical training for our national defense.*

*Executive Order S-16-06 established the Governor’s Advisor for Military Affairs within OPR. Under this executive order, OPR coordinates state policies that affect the military, including land use planning, regulatory activities by state agencies, and state legislation. OPR is working to improve communication and encourage collaboration between local governments and the United States Military on land use planning and development issues in California. The Governor’s Advisor for Military Affairs works closely with all branches of the military on areas of mutual concern and priority. Areas of focus include:*

*Land Use: OPR works with active military installations in California and local communities to reduce potential land use conflicts. This function enables appropriate growth and local economic vitality, ongoing military training and military readiness and public health and safety.*

*Regulatory Activities: OPR and the military work cooperatively to ensure that active military installations are able to comply with state regulations.*

<sup>25</sup> [http://www.opr.ca.gov/s\\_military.php](http://www.opr.ca.gov/s_military.php)

*CALIFORNIA STRATEGIC COORDINATION AND ENGAGEMENT PROGRAM*

*OPR has established a Strategic Coordination and Engagement Program to work with local governments and the Military to support local land use decisions and decision making processes which balance the land use needs of local government and the military mission in California. This program will develop partnerships and provide tools, staff support, mapping capability, and information to local governments to assist in development, adoption, and implementation of local polices and ordinances.*

*The primary focus of this program will be areas without bases or installations, but where testing and training occur on a regular basis. The program will provide direct outreach and support to cities and counties to comply with existing statutory mandates to notify the military of potential land use conflicts, and help to develop policies at the local level to ensure the viability and sustainability of active military operations and avoid project-specific conflicts. The program will create collaborative coalitions between the Military, the State, and local governments to meet these objectives.*

*In addition to early coordination, and notification of proposed new development, OPR will work with the Military and local land use agencies and elected officials to incorporate provisions into city and county General Plans and implementing ordinances to establish project review and permitting procedures that foster land uses that are compatible with military operations. The program will also seek to balance and integrate California's goals for renewable energy development and natural resources protection with the mission of the military in California and each local government's specific land use priorities.*<sup>26</sup>

---

<sup>26</sup> [http://www.opr.ca.gov/s\\_military.php](http://www.opr.ca.gov/s_military.php)

## 10 SUMMARY

### 10.1 CAMP ROBERTS

#### Land Use Compatibility

##### *Small Arms*

The majority of the small arms Noise Zones remain on post. There are several nearby residences due west within Zone II, but the majority of the land is rural and agricultural.

##### *Large Arms and Demo*

Noise Zone III extends beyond the boundary in three small areas due west, with the furthest distance being 1,350 meters. Within Zone III, land is agricultural and there are currently no residences.

Noise Zone II extends up to 4,000 meters due west beyond the boundary. The majority of the land is rural and agricultural, but there are several residences on 40 to 160 acre minimum plots (farms).

The LUPZ extends a maximum of 6,400 meters beyond the western boundary and 900 meters due east in a single small area. The LUPZ encompasses residential areas of Bradley and Lake Nacimiento/Heritage Ranch to the north and southwest.

#### Complaint Risk

Under unfavorable weather conditions, Moderate Complaint Risk (115-130 dBP) area extends beyond the boundary to the north and west and encompasses the residential areas of Bradley and Lake Nacimiento/Heritage Ranch. Although the High Complaint Risk (>130 dBP) area extends beyond the boundary, there are no noise-sensitive land uses within this area. Based on the current land uses and complaint risk guidelines, the risk of complaints from large caliber activity during unfavorable weather conditions is moderate.

Under neutral condition, the Moderate and High Complaint Risk Areas still extend beyond the installation boundary, but contain very few residences. Based on guidelines, the risk of complaints from large caliber activity during neutral weather conditions is minimal.

## 10.2 CAMP SAN LUIS OBISPO

### Land Use Compatibility

#### *Small Arms*

Noise Zone III extends a maximum of 300 meters, and Noise Zone II a maximum of 1,350 beyond the western boundary. The areas off post contain recreational (El Chorro Park), rural and agricultural lands. There are no noise-sensitive lands uses within the Noise Zones. On post, there is no full time housing located at the camp.

### Complaint Risk

#### *Demolition*

There are no large caliber weapons ranges at CSLO, only a single demolition site on Range F. From March 2014 to March 2015, demolition activity was limited to three 1 lb. TNT detonations and therefore modeling would not produce Noise Zones.

Under unfavorable and neutral weather, the Moderate Complaint Risk (115-130 dBP) area extends beyond the western. The High Complaint Risk (>130 dBP) extends beyond the boundary only during unfavorable conditions. However, since there are no noise-sensitive receptors within the complaint risk areas, the complaint risk from demolition activity is minimal.

#### *Simulators*

CSLO detonated 316 simulator rounds over a one-year period in TAs N, H, K, K-1 areas. The areas encompassed off post in the moderate complaint risk areas would include recreational areas (El Chorro Park) to the west and San Luis Obispo office buildings just north of TA K and K-1. The office buildings on Kansas Avenue include San Luis Obispo County Jail, Sheriff Office, Animal Services, and the Coroner.

## 10.3 LOS ALAMITOS JOINT FORCES TRAINING BASE (LOS ALAMITOS ARMY AIRFIELD)

At Los Alamitos, the Noise Zones are contained within the airfield property. Interpretation of the Noise Zones is that annual average noise levels from current operations are compatible with surrounding land use. However, there are over 46,000 annual operations at LAAF and the surrounding area is densely populated. There is always a potential that individual overflights could annoy people near the flight tracks at Los Alamitos JFTB. Current measures are in place to mitigate the effects of aircraft noise including minimum flight altitudes and designated no-fly areas.

## **10.4 AVIATION ACTIVITY AT ARMY AVIATION TRAINING FACILITIES AND ARMY AVIATION FLIGHT ACTIVITY**

Although the number of operations at the AASFs and AAFA is not high enough to generate Noise Zones, there is always a potential that individual overflights could annoy people near the flight tracks. However, measures are in place to mitigate the effects of aircraft noise at including minimum flight altitudes and designated no-fly areas. These measures in conjunction with the limited number of operations result in the complaint risk being low.

### *AVCRAD at Fresno*

The current location of the Flexible Engine Diagnostic System (FEDS) testing is far enough to the interior of the airport to not impact on any noise-sensitive land use off the airport property. In addition, a maintenance hangar between the FEDS and residential areas due north provides a sound barrier. To date, officials indicate no complaints resulting from FEDS testing. The closest residential property, is approximately 400 meters (1,300 feet) due north. An estimate of the sound level would be 60 dBA or lower at the closest residential property. This value included spreading losses and barrier effects.

## **10.5 RECOMMENDATIONS**

The ICUZ is a proactive planning tool which can help guide future development in surrounding communities. At a minimum, local municipal governments are encouraged to support public disclosure of all Noise Zones and supplemental metrics that may convey how military training operations affect the noise environment.

The ICUZ and Noise Zones describe the noise characteristics of a specific operational environment, and as such, will change if significant operational changes occur. Therefore, if CAARNG's mission, training, or training facilities undergo changes, an ICUZ update may be necessary. At a minimum, every five years the ICUZ and/or Noise Zones should be reviewed and updated as needed to incorporate changes. This may include changes in the installation noise environment, existing or planned land use and/or economics of the area.

## A GLOSSARY OF TERMS

**A-Weighted Sound Level** – a sound level (in decibels) that has been weighted to correspond with the non-linear sensitivity of the human ear. A-weighting discriminates against the lower frequencies and is used to measure most common military sounds such as transportation and small-arms fire.

**Ambient Sound** – the background sound level that is usually present at a particular location; anything from cars on a highway, to insects in the woods.

**Atmospheric Refraction** – the bending and/or focusing of sound waves by the varying layers and densities of the earth’s atmosphere.

**C-Weighted Sound Level** – like A-weighting, this is another sound level weighting technique that is used to normalize the low, impulsive sounds to the range of human hearing. It is used when measuring low frequency sound such as those from large arms, demolitions, and sonic booms.

**Community** – those individuals, organizations, or special interest groups affected by or interested in decisions affecting towns, cities, or unincorporated areas near or adjoining a military installation, and officials of local, state, and Federal governments, and Native American tribal councils responsible for the decision making and administration of programs affecting those communities.

**Community Noise Equivalent Level (CNEL)** - California and the U.S. Army do not label noise contour maps in the same way. In California, noise maps show the location of contours of CNEL, usually starting with a CNEL 60 and multiples of 5 dB inside of the CNEL 60. The CNEL metric is an average sound level over a 24-hour period with a 5 dB penalty applied to evening events (7 p.m.-10 p.m.) and a 10 dB applied to night events (10 p.m. - 7 a.m.). The Army labels noise contour maps by Zones I, II or III, based on Day Night Levels (DNL). In practice, there is little difference between DNL and CNEL. On-site measurement studies conducted by the Operational Noise team at the Army Center for Health Promotion and Preventive Medicine (USACHPPM) generally show the CNEL to be no more than 1 dB above the DNL.

**Day-Night Average Sound Level (DNL)** – the 24-hour average frequency-weighted sound level, in decibels, from midnight to midnight, obtained after the addition of 10 decibel “penalties” to sound levels between midnight and 7 a.m. and 10 p.m. to midnight (0000 to 0700 hours and 2200 to 2400 hours). A-weighting (ADNL) is understood unless otherwise specified, but C-weighting (CDNL) is also common.

**Decibels (dB)** – a logarithmic sound pressure unit of measure.

**Encroachment** – use or development of the land around a military installation that is incompatible with the operations of that installation.

**Equivalent Sound Level (LEQ)** – the level of a constant sound which, in a given situation and time period, has the same energy as does a time varying sound. For noise sources which are not in continuous operation, the equivalent sound level may be obtained by summing individual sound exposure level (SEL) values and normalizing them over the appropriate time period.

**Frequency** – the number of complete oscillation cycles per unit of time. The unit of frequency is the Hertz.

**Frequency Weighting** – the process of factoring in certain frequencies more or less heavily in order to bring the sound measurement more in line with the characteristics of the receiver (and thus make the numbers more meaningful to the task at hand). Example: A- or C-weighting to specifically parallel the sensitivity of the human ear.

**Hertz** – the unit of frequency equal to once cycle per second.

**Impulse (or Impulsive) Noise** – noise of short duration (typically less than one second), high intensity, abrupt onset and rapid decay, and often rapidly changing spectral composition. Impulsive noise is characteristically associated with such sources as explosions, impacts, the discharge of firearms, the passage of supersonic aircraft (creating sonic booms), and many industrial processes.

**Large Arms** – conventional military weapons over 20 millimeters in diameter.

**Land Use Planning Zone (LUPZ)** – The Land Use Planning Zone (LUPZ) is a subdivision of Zone I. The LUPZ is 5 dB lower than the Zone II.

**Noise** – a sound without value or unwanted sound.

**Noise Level Reduction** – the difference, in decibels, between the sound level outside a building and the sound level inside a designated room in the building (usually A-weighted). The NLR is dependent upon the transmission loss characteristics of the building surfaces exposed to an exterior noise source, the particular noise characteristics of the exterior noise source, and the acoustic properties of the designated room in the building.

**Noise Zone III** – the area around a noise source in which the C-weighted day-night sound level (CDNL) is greater than 70 dB (demolition and large caliber weapons), the A-weighted day-night level (ADNL) is greater than 75 dB (aviation), or the dB Peak is greater than 104 (small caliber weapons).

**Noise Zone II** – the area around a noise source in which the CDNL is 62-70 dB (demolition and large caliber weapons), the ADNL is 65-75 dB (aviation), or the dB Peak is 87-104 (small caliber weapons).

**Noise Zone I** – included all areas around a noise source in which the CDNL is less than 62 dB (demolition and large caliber weapons), the ADNL is less than 65 dB (aviation), or the dB Peak is less than 87 (small caliber weapons). This area is usually suited for all types of land use activities.

**Peak (dBP).** Peak is a measure of the highest instantaneous sound pressure without frequency weighting or exponential time weighting over a given time period.

**PK15(met).** PK15(met) is the peak sound level, factoring in the statistical variations caused by weather, exceeded only 15 percent of the time (i.e., 85 percent certainty that sound will be within this range). This “85 percent solution” gives the installation and the community a means to consider the areas possibly impacted by training noise at times under unfavorable weather conditions that enhance sound propagation.

**PK50(met).** PK50(met) is the peak level that would be expected 50 percent of the time during “average” or “neutral” weather conditions.

**Propagation** – the process by which sound travels through space or material; may be affected by such things as weather, terrain, and barriers.

**Slant Distance** – the straight-line distance between two points not at the same elevation as contrasted with ground distance. Also known as slant range.

**Small Arms** – conventional military weapons .50 caliber and below in diameter.

**Sound Exposure Level (SEL)** – the total energy of a sound event normalized to a specific amount of time (e.g., one second) so that sounds of different durations may be compared directly.

**Sound Level Meter** – an instrument consisting of an amplifier, microphone, and a graduated readout that provides a direct reading of the sound pressure level at a particular location. Sound may be measured in a variety of metrics (e.g., ADNL, CDNL, Peak, etc.) and they must satisfy the requirements of the American National Standards Institute Standard for Sound Level Meters (S1.4-1983).

**Unweighted Peak Sound Level** – the peak, single event sound level without weighting, without taking into account berms or other attenuation, and without any particular certainty.

**B FICUN GUIDELINES**

**B.1 LAND USE COMPATIBILITY FOR SMALL ARMS**

LAND USE		SUGGESTED LAND USE COMPATIBILITY	
SLUCM NO.	LAND USE NAME	Noise Zone II 87-104 dBP	Noise Zone III >104 dBP
10	Residential		
11	Household units	N <sup>1</sup>	N
11.11	Single units: detached	N <sup>1</sup>	N
11.12	Single units: semidetached	N <sup>1</sup>	N
11.13	Single units: attached row	N <sup>1</sup>	N
11.21	Two units: side-by-side	N <sup>1</sup>	N
11.22	Two units: one above the other	N <sup>1</sup>	N
11.31	Apartments: walk-up	N <sup>1</sup>	N
11.32	Apartment: elevator	N <sup>1</sup>	N
12	Group quarters	N <sup>1</sup>	N
13	Residential hotels	N <sup>1</sup>	N
14	Mobile home parks or courts	N <sup>1</sup>	N
15	Transient lodgings	25	N
16	Other residential	N <sup>1</sup>	N
20	Manufacturing		
21	Food and kindred products; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
22	Textile mill products; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
23	Apparel and other finished products; products made from fabrics, leather, and similar materials; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
24	Lumber and wood products (except furniture); manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
25	Furniture and fixtures; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
26	Paper and allied products; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
27	Printing, publishing, and allied industries	Y <sup>2</sup>	Y <sup>3</sup>
28	Chemicals and allied products; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
29	Petroleum refining and related industries	Y <sup>2</sup>	Y <sup>3</sup>
30	Manufacturing (continued)		
31	Rubber and misc. plastic products; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
32	Stone, clay and glass products; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>

LAND USE		SUGGESTED LAND USE COMPATIBILITY	
SLUCM NO.	LAND USE NAME	Noise Zone II 87-104 dBP	Noise Zone III >104 dBP
33	Primary metal products; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
34	Fabricated metal products; manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
35	Professional scientific, and controlling instruments; photographic and optical goods; watches and clocks	25	35
39	Miscellaneous manufacturing	Y <sup>2</sup>	Y <sup>3</sup>
40	Transportation, communication and utilities		
41	Railroad, rapid rail transit, and street railway transportation	Y <sup>2</sup>	Y <sup>3</sup>
42	Motor vehicle transportation	Y <sup>2</sup>	Y <sup>3</sup>
43	Aircraft transportation	Y <sup>2</sup>	Y <sup>3</sup>
44	Marine craft transportation	Y <sup>2</sup>	Y <sup>3</sup>
45	Highway and street right-of-way	Y <sup>2</sup>	Y <sup>3</sup>
46	Automobile parking	Y <sup>2</sup>	Y <sup>3</sup>
47	Communication	25	35
48	Utilities	Y <sup>2</sup>	Y
49	Other transportation, communication and utilities	25	35
50	Trade		
51	Wholesale trade	Y <sup>2</sup>	Y <sup>3</sup>
52	Retail trade – building materials, hardware and farm equipment	25	35
53	Retail trade – including shopping centers, discount clubs, home improvement stores, electronics superstores, etc.	25	35
54	Retail trade – food	25	35
55	Retail trade – automotive, marine craft, aircraft and accessories	25	35
56	Retail trade – apparel and accessories	25	35
57	Retail trade – furniture, home, furnishings and equipment	25	35
58	Retail trade – eating and drinking establishments	25	35
59	Other retail trade	25	35
60	Services		
61	Finance, insurance and real estate services	25	35
62	Personal services	25	35
62.4	Cemeteries	Y <sup>2</sup>	Y <sup>3</sup>
63	Business services	25	35
63.7	Warehousing and storage	Y <sup>2</sup>	Y <sup>3</sup>
64	Repair services	Y <sup>2</sup>	Y <sup>3</sup>
65	Professional services	25	N
65.1	Hospitals, other medical facilities	N	N
65.16	Nursing homes	N	N

LAND USE		SUGGESTED LAND USE COMPATIBILITY	
SLUCM NO.	LAND USE NAME	Noise Zone II 87-104 dBP	Noise Zone III >104 dBP
66	Contract construction services	25	35
67	Government services	25	35
68	Educational services	35	N
68.1	Child care services, child development centers, and nurseries	35	N
69	Miscellaneous Services	35	N
69.1	Religious activities ( including places of worship)	35	N
70	Cultural, entertainment and recreational		
71	Cultural activities	35	N
71.2	Nature exhibits	N	N
72	Public assembly	N	N
72.1	Auditoriums, concert halls	35	N
72.11	Outdoor music shells, amphitheaters	N	N
72.2	Outdoor sports arenas, spectator sports	N	N
73	Amusements	Y	N
74	Recreational activities (including golf courses, riding stables, water recreation)	N	N
75	Resorts and group camps	N	N
76	Parks	N	N
79	Other cultural, entertainment and recreation	N	N
80	Resource production and extraction		
81	Agriculture (except live- stock)	Y <sup>4</sup>	Y <sup>5</sup>
81.5	Livestock farming	Y <sup>4</sup>	N
81.7	Animal breeding	Y <sup>4</sup>	N
82	Agriculture related activities	Y <sup>4</sup>	Y <sup>5</sup>
83	Forestry activities	Y <sup>4</sup>	Y <sup>5</sup>
84	Fishing activities	Y	Y
85	Mining activities	Y	Y
89	Other resource production or extraction	Y	Y

NOTES FOR TABLE A3.2.

SLUCM – Standard Land Use Coding Manual, U.S. Department of Transportation

dBP- unweighted Peak decibel level

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<sup>x</sup> – Yes with restrictions. The land use and related structures generally are compatible. However, see note(s) indicated by the superscript.

N<sup>x</sup> – No, with exceptions. The land use and related structures are generally incompatible. However, see note(s)

indicated by the superscript.

25, 30, or 35 – The numbers refer to noise level reduction (NLR) levels. NLR (outdoor to indoor) is achieved through the incorporation of noise attenuation into the design and construction of a structure. Land use and related

Note 1:

a. Although local requirements for on- or off-base housing may require noise-sensitive land uses within Noise Zone II, such land use is generally not recommended. 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. Existing residential development is considered as pre-existing, non-conforming land uses.

b. Where the community determines that these uses must be allowed, measures to achieve outdoor to indoor NLR of at least 30 decibels (dB) in Noise Zone II should be incorporated into building codes and be considered in individual approvals.

c. Normal permanent construction can be expected to provide an NLR of 20 dB, thus the reduction requirements are often stated as 10 dB over standard construction and normally assume mechanical ventilation, upgraded sound transmission class ratings in windows and doors, and closed windows year round.

d. NLR criteria will not eliminate outdoor noise problems. However, building location, site planning, design, and use of berms and barriers can help mitigate outdoor noise exposure 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. Residential buildings require an NLR of 30.

5. Residential buildings are not permitted.

**C DATA USED TO GENERATE NOISE ZONES**

**C.1 SMALL CALIBER RANGES AMMUNITION UTILIZATION AT CAMP ROBERTS**

Facility/Airspace Subdivision	Pistol, 9 MM	Pistol, 9 MM Pain	Pistol, 45 Calibe	Rifle, 5.56 MM Liv	Rifle, 5.56 MM Blan	Rifle, 5.56 MM Pain	Rifle, .30 Caliber Liv	Rifle, 7.62 MM Liv	Machine Gun, 5.56 MM Live (	Machine Gun, 5.56 MM Blank	Machine Gun, 7.62 MM Liv	Machine Gun, 7.62 MM Blan	Machine Gun, .50 Caliber Liv	Machine Gun, .50 Caliber Blan	Shotgun, 12 Gaug
RGL10_CR	x														
RGL11_CR				x	x									x	
RGL4_CR	x		x	x			x								
RGL4A_CR	x			x											
RGL5_CR				x											
RGL6_CR	x			x						x					x
RGL7_CR	x			x											x
RGL8_CR	x			x				x							
RGL9_CR	x			x						x					
RGL9A_CR	x			x			x								
RG M22_CR	x			x		x	x	x	x	x	x	x			
RG M37_CR		x													
RG N15_CR				x				x	x	x	x	x			x
RG N18_CR	x			x		x	x	x	x	x	x	x			
RGL14_CR				x	x			x	x						
RGL16_CR				x	x	x	x	x	x	x	x	x			
ROZ M HI_CR										x		x			
ROZ M LO_CR										x		x			

TA Y-2_CR				x								x			
TA Y-6_CR				x								x			
TEMP MORTAR FP 1			x	x							x				

**C.2 DEMOLITION AND LARGE CALIBER AMMUNITION EXPENDITURE AT CAMP ROBERTS**

Facility/Airspace	Nomenclature	Quantity Fired	
		Day	Night
RG L3_CR	Grenade, M67	717	0
FP 9_CR	Artillery, 155 MM Inert	44	11
	Artillery, 155 MM HE	184	46
RG L11_CR	Demolition, C-4 1 1/4 lb	1	0
RG L13_CR	Grenade, 40 MM HE	381	0
RG N15_CR	Demolition, Shaped M221	3	0
	Demolition, MK23 HE Cutter	13	0
	Demolition, 40 lb Cratering Charge	1	0
	Demolition, C-4 1 1/4 lb	131	0
	Grenade, 40 MM HE	1894	0
	Gun, 20 MM HE	160	40
	Rocket, 2.75 Inch HE	18	4
	Tank Gun, 120 MM Inert	76	19
FP 16_CR	Artillery, 155 MM HE	95	24
	Artillery, 155 MM Inert	20	5
RGL16_CR	Gun, 20 MM Inert	212	53
	Demolition, C-4 1 1/4 lb	65	0
	Grenade, M67	25	0
	Mortar, 60 MM Inert	4	1
	Mortar, 81 MM Inert	12	3
	Mortar, 120 MM Inert	3	1
	Rocket, AT4 Inert	4	1
	Rocket, AT4 HE	2	0
RG N18_CR	Artillery, 155 MM HE	2	0
	Demolition Kit, APOBS MK7	8	0
	Demolition, C-4 1 1/4 lb	18	0
	Grenade, 40 MM HE	16965	0
	Gun, 20 MM Inert	2202	550
	Mortar, 81 MM Inert	99	25
	Mortar, 81 MM HE	43	11
	Mortar, 120 MM Inert	333	83
	Mortar, 120 MM HE	61	15
	Rocket, 2.75 Inch HE	7	2
	Rocket, Law M72 HE	23	6
	Rocket, AT4 Inert	36	9
	Rocket, AT4 HE	357	89
RG N19_CR	Mortar, 60 MM Inert	172	43
	Mortar, 81 MM Inert	138	34
	Mortar, 81 MM HE	335	84
	Mortar, 120 MM Inert	99	25
	Mortar, 120 MM HE	186	46

Facility/Airspace	Nomenclature	Quantity Fired	
		Day	Night
RG N20_CR	Mortar, 60 MM Inert	19	5
	Mortar, 60 MM HE	41	10
	Mortar, 81 MM Inert	109	27
	Mortar, 81 MM HE	198	50
RG M37_CR	Mine, M18A1	112	0
RG M39_CR	Demolition, Shaped M221	6	0
	Demolition, MK23 HE Cutter	11	0
	Demolition, Military Dynamite M1	800	0
	Demolition, 40 lb Shaped Charge	3	0
	Demolition, 15 lb Shaped Charge	10	0
	Demolition, 40 lb Cratering Charge	3	0
	Demolition, 1lb TNT Block	38	0
	Demolition, C-4 1 1/4 lb	503	0
ROZ M HI_CR	Gun, 20 MM Inert	960	240
	Rocket, 2.75 Inch HE	38	10
ROZ M LO_CR	Gun, 20 MM Inert	1280	320
	Gun, 30 MM Inert	6336	1584
	Gun, 30 MM HE	25779	6445
	Rocket, 2.75 Inch HE	628	157
TA Y-4_CR	Artillery, 105 MM Inert	83	21
	Artillery, 105 MM HE	561	140
	Artillery, 155 MM Inert	15	4
	Artillery, 155 MM HE	140	35
TA Y-5_CR	Artillery, 105 MM Inert	53	13
	Artillery, 105 MM HE	682	170
	Artillery, 155 MM Inert	15	4
	Artillery, 155 MM HE	87	22
TEMP MORTAR	Mortar, 60 MM Inert	77	19
	Mortar, 81 MM Inert	154	38
	Mortar, 81 MM HE	65	16
	Mortar, 120 MM Inert	95	24
	Mortar, 120 MM HE	50	12

(OPERATIONS ARE ROUNDED TO PREVENT FRACTIONAL EVENTS)

**C.3 LOS ALAMITOS ARMY AIRFIELD FLIGHT OPERATIONS DATA**

Annual total: 46017

Average ops per day: 126

OWNER	AIRCRAFT	DAYTIME OPERATIONS (0700-1900)	EVENING OPERATIONS (1900-2200)	NIGHTTIME OPERATIONS (2200-0700)
Military	AH-1	1041	91	0
	CH-46	208	18	0
	CH-47	460	115	0
	CH-53	1769	154	0
	MV-22	103	9	0
	UH-1	35	9	0
	UH-60	6472	1618	0
	C-17	416	36	0
	T-6	1873	163	0
Police	AS-350	14077	2484	0
	B-206	3228	570	0
	H-500	1384	244	0
	C-208	1384	244	0
Coast Guard	AS-365	3696	652	0
Misc.	B-90	1821	37	0
	B-200	1574	32	0
<b>TOTAL</b>		<b>39541</b>	<b>6476</b>	<b>0</b>

(OPERATIONS ARE ROUNDED TO PREVENT FRACTIONAL EVENTS)

## D REFERENCES

Air Force Instruction, AFI 32-7063, 15 July 2015, Air Installations Compatible Use Zones Program

CAARNG Statewide Operational Noise Management Plan September 2004

California National Guard Year in Review, 2012

Camp Roberts JLUS Final June 2013

Camp Roberts Military Installation Air Procedure Guide, 8 July 2013 (Draft)

Camp Roberts Regulation 350-1, Use of Facilities and Training Areas, May 2014

DODI, 1977, Department of Defense Instruction 4165.57, Air Installation Compatible Use Zones.

DODI, 2004, Department of Defense Instruction 3030.3, Joint Land Use Study (JLUS) Program.

Email correspondence with Range Operations Manager at Camp Roberts, 22/28 April 2015.

Email correspondence with MSG Wilson, CLSO, Post OPS NCO, May 2015

Email correspondence with CW4 Rosamond at AASF#2 on 2 June 2015.

Email correspondence with CW4 Gatewood on 4 June 2015

FICUN, 1980, Guidelines for Considering Noise in Land Use Planning and Control.

JFTB Regulation 95-1, Flight Regulations for Los Alamitos Army Airfield, 19 October 2012

Pater, 1976, "Noise Abatement Program for Explosive Operations at NSWC/DL," Presented at the 17<sup>th</sup> Explosives Safety Seminar of the DOD Explosives Safety Board.

Phone interview with Air Traffic Control Specialist, SSG Munoz, Camp Robert Airspace Information Center, 29 April 2015

Public Law 92-574, 1972, 92<sup>nd</sup> U.S. Congress, Noise Control Act of 1972.

Public Law 95-609, 1978, 95<sup>th</sup> U.S. Congress, Quiet Communities Act of 1978.

Rylander, *et al.*, 1974, "Re-Analysis of Aircraft Noise Annoyance Data against the dBA Peak Concept," *Journal of Sound and Vibration*, Volume 36, pages 399-406.

Siskind, 1989, "Vibrations and Airblast Impacts on Structures from Munitions Disposal Blasts," Proceedings, Inter-Noise 89, G. C. Maling, JR., editor, pages 573-576.

U.S. Air Force, 2005, SELcalc2 Noise Model, Wright-Patterson Air Force Base, OH.

U.S. Army 1983, USAEHA Environmental Noise Assessment No. 52-34-0415-83, Noise Levels from Machine Guns, Grenade and Artillery simulators from Training at Sudbury Annex, Fort Devens, MA, 23-24 March 1983.

U.S. Army, 1984, Army Environmental Hygiene Agency, Environmental Noise Assessment No. 52-34-0442-84, Noise Measurement Study, Camp Bullis, Texas, 27 February – 2 March 1984.

U.S. Army 1989, USAEHA Environmental Noise Assessment No. 52-34-0447-89, Results of Monitoring Edgewood Area Field Training Exercise Site, Aberdeen proving Ground, MD, June 1989.

U.S. Army, 1999, Center for Health Promotion and Preventive Medicine, Health Hazard Assessment Report on the 40mm XM1001 Canister Cartridge for the MK-19 Mod 3 Grenade Machine Gun, No. 69-37-2735-00, November 1999.

U.S. Army, 2003, U.S. Army Construction Engineering Research Laboratories, SARNAM Computer Model, Version 2.6. 2003-06-06.

U.S. Army, 2007, Army Regulation 200-1, Environmental Protection and Enhancement, Chapter 14 Operational Noise.

U.S. Army, 2009, U.S. Army Construction Engineering Research Laboratories, BNOISE2 Computer Model, Version 1.3 2009-11. 30.

U.S. Census Bureau, 2015.

U.S. Air Force, 2005a, NOISEMAP/BASEOPS, Wright-Patterson Air Force Base, OH.

U.S. Air Force, 2005b, SELcalc2 Noise Model, Wright-Patterson Air Force Base, OH.

Regulation 350-1, Training at Camp San Luis Obispo, 02 January 2012

Rylander, et. al., 1974, "Re-Analysis of Aircraft Noise Annoyance Data Against the dBA Peak Concept", Journal of Sound and Vibration, Volume 36, pages 399 - 406.

Rylander and Bjorkman, 1988, "Maximum Noise Levels as Indicators of Biological Effects", Journal of Sound and Vibration, Volume 127, pages 555 - 563.

Stanton, Shelby L. (1984). *Order of Battle: U.S. Army World War II*. Novato, California: Presidio Press. p. 602.

U.S. Army 1983, USAEHA Environmental Noise Assessment No. 52-34-0415-83, Noise Levels from Machine Guns, Grenade and Artillery simulators from Training at Sudbury Annex, Fort Devens, MA, 23-24 March 1983.

U.S. Army 1984, USAEHA Environmental Noise Assessment No. 52-34-0442-84, Noise Measurement Study, Camp Bullis, Texas, 27 February – 2 March 1984.

U.S. Army 1989, USAEHA Environmental Noise Assessment No. 52-34-0447-89, Results of Monitoring Edgewood Area Field Training Exercise Site, Aberdeen Proving Ground, MD, June 1989.

URL:

<http://www.census.gov>

[http://www.opr.ca.gov/s\\_military.php](http://www.opr.ca.gov/s_military.php)

<http://www.camprobertshistoricalmuseum.com/Mission.html>

<http://www.globalsecurity.org/military/facility/camp-san-luis-obispo.htm>

<http://www.globalsecurity.org/military/facility/mather.htm>

<http://www.calguard.ca.gov/JFTB-LosAl>

<http://www.airnav.com/airport/KSCK>

<http://www.calguard.ca.gov/AASF-SAC>